Key figures on Europe | 2017 edition

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Foreword

Our statistical book *Key figures on Europe* provides you with a selection of the most important and interesting statistics on Europe. Drawing from the huge amount of data available at Eurostat, we aim to give an insight into the European economy, society and environment — for example, how the population of the European Union is changing, how living conditions vary between EU Member States or how the economy is performing compared with large countries, such as China, Japan and the United States. I hope that you will find information of interest both for your work and your daily life.

You can find the content of this book, in a much richer form, in the continuously updated online publication *Europe in figures — Eurostat yearbook*. The latest and most complete data can be downloaded from the *Eurostat website*.

Eurostat is the statistical office of the European Union, situated in Luxembourg. Its mission is to provide high quality statistics for Europe. Working together with national statistical authorities in the European Statistical System, we produce official statistics which meet the highest possible standards of quality.

I wish you an enjoyable reading experience!

Mariana Kotzeva

Acting Director-General, Eurostat

Abstract

Key figures on Europe presents a selection of statistical data on Europe. Most data cover the European Union and its Member States, while some indicators are provided for other countries, such as members of the European Free Trade Association, the enlargement countries, China, Japan or the United States. This publication, which presents a subset of the most popular information found in the continuously updated online publication *Europe in figures — Eurostat yearbook* (available through http://ec.europa.eu/eurostat/statistics-explained), may be viewed as an introduction to European statistics and provides a starting point for those who wish to explore the wide range of data that is freely available on Eurostat's website at: http://ec.europa.eu/eurostat.

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For more information please consult

Eurostat website: http://ec.europa.eu/eurostat
Statistics Explained: http://ec.europa.eu/eurostat/statistics-explained

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Structure of the publication

Key figures on Europe presents a subset of the most popular information found in the continuously updated online publication *Europe in figures — Eurostat yearbook* (available in http://ec.europa.eu/eurostat/statistics-explained/index.php/Europe_in_figures_-_Eurostat_yearbook).

It provides users of official statistics with an overview of the wealth of information that is available on Eurostat's website and within its online databases. It has been conceived as a publication that provides a balanced set of indicators, with a broad cross-section of information.

Key figures on Europe is divided into an introduction and 13 main chapters. The introduction includes information concerning data extraction, the data coverage and more generally how to access to European statistics.

The main chapters of this publication treat the following areas: population; living conditions; health; education and training; labour market; economy and finance; international trade; agriculture, forestry and fisheries; industry, trade and services, science, technology and digital society; environment; energy; and transport.

Each of the main chapters contains data and/or background information relating to a very wide range of European statistics. A great deal more information can be found when consulting Eurostat's website, which contains subject specific publications and online databases.

Data extraction and coverage

Data extraction

The statistical data presented in this publication are the ones analysed in the continuously updated online publication *Europe in figures — Eurostat yearbook*. The accompanying text was drafted between May and August 2017.

Spatial data coverage

This publication usually presents information for the EU-28 (an aggregate/average covering the 28 Member States of the EU), the euro area (EA-19, based on a fixed composition of its current 19 members), as well as the individual EU Member States. In tables, the order of the Member States generally follows the protocol order; in other words, the alphabetical order of the countries' names in their respective original languages; in figures the data are usually ranked according to the values for (one of) the indicator(s) illustrated.

In this publication the geographical descriptions and the use of the terms 'northern', 'eastern', 'southern' and 'western' Europe are not meant as political categorisations. The references in the text are made in relation to the geographical location of EU Member States within Europe.

The EU and euro area aggregates are normally only provided when information for all of the EU Member States is available, or if an estimate has been made for missing information; any incomplete totals that are created are systematically footnoted. Time series for these geographical aggregates are equally based on a consistent set of countries for the whole of the time period (unless otherwise indicated). In other words, the time series for EU-28 refer to a sum or an average for all 28 countries for the whole of the period presented, as if all 28 Member States had been part of the EU in earlier periods.

When available, information is also presented for EFTA and enlargement countries. EFTA countries are Iceland, Liechtenstein, Norway and Switzerland. Candidate countries are Montenegro, the former Yugoslav Republic of Macedonia, Albania, Serbia and Turkey. Potential candidates are Bosnia and Herzegovina, and Kosovo. The designation of Kosovo is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence. In the event that data for any of these non-member countries are not available, then these have been excluded from tables and figures; however, the full set of 28 Member States is maintained in tables, with footnotes being added in figures for those EU Member States for which information is missing.

Data from China, Japan and the United States are also included in a few figures in chapters 6 and 10.

Temporal data coverage

If data for a reference year (or reference period) are not available for a particular country, then efforts have been made to fill tables and figures with data for previous reference years (these exceptions are footnoted). Generally, an effort has been made to go back at least two reference years, for example showing data for 2014 or 2015 for those countries (or geographical aggregates) for which 2016 data are not yet available.

Data presentation

Eurostat's online databases contain a large amount of metadata that provides information on the status of particular values or data series. In order to improve readability, only the most significant information has been included in the tables and figures. The following symbols are used in tables, where necessary:

Italic	data value is forecasted, provisional or estimated and is likely to change;
:	not available, confidential or value with low reliablity;
–	not applicable.

Breaks in series are indicated in the footnotes provided under each table and figure.

Accessing European statistics

The simplest way to obtain Eurostat's wide range of statistical information is through its website (http://ec.europa.eu/eurostat). Eurostat provides users with free access to its databases and all of its publications in portable document format (PDF) via the internet. The website is updated daily and presents the latest and most comprehensive statistical information available on the EU, its Member States, EFTA countries, as well as enlargement countries.

Eurostat online data codes, such as tps00001 and nama_10_gdp, allow easy access to the most recent data on Eurostat's website. In this statistical book these online data codes are given as part of the source below each table and figure. In the PDF version of this publication, the reader is led directly to the freshest data when clicking on the hyperlinks that form part of each online data code. Online data codes lead to either a two- or three-dimensional table in the TGM (tables, graphs, maps) interface or to an open dataset which generally contains more dimensions and longer time series using the Data Explorer interface.

Online data codes can also be fed into the 'Search' function on Eurostat's website, which is presented in the top right-hand corner of most Eurostat webpages. The results from such a search present related dataset(s), publications, news releases, news articles, dedicated sections and other information. By clicking on these hyperlinks users are taken to the appropriate dedicated section or to product page(s).

1 Population

Introduction

Since 2008, the total number of inhabitants in the EU-28 has been above 500 million; the only countries in the world that are more populous than the European Union (EU) are China and India. Recent demographic developments show that the number of inhabitants in the EU continues to increase, albeit it at a relatively slow pace, while the structure of the population is becoming increasingly dominated by a growing share of older persons, as post-war, baby-boom generations reach retirement.

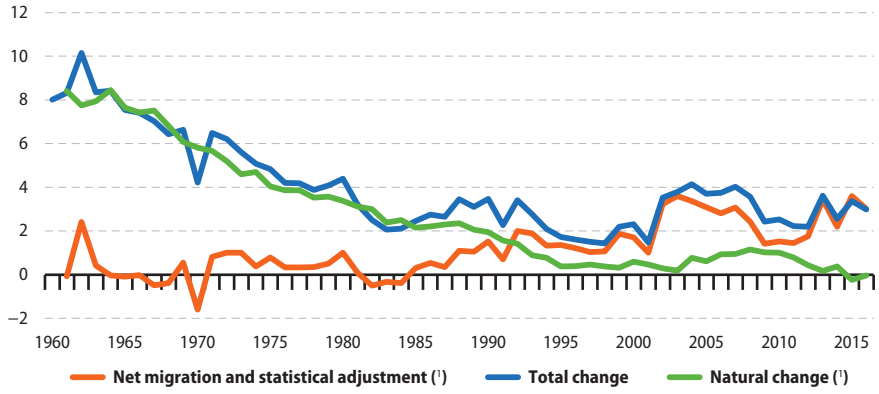
Population change has been high on political, economic and social agendas in recent years and demographic developments for population growth, fertility, mortality and migration are closely followed by policymakers.

Improvements in healthcare and medicines, healthier lifestyles and improved health awareness have contributed towards people living longer; indeed, life expectancy within the EU is at historically high levels.

1.1 Population and population change

The current demographic situation in the EU-28 is characterised by continuing population growth (see Figure 1.1). While the population of the EU-28 as a whole increased during 2016, the population of 10 EU Member States declined. The latest information available is also of interest, as 2016 was the second year (since the series began in 1961) when there was a slight natural decrease in the EU-28. The population change (positive, with 1.5 million more inhabitants) was therefore due to net migration.

Figure 1.1: Population change by component (annual crude rates), EU-28, 1960-2016
(per 1 000 persons)



Note: Excluding French overseas departments up to and including 1997. Breaks in series: 1991, 2000-2001, 2008, 2010-2012 and 2014-2016.

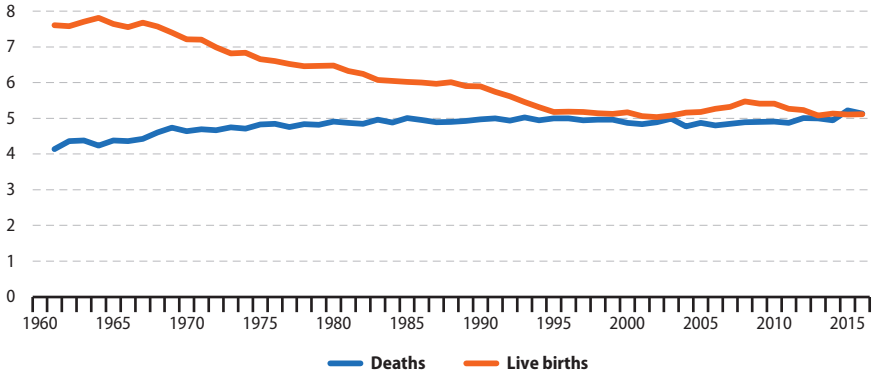
(1) 1960: not available.

Source: Eurostat (online data code: demo_gind)

On 1 January 2017 the population of the EU-28 was estimated at 511.8 million inhabitants, which was 1.5 million more than a year before. The rate of population growth has slowed gradually in recent decades: for example, the EU-28's population increased, on average, by about 1.5 million persons per year during the period 2005-2017, compared with an average increase of around 3.3 million persons per year during the 1960s.

The gap between live births and deaths in the EU-28 narrowed considerably from 1961 onwards (see Figure 1.2). In recent years, the difference between births and deaths (the natural change in population) has been very low and — as noted above — a natural decrease in population numbers has been recorded since 2015 when the number of deaths passed the number of births. Since the number of deaths is expected to increase as the baby-boom generation continues to age, and assuming that the fertility rate remains at a relatively low level, negative natural population change (more deaths than births) could well continue. In this case, the EU-28's overall population decline or growth is likely to depend largely on the contribution made by migration.

Figure 1.2: Births and deaths, EU-28, 1961-2016
(million)



Note: 1960: not available. Excluding French overseas departments up to and including 1997.

Source: Eurostat (online data code: demo_gind)

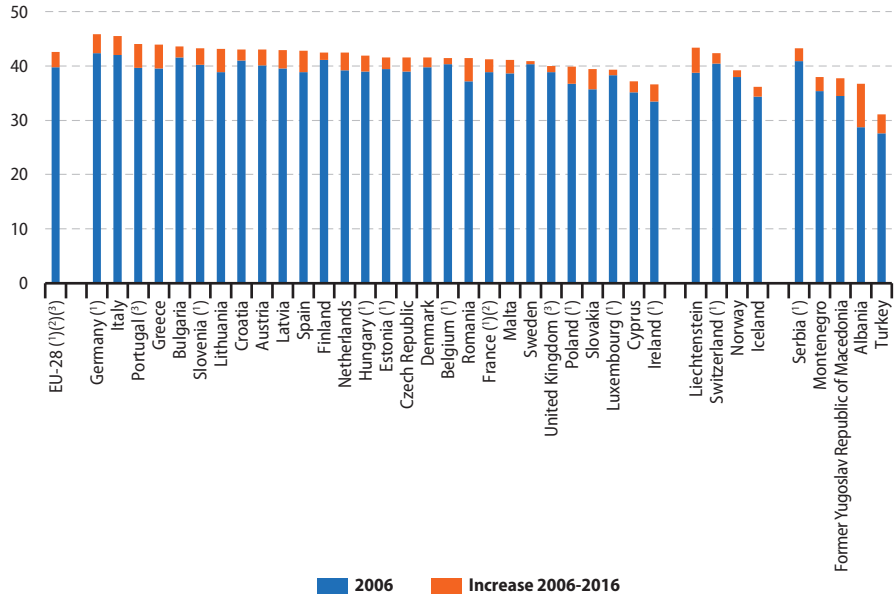
1.2 Population structure and ageing

The median age of the EU-28's population was 42.6 years on 1 January 2016 (see Figure 1.3). This means that half of the EU-28's population was older than 42.6 years, while half was younger. Across the EU Member States the median age ranged between 36.6 years in Ireland and 45.8 years in Germany, confirming the relatively young and relatively old population structures recorded in each of these two Member States. The median age recorded in Turkey (31.1 years), as well as Iceland (36.1 years) in 2016 was lower than in any of the EU Member States.

The median age in the EU-28 increased by 2.8 years between 2006 and 2016, rising from 39.8 years to 42.6 years. Between 2006 and 2016 the median age increased in all of the EU Member States, rising by 4.0 or more years in Portugal, Greece, Lithuania, Romania and Spain.

Population ageing is a long-term trend which began several decades ago in Europe. This trend is visible in the transformations of the age structure of the population and is reflected in an increasing share of older persons coupled with a declining share of working-age persons in the total population. The share of the population aged 65 years and over is increasing in every EU Member State, EFTA country and candidate country. The growth in the relative share of older people may be explained by increased longevity, a pattern that has been apparent for several decades as life expectancy has risen.

Figure 1.3: Median age of population, 2006-2016
(years)



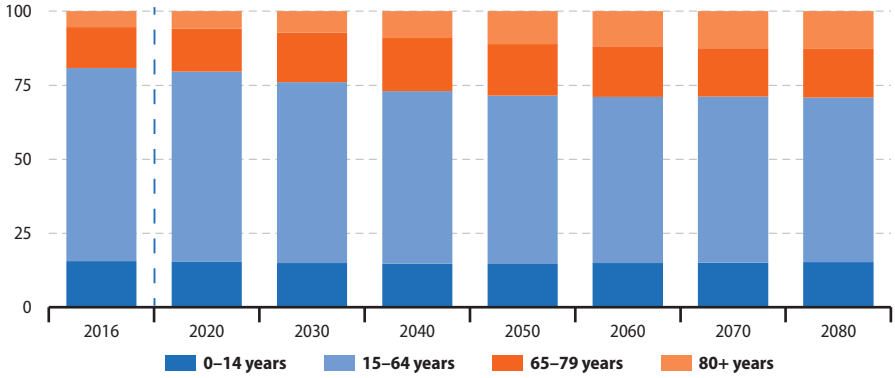
(1) Break in series.
(2) 2016: provisional.
(3) 2016: estimate.

Source: Eurostat (online data code: demo_pjanind)

In an attempt to look at future trends for population ageing, Eurostat's latest set of population projections (EUROPOP2015) were made covering the period from 2015 to 2080. In the coming decades, the high number of 'baby boomers' will swell the number of elderly people. Another aspect of population ageing is the progressive ageing of the older population itself, as the relative importance of the very old is growing at a faster pace than any other age segment of the EU's population. The share of those aged 80 years or above in the EU-28's population is projected to more than double between 2016 and 2080, from 5.4 % to 12.7 % (see Figure 1.4).

During the period from 2016 to 2080 the share of the population of working age is expected to decline steadily through until 2050 before stabilising somewhat, while older persons will likely account for an increasing share of the total population: those aged 65 years or over will account for 29.1 % of the EU-28's population by 2080, compared with 19.2 % in 2016.

Figure 1.4: Population structure by major age groups, EU-28, 2016-2080
(% of total population)



Note: 2016, estimate and provosional. 2020-2080: projections (EUROPOP2015).

Source: Eurostat (online data codes: demo_pjangroup and proj_15ndbims)

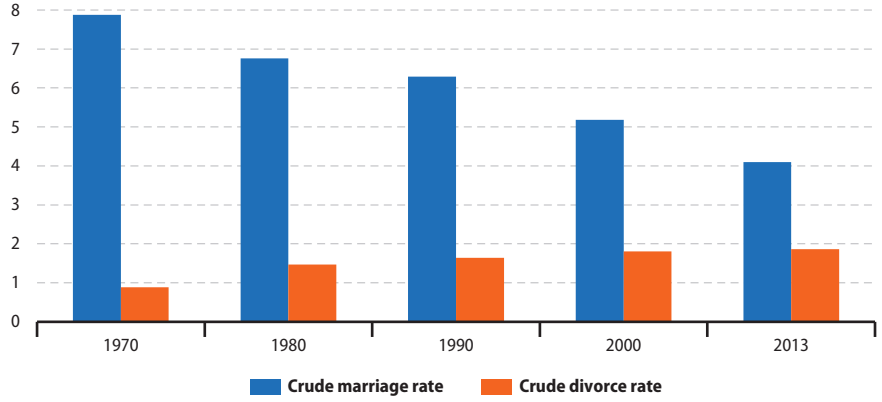
1.3 Marriage and divorce

Marriage, as recognised by the law of each country, has long been considered to mark the formation of a family unit. However, the analysis of trends in family formation and dissolution based on just marriage and divorce data might not offer a full picture. Legal alternatives to marriage, like registered partnership, have become more widespread and national legislation has changed to confer more rights on unmarried couples. Recent demographic data show that the number of marriages per 1 000 persons decreased within the EU-28 in recent decades, while the number of divorces increased. Part of this increase may be due to the fact that in several EU Member States divorce was legalised during the period (for example, in Italy, Spain, Ireland and Malta).

Some 2.1 million marriages and 943 thousand divorces took place in the EU-28 in 2013, according to the most recent data available for all EU Member States. These figures may be expressed as 4.1 marriages for every 1 000 persons (in other words the crude marriage rate) and 1.9 divorces for every 1 000 persons (in other words the crude divorce rate) — see Figure 1.5.

Figure 1.6 shows that in 2015 the crude marriage rate was highest, among those countries for which data are available, in Albania (8.7 marriages per 1 000 persons) and Turkey (7.7), both non-member countries. Among the EU Member States the highest rate were in Lithuania (7.6), Cyprus (7.2) and Malta (7.0). The lowest crude marriage rates were reported in Portugal and Slovenia (both 3.1 marriages per 1 000 persons).

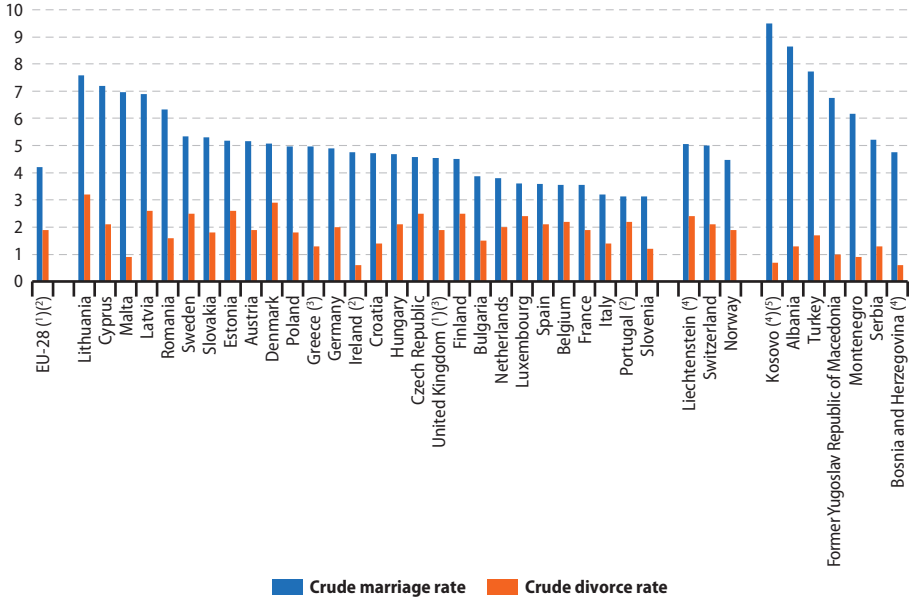
Figure 1.5: Crude marriage and divorce rates, EU-28, selected years from 1970 to 2013
(per 1 000 persons)



Note: change in time interval on the x-axis. Excluding French overseas departments for 1970 to 1990.
Source: Eurostat (online data codes: demo_nind and demo_ndivind)

As regards divorce, in 2015 Montenegro (0.9 per 1 000 persons) and the former Yugoslav Republic of Macedonia (1.0) had the lowest crude rates. Among the EU Member States the lowest crude rates were in Ireland (0.6, 2013 data) and Malta (0.9); in general southern or eastern Member States — Slovenia (1.2), Greece (1.3, 2014 data), Italy and Croatia (both 1.4), Bulgaria (1.5) — had low crude rates. By contrast, divorce rates were higher in several northern Member States, notably Lithuania (3.2 .divorces per 1 000 persons) and Denmark (2.9).

Figure 1.6: Crude marriage rate and crude divorce rate, 2015
(per 1 000 persons)



(1) Crude marriage rate: 2014.
(2) Crude divorce rate: 2013.
(3) Crude divorce rate: 2014.
(4) 2012.
(5) According to UNSCR 1244/99.

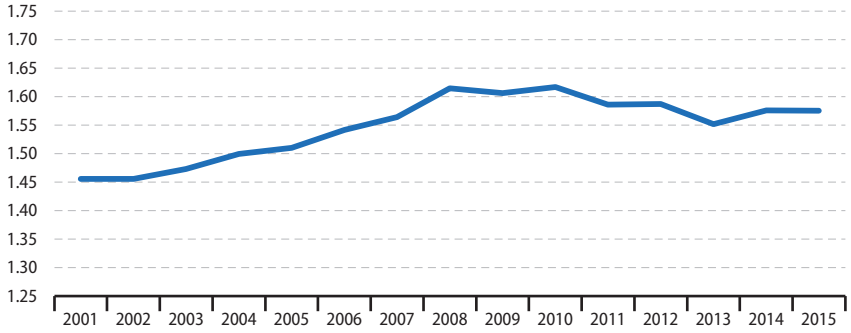
Source: Eurostat (online data codes: demo_nind and demo_ndivind)

1.4 Fertility

The most widely used indicator of fertility is the total fertility rate: this is the mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year. A total fertility rate of around 2.1 live births per woman is considered to be the replacement level in developed countries: in other words, the average number of live births per woman required to keep the population size constant in the absence of migration. A total fertility rate below 1.3 live births per woman is often referred to as 'lowest-low fertility'. The total fertility rate is comparable across countries since it takes into account changes in the size and structure of the population .

Fertility rates steadily declined from the mid-1960s through to the turn of the century in the EU Member States. However, at the beginning of the 2000s, the total fertility rate in the EU-28 displayed signs of rising again. This development stopped in 2010 and a subsequent decline was observed through to a relative low in 2013, followed by a slight increase in 2014 and no change in 2015 (see Figure 1.7).

Figure 1.7: Total fertility rate, EU-28, 2001-2015
(live births per woman)

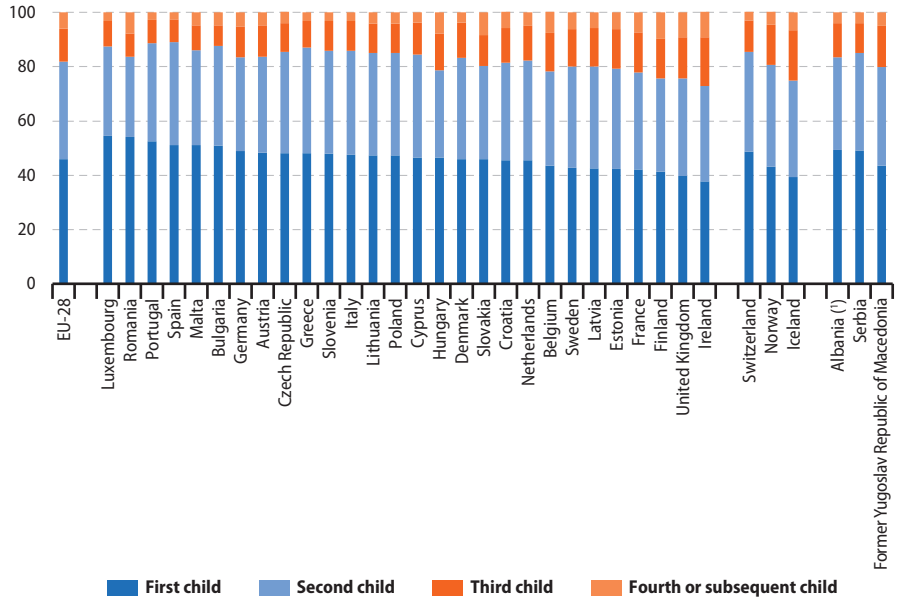


Note: 2010-2012, 2014 and 2015: break in series. 2013-2015: provisional.
Source: Eurostat (online data code: demo_find)

In 2015, 5.1 million children were born in the EU-28 . Close to half (45.9 %) of them were first born children, with this share exceeding half in Luxembourg, Romania, Portugal, Spain, Malta and Bulgaria (see Figure 1.8). By contrast, the lowest shares of first born children were recorded in Ireland (37.8 %), the United Kingdom (39.8 %) and Finland (41.3 %).

In the EU-28, more than one third (36.0 %) of all live births in 2015 were of second born children, just over one tenth (12.2 %) were of third born children, and the remaining 5.9 % were of fourth born or subsequent children. Across the EU Member States, the highest share of the total number of live births ranked fourth or subsequent was recorded in Finland (9.7 %), followed by Ireland (9.3 %) and the United Kingdom (9.2 %).

Figure 1.8: Share of live births by birth order, 2015
(%)



(1) 2014.

Source: Eurostat (online data code: demo_find)

1.5 Mortality and life expectancy

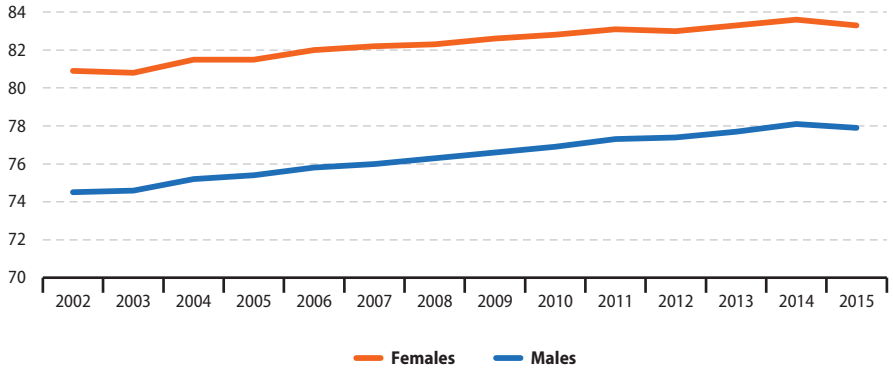
The most commonly used indicator for analysing mortality is life expectancy at birth: the mean number of years that a person can expect to live at birth if subjected to current mortality conditions throughout the rest of his or her life. It is a simple but powerful way of illustrating the developments in mortality.

Life expectancy at birth rose rapidly during the last century due to a number of factors, including reductions in infant mortality, rising living standards, improved lifestyles and better education, as well as advances in healthcare and medicine.

Life expectancy at birth in the EU-28 declined slightly in 2015 (see Figure 1.9). It was estimated at 80.6 years (0.3 years lower than 2014), reaching 83.3 years for women (0.3 years lower than 2014), and 77.9 years (0.2 years lower than 2014) for men.

This was the first decline in EU-28 life expectancy since the year 2002, when life expectancy data became available for all EU Member States, and it can be observed in the majority of the Member States.

Figure 1.9: Life expectancy at birth, EU-28, 2002-2015
(years)

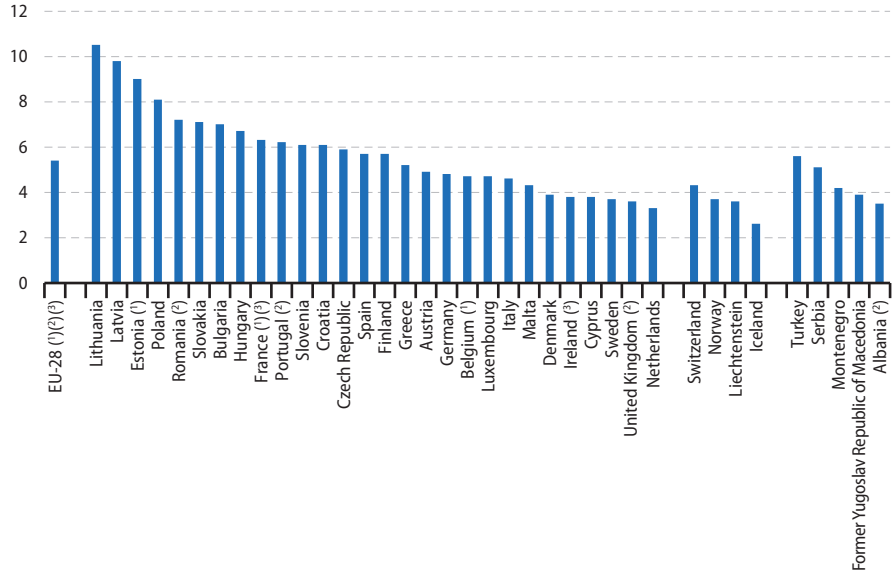


Note: 2010, 2011, 2012, 2014 and 2015, breaks in series. 2013, 2014 and 2015: estimate and provisional.
Source: Eurostat (online data code: demo_mlexpec)

In 2015, the differences between the highest and lowest life expectancies among EU Member States amounted to 11.2 years for men and 7.6 for women. For men, the lowest life expectancy was recorded in Lithuania (69.2 years) and the highest in Sweden (80.4 years). For women, the range was from a low of 78.2 years in Bulgaria to a high of 85.8 years in Spain.

With a gender gap of 5.4 years of life in 2015, newly born women in the EU-28 should generally expect to outlive men. Furthermore, this gap varied substantially between EU Member States. In 2015, the largest difference between the sexes was found in Lithuania (10.5 years) and the smallest in the Netherlands (3.3 years) — see Figure 1.10.

Figure 1.10: Life expectancy at birth, gender gap, 2015
(years, female life expectancy – male life expectancy)



(1) Break in series.
(2) Estimate.
(3) Provisional.

Source: Eurostat (online data code: demo_mlexpec)

1.6 Migration and migrant population

Migration is influenced by a combination of economic, environmental, political and social factors: either in a migrant's country of origin (push factors) or in the country of destination (pull factors). Historically, the relative economic prosperity and political stability of the EU are thought to have exerted a considerable pull effect on immigrants.

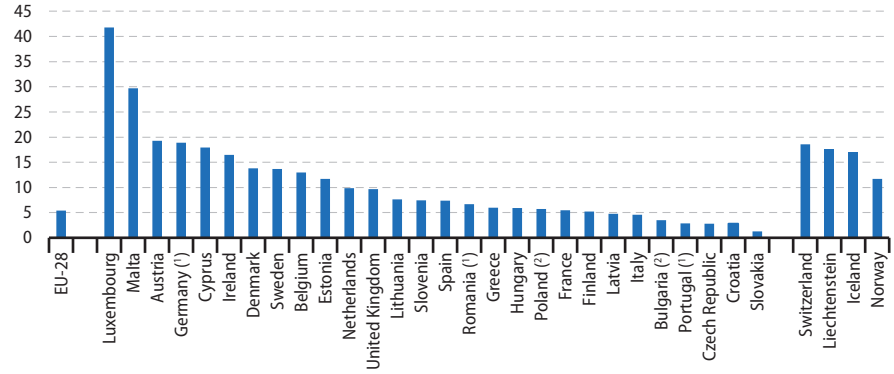
In destination countries, international migration may be used as a tool to solve specific labour market shortages. However, migration alone will almost certainly not reverse the ongoing trend of population ageing experienced in many parts of the EU.

A total of 4.7 million people immigrated to one of the EU-28 Member States during 2015, while at least 2.8 million emigrants were reported to have left an EU Member State. These total figures do not represent the migration flows to/from the EU as a whole, since they also include flows between different EU Member States.

Among these 4.7 million immigrants during 2015, there were an estimated 2.4 million citizens of non-member countries, 1.4 million people with citizenship of a different EU Member State from the one to which they immigrated, around 860 thousand people who migrated to an EU Member State of which they had the citizenship (for example, returning nationals or nationals born abroad), and some 19 thousand stateless people.

A total of 17 of the EU Member States reported more immigration than emigration in 2015, but in Bulgaria, Ireland, Greece, Spain, Croatia, Cyprus, Poland, Portugal, Romania, Latvia and Lithuania, the number of emigrants outnumbered the number of immigrants.

Figure 1.11: Immigrants, 2015
(per 1 000 inhabitants)



(1) Estimate.
(2) Provisional.

Source: Eurostat (online data codes: migr_imm1ctz and migr_pop1ctz)

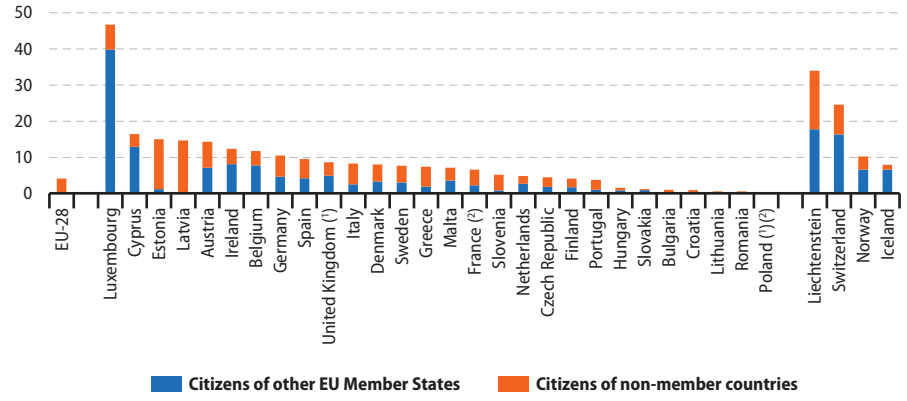
Relative to the size of the resident population, Luxembourg recorded the highest rates of immigration in 2015 (42 immigrants per 1 000 persons), followed by Malta (30 immigrants per 1 000 persons), Austria and Germany (both 19 immigrants per 1 000 persons) — see Figure 1.11. The highest rates of emigration in 2015 were reported for Luxembourg (22 emigrants per 1 000 persons), Cyprus (20 emigrants per 1 000 persons) and Malta (20 emigrants per 1 000 persons).

The number of people residing in an EU Member State with citizenship of a non-member country on 1 January 2016 was 20.7 million, representing 4.1 % of the EU-28 population. In addition, there were 16.0 million persons living in one of the EU Member States on 1 January 2016 with the citizenship of another EU Member State.

In relative terms, the EU Member State with the highest share of non-nationals was Luxembourg, as non-nationals accounted for 47 % of its total population. A high proportion of non-nationals (10 % or more of the resident population) was also observed in Cyprus, Estonia, Latvia, Austria, Ireland, Belgium and Germany.

In most EU Member States, the majority of non-nationals were citizens of non-member countries (see Figure 1.12); the opposite was true only for Belgium, Ireland, Cyprus, Luxembourg, Hungary, Malta, the Netherlands, Slovakia and the United Kingdom. In the case of Latvia and Estonia, the proportion of citizens from non-member countries is particularly large due to the high number of recognised non-citizens (mainly former Soviet Union citizens, who are permanently resident in these countries but have not acquired any other citizenship).

Figure 1.12: Share of non-nationals in the resident population, 1 January 2016
(%)



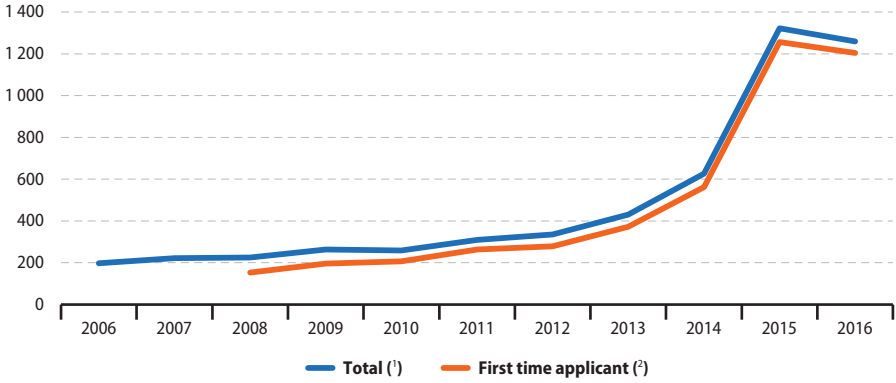
(1) Estimate.
(2) Provisional.

Source: Eurostat (online data code: migr_pop1ctz)

1.7 Asylum

Asylum is a form of international protection given by a state on its territory. It is granted to a person who is unable to seek protection in his/her country of citizenship and/or residence, in particular for fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion.

Figure 1.13: Asylum applications (non-EU) in the EU-28 Member States, 2006-2016
(thousands)



(1) 2006 and 2007: EU-27 and extra-EU-27.
(2) 2006 and 2007: not available.

Source: Eurostat (online data codes: migr_asyctz and migr_asyappctza)

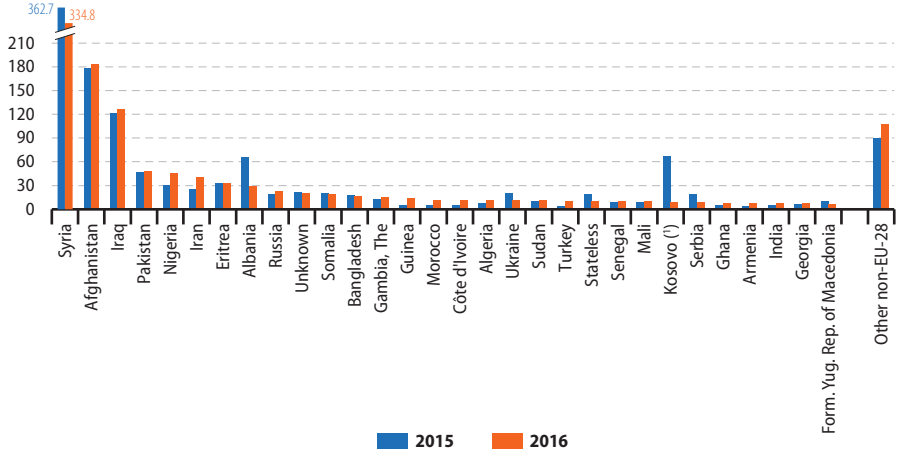
Focusing just on applications from citizens of non-member countries (see Figure 1.13), there was a gradual increase in the number of asylum applications within the EU-27 and later the EU-28 through to 2012, after which the number of asylum seekers rose at a more rapid pace, with 431 thousand applications in 2013, 627 thousand in 2014 and around 1.3 million in both 2015 and 2016.

The number of first time asylum applicants in the EU-28 (1) in 2016 was 53 thousand (about 4 %) less than the total number of applicants. A first time applicant for international protection is a person who lodged an application for asylum for the first time in a given EU Member State and therefore excludes repeat applicants (in that Member State) and so more accurately reflects the number of newly arrived persons applying for international protection in the reporting Member State.

(1) The EU total is calculated as an aggregation of Member States data. Member State data refer to the number of persons applying for asylum for the first time in that Member State. Persons may however apply for international protection in more than one Member State in a given reference year. Consequently, the EU total may include such multiple applications. Based on an estimate using latest available Dublin statistics, around 6 % of asylum applicants in the EU have applied for asylum in more than one EU Member State during the same year.

The figure for 2016 marked a decrease of 53 thousand first time applicants across the EU-28 in comparison with the year before, as the number of first time applicants fell from almost 1.26 million in 2015 to 1.20 million in 2016; this followed on from an increase of 694 thousand first time applicants between 2014 and 2015.

Figure 1.14: Countries of origin of (non-EU) asylum seekers in the EU-28 Member States, 2015 and 2016
(thousands of first time applicants)



(1) According to UNSCR 1244/99.

Source: Eurostat (online data code: migr_asyappctza)

In 2016, the number of first time asylum applicants in the EU-28 from Syria fell back slightly to 335 thousand from 363 thousand in 2015 (see Figure 1.14); the share of Syrian citizens in the total dropped from 28.9 % to 27.8 %. Afghani citizens accounted for 15 % of the total number of first time asylum applicants and Iraqis for 11 %, while Pakistanis and Nigerians accounted for 4 % each. Among the most numerous groups of citizenship of asylum applicants in the EU-28 in 2016, the largest relative increases compared with 2015 were recorded for Nigerians (share up 1.4 percentage points (p.p.)) and Iran (up 1.3 p.p.). There was also considerable growth in relative terms in the number of applicants from Afghanistan and Iraq (in Asia), Guinea, Morocco and Côte d'Ivoire (in Africa), as well as Turkey. The biggest relative fall in the number of applicants, among the most common countries of citizenship for asylum seekers in 2016, was recorded for Albania and Kosovo (2) in the Western Balkans. Between 2015 and 2016, Turkey, Morocco, Armenia and India moved into the top 30 non-member countries from which the EU-28 Member States received (first time) asylum applications, while Bosnia and Herzegovina, the Democratic Republic of Congo, China and Ethiopia moved out of it.

(2) According to UNSCR 1244/99.

2 Living conditions

Introduction

The Europe 2020 strategy for smart, sustainable and inclusive growth put forward by the European Commission provides a growth strategy for the current decade. The European platform against poverty and social exclusion is one of seven flagship initiatives — its goals include:

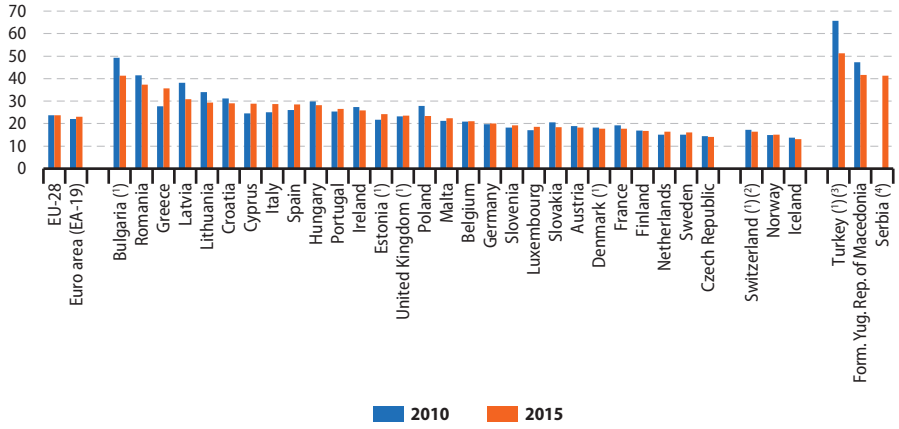
- ensuring economic, social and territorial cohesion;
- guaranteeing respect for the fundamental rights of people experiencing poverty and social exclusion, and enabling them to live in dignity and take an active part in society;
- mobilising support to help people integrate into the communities where they live, get training and help them to find a job and have access to social benefits.

To measure the progress being made, one of the five headline targets that form part of the Europe 2020 strategy is for there to be at least 20 million fewer people in or at-risk-of-poverty and social exclusion across the European Union (EU) by 2020; this goal was subsequently translated into national targets for individual EU Member States, reflecting their specific challenges and circumstances.

2.1 Social inclusion

As multi-dimensional concepts, poverty and social exclusion cannot easily be measured through statistics. As a result, both monetary and non-monetary indicators have been developed, such as the at-risk-of-poverty rate, the at-risk-of-poverty threshold, the severe material deprivation rate and the share of people living in households with very low work intensity.

Figure 2.1: Proportion of the population at-risk-of-poverty or social exclusion, 2010 and 2015
(%)



(1) Break in series.
(2) 2014 instead of 2015.
(3) 2013 instead of 2015.
(4) 2010: not available.

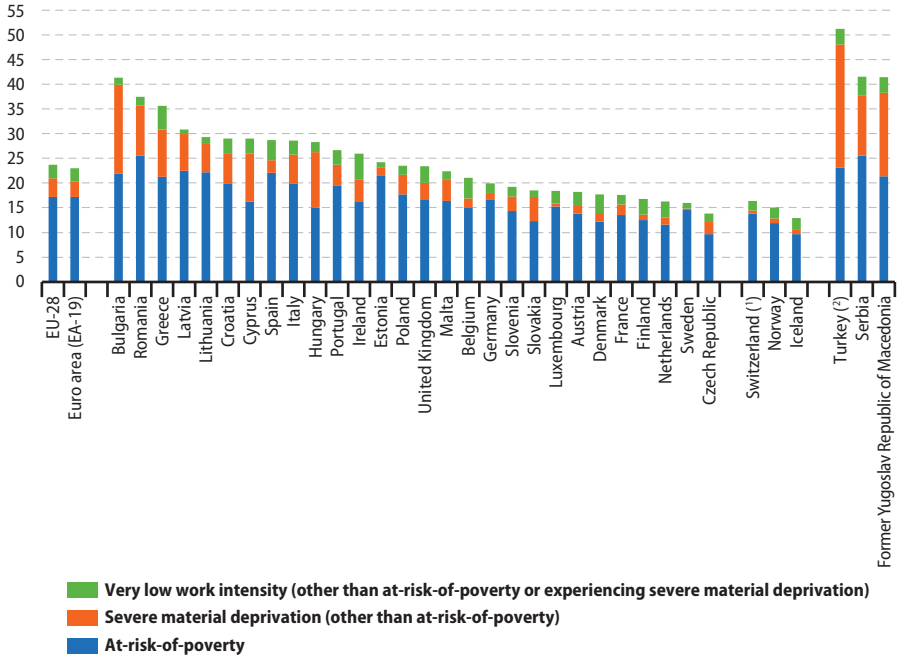
Source: Eurostat (online data code: ilc_peps01)

In 2015, there were 118.8 million people in the EU-28, equivalent to 23.7 % of the entire population, who lived in households facing poverty or social exclusion (see Figure 2.1). The proportion of the EU-28 population that was at-risk-of-poverty or social exclusion rose from 23.7 % in 2010 to 24.7 % in 2012, before falling gradually in 2013 and 2014 and falling at a faster pace (−0.7 percentage points (p.p.)) in 2015 to return to the same proportion as in 2010.

In Bulgaria, just over two fifths (41.3 %) of the population was considered to be at-risk-of-poverty or social exclusion in 2015, while in Romania (37.4 %) and Greece (35.7 %) the proportion was more than one third of the population (see Figure 2.2). The latest data show that over a quarter of the population was also considered to be at-risk-of-poverty or social exclusion in nine other EU Member States: Latvia, Lithuania, Croatia, Cyprus, Italy, Spain, Hungary, Portugal and Ireland.

The EU Member States with the lowest proportions of their population considered to be at-risk-of-poverty or social exclusion in 2015 were the Czech Republic (14.0 %), Sweden (16.0 %), the Netherlands (16.4 %) and Finland (16.8 %).

Figure 2.2: Proportion of the population at-risk-of-poverty or social exclusion, 2015
(%)



Note: the sum of the data for the three groups at risk of poverty or social exclusion may differ slightly from the total (published elsewhere) due to rounding.

(1) 2014.
(2) 2013.

Source: Eurostat (online data code: ilc_pees01)

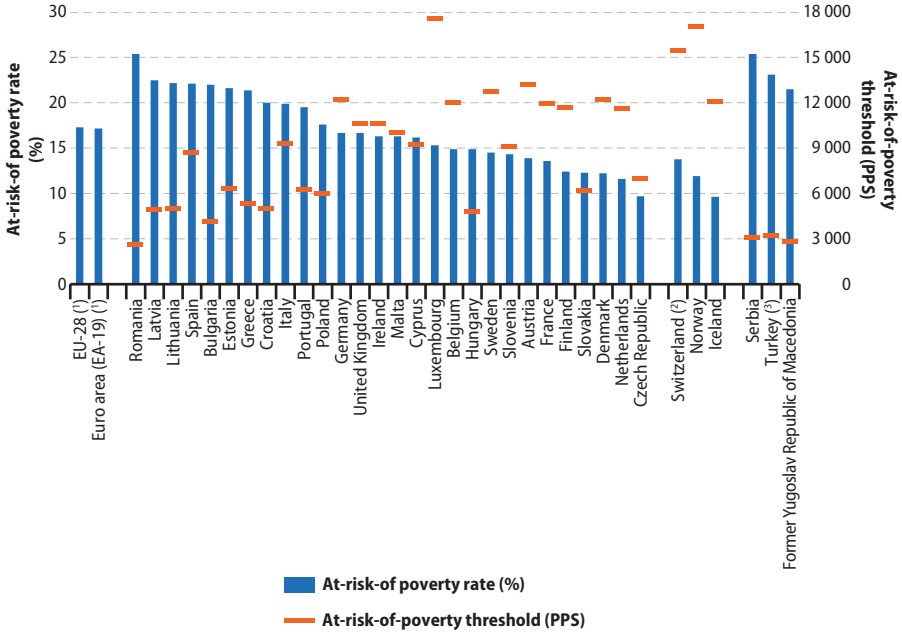
2.2 Income distribution

On the one hand, inequalities in income distribution may create incentives for people to improve their situation through work, innovation or acquiring new skills. On the other hand, such income inequalities are often viewed as being linked to crime, poverty and social exclusion.

The at-risk-of-poverty rate (after social transfers) in the EU-28 remained almost stable between 2010 and 2013, rising from 16.5 % to 16.7 %. Between 2013 and 2014, the at-risk-of-poverty rate increased by 0.5 p.p. and then increased slightly in 2015 (up 0.1 p.p.) to reach 17.3 %.

The rate for the EU-28, calculated as a weighted average of national results, conceals considerable variations across the EU Member States (see Figure 2.3). In eight Member States, namely Romania (25.4 %), Latvia (22.5 %), Lithuania (22.2 %), Spain (22.1 %), Bulgaria (22.0 %), Estonia (21.6 %), Greece (21.4 %) and Croatia (20.0 %), one fifth or more of the population was viewed as being at-risk-of-poverty. The lowest proportions of persons at-risk-of-poverty were observed in the Czech Republic (9.7 %) and the Netherlands (11.6 %).

Figure 2.3: At-risk-of-poverty rate and threshold, 2015



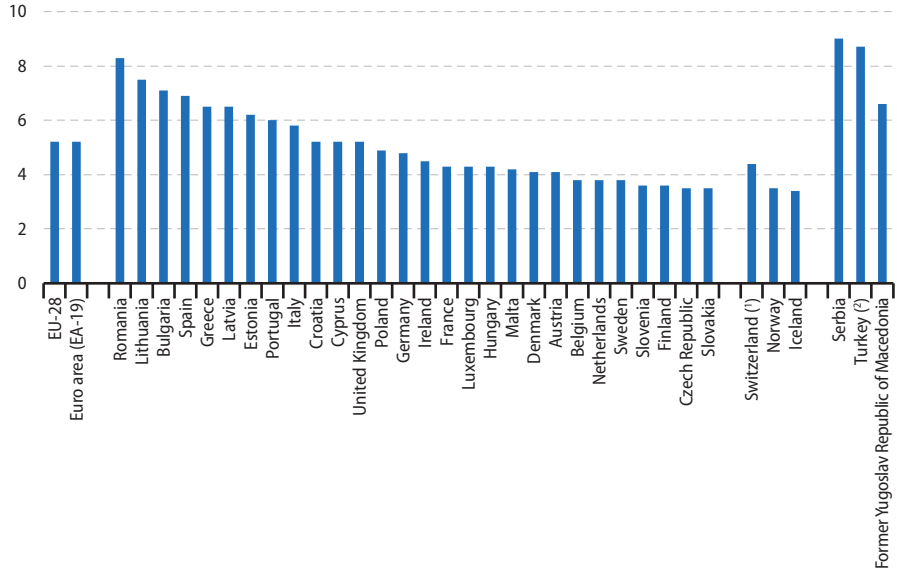
(1) At-risk-of-poverty threshold (PPS): not available.
(2) 2014.
(3) 2013.

Source: Eurostat (online data codes: ilc_li01 and ilc_li02)

The at-risk-of-poverty threshold (also shown in Figure 2.3) is set at 60 % of national median equivalised disposable income. It is often expressed in purchasing power standards (PPS) in order to take account of the differences in the cost of living across countries. This threshold varied considerably among the EU Member States in 2015 from PPS 2.6 thousand in Romania to PPS 13.2 thousand in Austria, with the threshold in Luxembourg (PPS 17.6 thousand) above this range.

There were wide inequalities in the distribution of income in 2015: a population-weighted average of national figures for each of the individual EU Member States shows that the top 20 % of the population (with the highest equivalised disposable income) received 5.2 times as much income as the bottom 20 % (with the lowest equivalised disposable income). This ratio varied considerably across the Member States, from 3.5 in Slovakia and the Czech Republic, to 6.0 or more in Portugal, Estonia, Latvia, Greece, Spain, Bulgaria and Lithuania, peaking at 8.3 in Romania. Among the non-member countries shown in Figure 2.4, Iceland (3.4) and Norway (3.5) also reported particularly low ratios for the inequality of income distribution, while in Turkey (8.7, 2013 data) and Serbia (9.0) the ratios were higher than in any of the EU Member States.

Figure 2.4: Inequality of income distribution, 2015
(income quintile share ratio)



(1) 2014.
(2) 2013.

Source: Eurostat (online data code: ilc_di11)

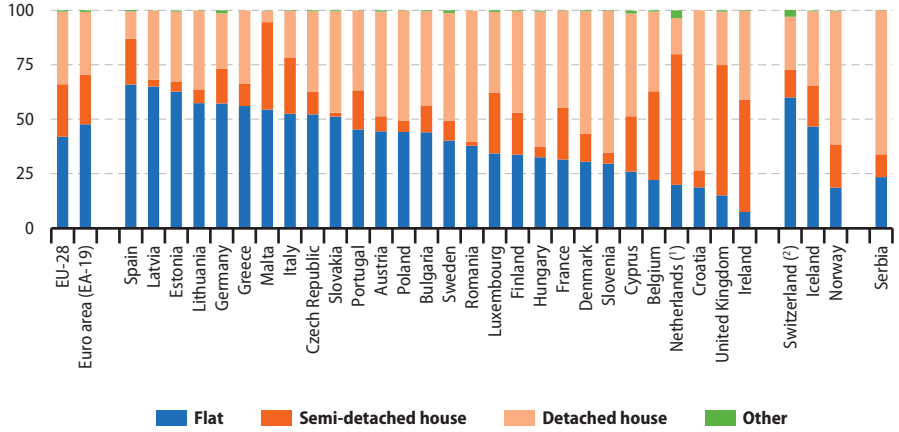
2.3 Housing

Decent housing, at an affordable price in a safe environment, is a fundamental need and right. Ensuring this need is met, which is likely to alleviate poverty and social exclusion, is still a significant challenge in a number of European countries.

In 2015, more than 4 out of every 10 persons (42.0 %) in the EU-28 lived in flats, close to one quarter (24.1 %) in semi-detached houses and one third (33.3 %) in detached houses (see Figure 2.5). The proportion of people living in flats was highest, among the EU Member States, in Spain (65.9 %), Latvia (65.0 %) and Estonia (62.6 %), while the highest proportions of people living in semi-detached houses were reported in the Netherlands, the United Kingdom (both 59.9 %) and Ireland (51.6 %); these were the only Member States where more than half of the population lived in a semi-detached house. The share of people living in detached houses peaked in Croatia (73.4 %), Slovenia (65.1 %), Hungary (62.1 %) and Romania (60.1 %).

One of the key dimensions in assessing the quality of housing is the availability of sufficient space in a dwelling. The overcrowding rate describes the proportion of people living in an overcrowded dwelling, as defined by the number of rooms available to the household, the household's size, as well as its members' ages and their family situation.

Figure 2.5: Distribution of population by dwelling type, 2015
(% of population)

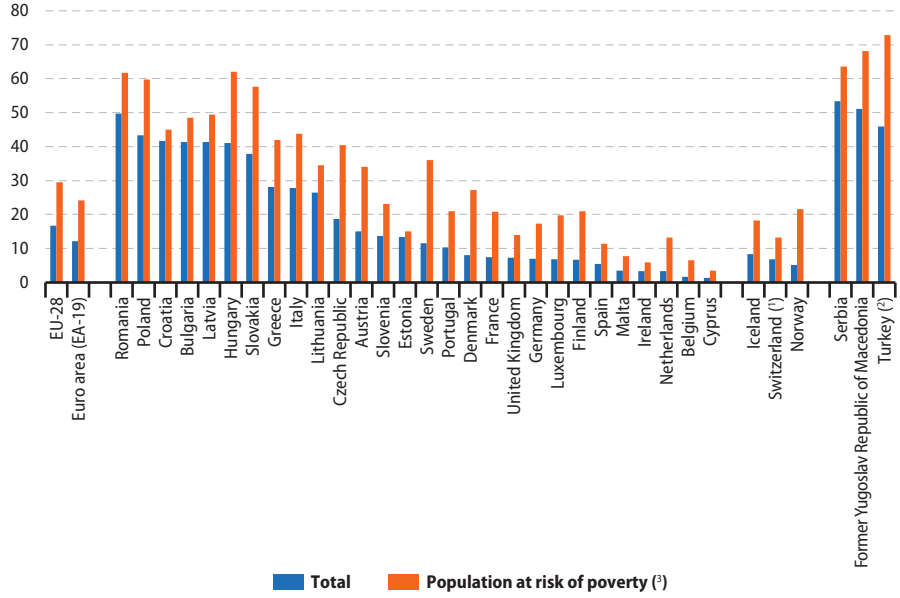


(1) Provisional data.
(2) 2014.

Source: Eurostat (online data code: ilc_lvho01)

In 2015, 16.7 % of the EU-28 population lived in overcrowded dwellings (see Figure 2.6). The highest overcrowding rates among the EU Member States were registered in Romania (49.7 %) and Poland (43.4 %), while rates above 50 % were recorded for Serbia (53.4 %) and the former Yugoslav Republic of Macedonia (51.1 %), with Turkey (45.9 %, 2013 data) also recording a relatively high overcrowding rate. By contrast, Cyprus (1.4 %), Belgium (1.6 %), the Netherlands (3.3 %), Ireland (3.4 %) and Malta (3.5 %) recorded the lowest rates of overcrowding, while seven other EU Member States all reported less than 10.0 % of their respective populations living in overcrowded dwellings.

Figure 2.6: Overcrowding rate, 2015
(% of specified population)



(1) 2014.
(2) 2013.
(3) Population below 60 % of median equivalised income.

Source: Eurostat (online data code: ilc_lvho05a)

2.4 Social protection

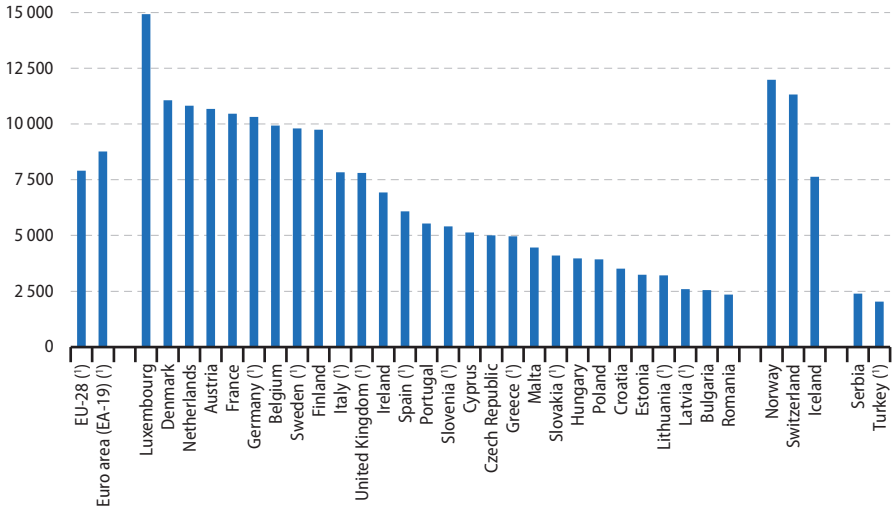
Social protection encompasses interventions from public or private bodies intended to relieve households and individuals of the burden of a defined set of risks or needs, provided that there is neither a simultaneous reciprocal nor an individual arrangement involved.

The latest information available relates to 2014, when there was an overall increase of 2.6 % in the level of EU-28 social protection expenditure. However, this was counteracted by a somewhat faster pace of economic growth and therefore resulted in the share of social protection expenditure relative to gross domestic product (GDP) falling by 0.2 p.p. to 28.7 %. The ratio of social protection expenditure to GDP was 2.8 p.p. higher in 2014 than it had been in 2008, while social protection expenditure in the EU-28 grew overall by 18.5 % during the period under consideration (equivalent to an average of 2.9 % per annum).

The use of a purchasing power standard (PPS) facilitates a comparison of the level of social protection expenditure per inhabitant between countries, taking account of differences in price levels (see Figure 2.7). The highest level of expenditure on social protection per inhabitant in 2014 was registered for Luxembourg (1) (14.9 thousand PPS per inhabitant), followed some

(1) Social protection expenditure per inhabitant is calculated on the basis of the resident population; therefore, its value is particularly overestimated for Luxembourg (due to the presence of a high proportion of cross-border commuters), with a considerable proportion of benefits paid to persons living outside the country (primarily expenditure on health care, pensions and family benefits).

Figure 2.7: Expenditure on social protection per inhabitant, 2014
(PPS)



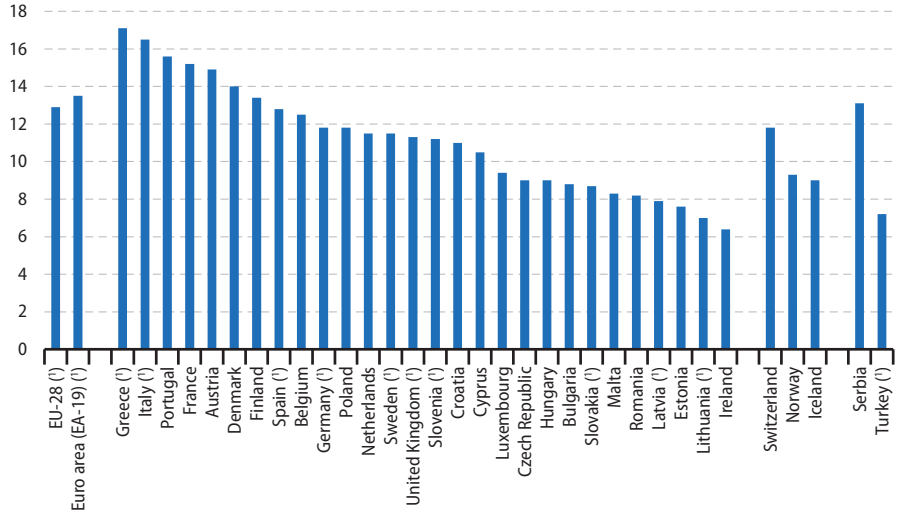
(1) Provisional.

Source: Eurostat (online data code: spr_exp_sum)

way behind by Denmark, the Netherlands, Austria, France, Germany, Belgium, Sweden and Finland where social protection was more than 9.0 thousand PPS per inhabitant. By contrast, expenditure in Latvia, Bulgaria and Romania was 2.6 thousand PPS per inhabitant or less. These disparities between EU Member States are partly related to different levels of wealth, but may also reflect differences in social protection systems, demographic trends, unemployment rates and other social, institutional and economic factors.

Expenditure on pensions across the EU-28 was equivalent to 12.9 % of GDP in 2014. Among the EU Member States the share of expenditure on pensions was particularly high in several of the southern EU Member States, including Portugal (15.6 %) and Italy (16.5 %), while the highest value was registered in Greece (17.1 %). At the other end of the range, ratios of 7.0-8.0 % were recorded in the three Baltic Member States of Lithuania, Estonia and Latvia, while the ratio was even lower in Ireland (6.4 %) — see Figure 2.8.

Figure 2.8: Expenditure on pensions, 2014
(% of GDP)



(1) Provisional.

Source: Eurostat (online data code: spr_exp_pens)

2.5 Crime and criminal justice

This subchapter presents crime statistics across the European Union (EU), based on official figures for police-recorded offences. In addition, results on criminal justice system personnel are introduced. Note that for each EU-28 aggregate ([1]), only countries with complete data for the period 2008-2015 are included in the calculation.

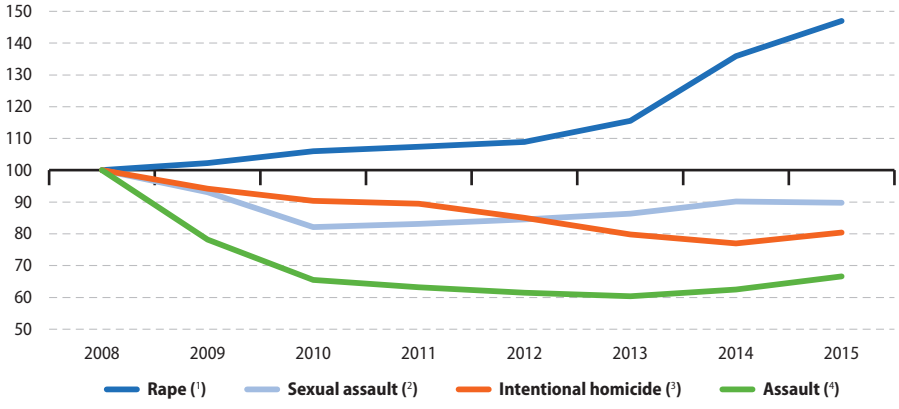
The figures for intentional homicide show a consistent decrease from 2008-2014 before a rebound in 2015 (see Figure 2.9). The total number across the EU-28 (excluding the Netherlands, England and Wales (United Kingdom) and Scotland (United Kingdom)) in 2015 was 4 528, 19.6 % less than in 2008 (5 634) but 4.3 % more than in 2014 (4 340).

The overall number of police-recorded assault offences dropped by almost 40 % across the EU-28 (excluding Poland and Scotland (United Kingdom)) during the period 2008-2013 while in 2014 the number increased by 3.6 % and in 2015 by 6.6 %. Technical changes limit the comparison over the whole period.

Sexual violence includes rape and other sexual assault. The figures for rape show an increase by 47.0 % between 2008 and 2015 (excluding

([2]) Figures are reported by territory of jurisdiction, notably the United Kingdom consists of three jurisdictions: England and Wales, Scotland and Northern Ireland. Therefore, for crime statistics, an EU-28 indicator covers 30 "countries" (short for territory of jurisdiction).

Figure 2.9: Police-recorded rape, sexual assault, intentional homicide and assault, EU-28, 2008-2015
(2008 = 100)



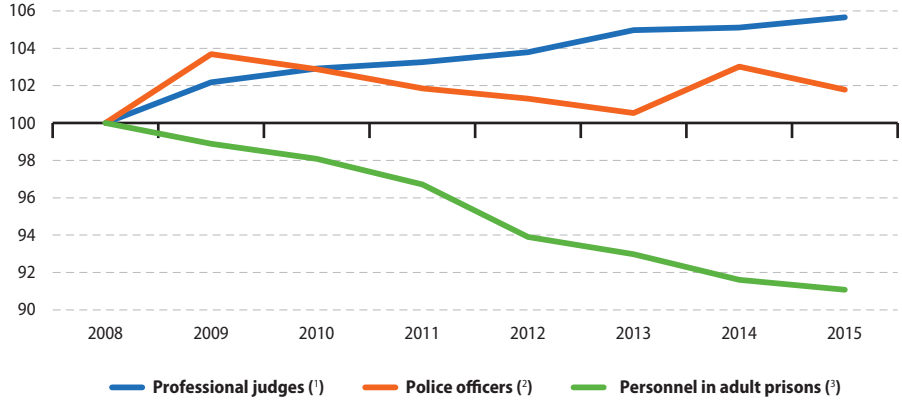
([1]) Excluding Italy and Scotland (United Kingdom).
([2]) Excluding Latvia, Luxembourg, Poland, Slovakia, and England and Wales (United Kingdom).
([3]) Excluding the Netherlands, England and Wales (United Kingdom), and Scotland (United Kingdom).
([4]) Excluding Poland and Scotland (United Kingdom).

Source: Eurostat (online data code: crim_off_cat)

Italy and Scotland (United Kingdom)). The observed rise in EU figures for rape is particularly influenced by the figures for England and Wales (United Kingdom; +173 % between 2008 and 2015). The reduction in the number of sexual assaults was largely influenced by German figures which are not comparable between 2009 and 2010.

The overall number of police officers across the EU-28 (excluding Germany, Italy, Ireland and Latvia) decreased between 2010 and 2013, a loss which was compensated by an increase in 2014 (see Figure 2.10). During 2015, the number of police officers fell again by 1.2 %. Across the EU-28 (excluding Belgium, Bulgaria, Germany, Ireland, Italy, Luxembourg, Malta, the Netherlands, England and Wales (United Kingdom), and Northern Ireland (United Kingdom)), the number of professional judges grew regularly over 2008-2015, with an overall increase of 5.6 %. In contrast to the gradual rise in the number of professional judges, there was an overall reduction in the number of personnel working in adult prisons, with a fall of 8.9 % between 2008 and 2015 across the EU-28 (excluding Belgium, Germany, Estonia, Greece, France, Latvia, Luxembourg, the Netherlands and Sweden).

Figure 2.10: Personnel in the criminal justice system, EU-28, 2008-2015
(2008 = 100)



(1) Excluding Belgium, Bulgaria, Germany, Ireland, Italy, Luxembourg, Malta, the Netherlands, England and Wales (United Kingdom), and Northern Ireland (United Kingdom).
(2) Excluding Germany, Italy, Ireland and Latvia.
(3) Excluding Belgium, Germany, Estonia, Greece, France, Latvia, Luxembourg, the Netherlands and Sweden.

Source: Eurostat (online data code: crim_just_job)

3 Health

Introduction

Health is an important priority for Europeans, who expect to have a long and healthy life, to be protected against illnesses and accidents, and to receive appropriate healthcare. Health issues cut across a range of topics — including consumer protection (food safety issues), workplace safety, environmental or social policies.

Population ageing will continue to be a challenge for the European Union's (EU) health sector in the coming decades. The demand for healthcare is expected to increase dramatically as a result of an ageing population and at the same time the proportion of the people in work will often stagnate or, at least in some of the EU Member States, decline. As a result, there may be staff shortages in certain medical specialisations or geographic areas. In 2014, more than one third of all doctors in the EU were aged 55 or over.

The EU gathers statistical information in order to assess health issues, effectively design policies and target future actions. This statistical information needs to be based on a set of common EU health indicators, for which there is Europe-wide agreement regarding definitions, collection and use; examples include the European core health indicators (ECHI) and sustainable development indicators.

3.1 Healthy life years

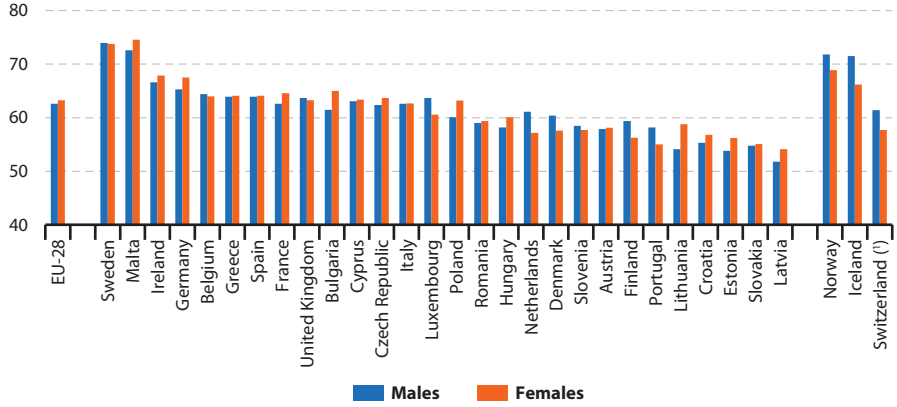
Whether extra years of life gained through increased longevity are spent in good or bad health is a crucial question. Since life expectancy at birth is not able to fully answer this question, indicators of health expectancies, such as healthy life years (also called disability-free life expectancy) have been developed. These focus on the quality of life spent in a healthy state, rather than the quantity of life — as measured by life expectancy. Healthy life years are an important measure of the relative health of populations in the EU.

In 2015, the number of healthy life years at birth was estimated at 63.3 years for women and 62.6 years for men in the EU-28 (see Figure 3.1); this represented approximately 76 % and 80 % of total life expectancy for women and men.

Life expectancy for women in the EU-28 was, on average, 5.4 years longer than that for men in 2015. However, most of these additional years tend to be lived with activity limitations. Indeed, at just 0.7 years difference in favour of women, the gender gap was considerably smaller in terms of healthy life years than it was for overall life expectancy. Men therefore tend to spend a greater proportion of their somewhat shorter lives free from activity limitations.

The expected number of healthy life years at birth was higher for women than for men in 19 of the Member States, with the difference between the sexes generally relatively small, as there were only three Member States where the gap rose to more than 3.0 years — Lithuania, Bulgaria and Poland.

Figure 3.1: Healthy life years at birth, 2015
(years)

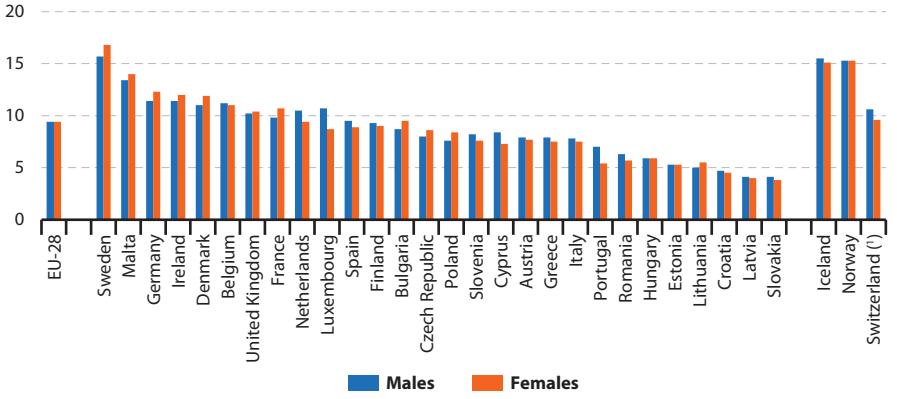


(1) 2014.

Source: Eurostat (online data code: hlth_hlye)

An analysis comparing healthy life years between the sexes at the age of 65 in 2015 shows that there were 11 EU Member States where women could expect more healthy life years than men (see Figure 3.2); this was most notably the case in Sweden where women aged 65 could expect to live 1.1 years longer free from disability than men. By contrast, men could expect to live 1.1 years longer free from disability than women in Cyprus and the Netherlands, 1.6 years longer in Portugal, and 2.0 years longer in Luxembourg.

Figure 3.2: Healthy life years at age 65, 2015
(years)



(1) 2014.

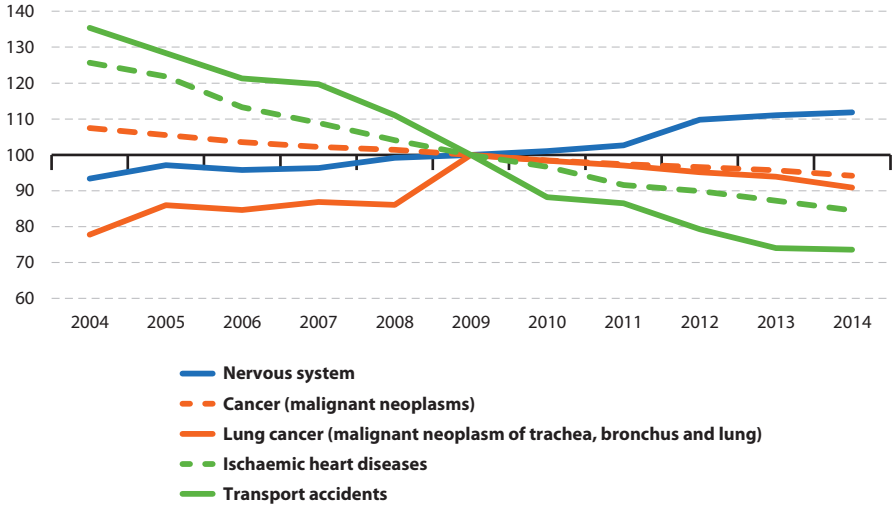
Source: Eurostat (online data code: hlth_hlye)

3.2 Causes of death

By relating all deaths in the population to an underlying cause of death, the risks associated with death from a range of specific diseases and other causes can be assessed; these figures can be further analysed by age, sex, country where the death occurred/residency of the deceased, and region (NUTS level 2), using standardised death rates.

Between 2004 and 2014, there was a 12.3 % reduction in EU-28 standardised death rates relating to cancer for men and a 6.9 % reduction for women — see Figures 3.3 and 3.4. Larger declines were recorded in relation to deaths from ischaemic heart disease, where death rates fell by 32.7 % for men and 36.8 % for women, while even greater reductions were recorded for deaths from transport accidents where rates fell by 45.7 % for men and 48.0 % for women. The standardised death rate for breast cancer fell by 11.7 % for women, which was in excess of the overall change for all cancers. By contrast, death rates for diseases of the nervous system increased for men by 19.7 % and for women by 26.9 %. Although the standardised death rate for lung cancer (including also cancer of the trachea and bronchus) increased for men and for women, the rate of change differed greatly.

Figure 3.3: Causes of death — standardised death rate per 100 000 inhabitants, males, EU-28, 2004-2014
(2009 = 100)



Note: 2004, 2005 and 2010, provisional. 2011-2014: for the age standardisation, among older people, the age group aged 85 and over was used rather than separate age groups for 85-89, 90-94 and 95 and over.

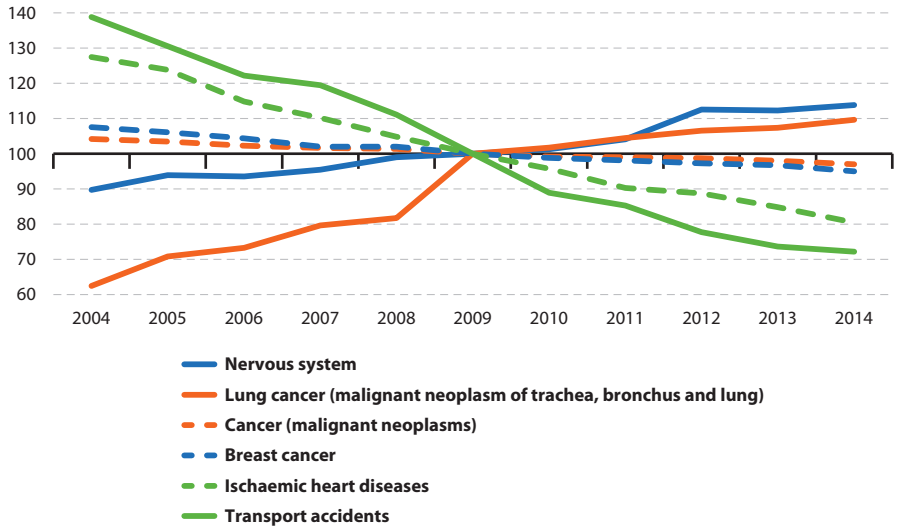
Source: Eurostat (online data codes: hlth_cd_asdr and hlth_cd_asdr2)

Diseases of the circulatory system include those related to high blood pressure, cholesterol, diabetes and smoking; the most common causes of death from diseases of the circulatory system are ischaemic heart diseases and cerebrovascular diseases. Ischaemic heart diseases accounted for 126 deaths per 100 000 inhabitants across the EU-28 in 2014.

Cancer was a major cause of death, averaging 262 deaths per 100 000 inhabitants across the EU-28 in 2014. The most common forms of cancer — all with standardised death rates in excess of 10 per 100 000 inhabitants — included malignant neoplasms of the: trachea, bronchus and lung; colon, rectosigmoid junction, rectum, anus and anal canal; breast; pancreas; prostate; stomach; and liver and bile ducts.

After circulatory diseases and cancer, respiratory diseases were the third most common cause of death in the EU-28, with an average of 78 deaths per 100 000 inhabitants in 2014. Within this group of diseases, chronic lower respiratory diseases were the most common cause of mortality followed by pneumonia. Respiratory diseases are age-related with the vast majority of deaths from these diseases recorded among those aged 65 or over.

Figure 3.4: Causes of death — standardised death rate per 100 000 inhabitants, females, EU-28, 2004-2014
(2009 = 100)



Note: 2004, 2005 and 2010, provisional. 2011-2014: for the age standardisation, among older people, the age group aged 85 and over was used rather than separate age groups for 85-89, 90-94 and 95 and over.

Source: Eurostat (online data codes: hlth_cd_asdr and hlth_cd_asdr2)

3.3 Healthcare provision

An individual's state of health and that of the population in general is influenced by genetic and environmental factors, cultural and socioeconomic conditions, as well as the healthcare services that are available to prevent and to treat illness and disease.

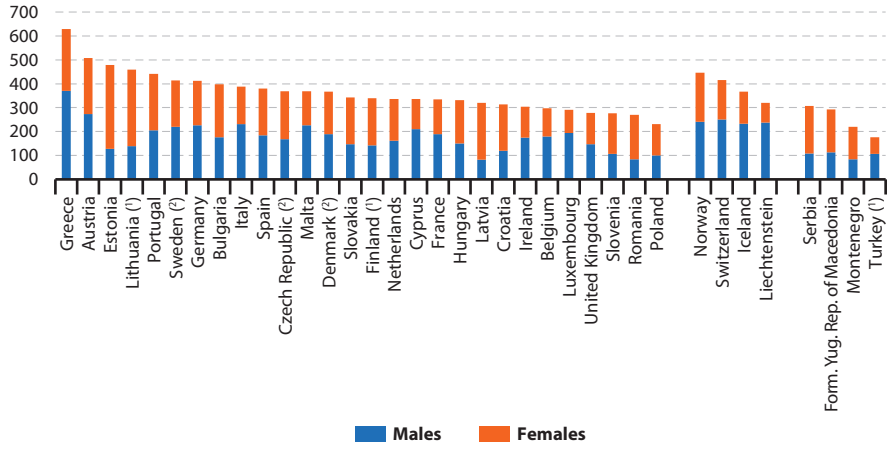
Non-monetary statistics may be used to evaluate how a country's healthcare system responds to the challenge of universal access to good healthcare, through measuring human and technical resources, the allocation of these resources and the demand for healthcare services by patients. This article presents statistics on healthcare professionals, hospital beds and hospital discharges of in-patients and day care patients.

In 2013, there were approximately 1.8 million physicians in the EU-28, an increase of 253 thousand compared with 10 years earlier.

One of the key indicators for measuring healthcare personnel is the total number of physicians, expressed per 100 000 inhabitants (see Figure 3.5). In 2014, Greece recorded the highest ratio among the EU Member States, at 632 per 100 000 inhabitants (data for licensed physicians). Austria (505), Portugal (443; licensed physicians), Lithuania (431), Sweden (412; 2013 data) and Germany (411) had the next highest ratios and were the only other Member States to record in excess of 400 physicians per 100 000 inhabitants. By contrast, there were 231 physicians per 100 000 inhabitants in Poland.

The number of hospital beds per 100 000 inhabitants averaged 521 in the EU-28 in 2014. The reduction in bed numbers between 2004 and 2014 across the whole of the EU-28 was equal to 71 fewer beds per 100 000 inhabitants. This reduction may reflect, among other factors,

Figure 3.5: Number of physicians, by sex, 2014
(per 100 000 inhabitants)



(1) Estimates.
(2) 2013.

Source: Eurostat (online data codes: hlth_rs_phys and demo_pjan)

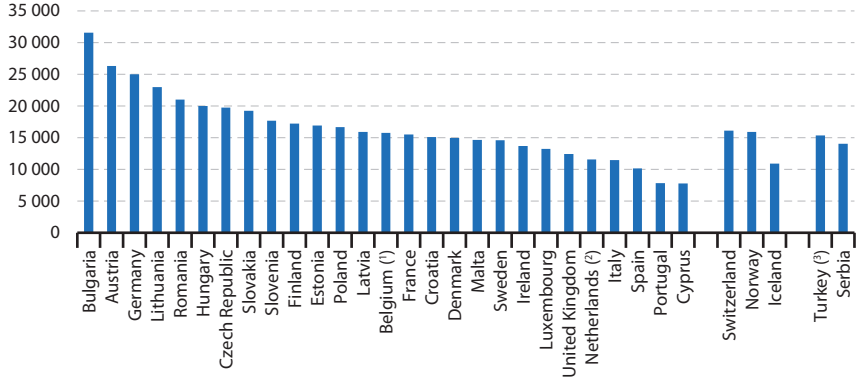
economic constraints, increased efficiency through the use of technical resources (for example, imaging equipment), a general shift from in-patient to out-patient operations, and shorter periods spent in hospital following an operation or treatment.

In 2014, there were in excess of 83.8 million discharges of in-patients (based on latest available data) in the EU-28, around 16.5 thousand per 100 000 inhabitants. There was a wide range in in-patient discharge rates between EU Member States in 2014 (see Figure 3.6). These peaked at 31.5 thousand discharges per 100 000 inhabitants in Bulgaria, while there were also relatively high numbers of discharges per 100 000 inhabitants in Austria (26.3 thousand) and Germany (25.0 thousand).

By contrast, the lowest number of discharges per 100 000 inhabitants — below 10 thousand — were recorded in two of the southern EU Member States, namely, Portugal and Cyprus, while Spain and Italy recorded the next lowest hospital discharge rates.

In 2014, there were in excess of 35 million discharges of day care patients (based on latest available data) in the EU-28, around 7.3 thousand per 100 000 inhabitants. Relative to population size, among the most common diagnoses were diseases of the genitourinary system and neoplasms — reflecting the use of day care for some cancer treatments such as chemotherapy and some kidney disease treatments such as dialysis — although there were many exceptions.

Figure 3.6: Number of hospital discharges of in-patients, 2014
(per 100 000 inhabitants)



Note: Greece, not available.

(1) 2013.
(2) 2012.
(3) 2011.

Source: Eurostat (online data code: hlth_co_disch2)

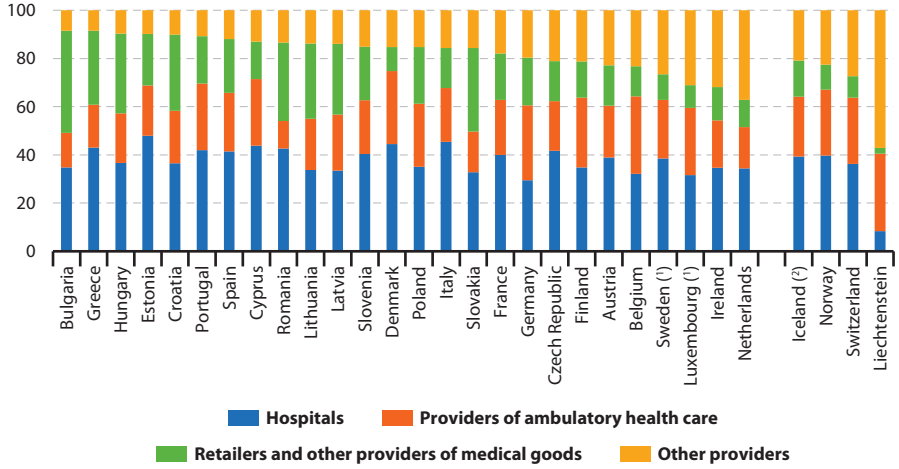
3.4 Healthcare expenditure

Healthcare systems are organised and financed in different ways across the EU Member States, but most Europeans would agree that universal access to quality healthcare, at an affordable cost to both individuals and society at large, is a basic need; moreover, this is one of the common values and principles in EU health systems.

An analysis of current healthcare expenditure by provider is shown in Figure 3.7. It should be borne in mind that healthcare providers classified under the same group do not necessarily perform the same set of activities. For example, hospitals may offer day care, out-patient, ancillary or other types of service, in addition to in-patient services.

An analysis by healthcare provider shows that hospitals generally accounted for the highest proportion of current healthcare expenditure in 2014, ranging from 29.5 % of the total in Germany to 47.9 % in Estonia. Germany and Bulgaria were the only EU Member States (no data for Malta or the United Kingdom), to report that hospitals did not have the highest share of healthcare expenditure, as ambulatory health care providers accounted for 31.1 % of total healthcare expenditure in Germany, while retailers and other providers of medical goods accounted for 42.4 % of total healthcare expenditure in Bulgaria.

Figure 3.7: Healthcare expenditure by provider, 2014
(% of current healthcare expenditure)



Note: Malta and the United Kingdom, not available.

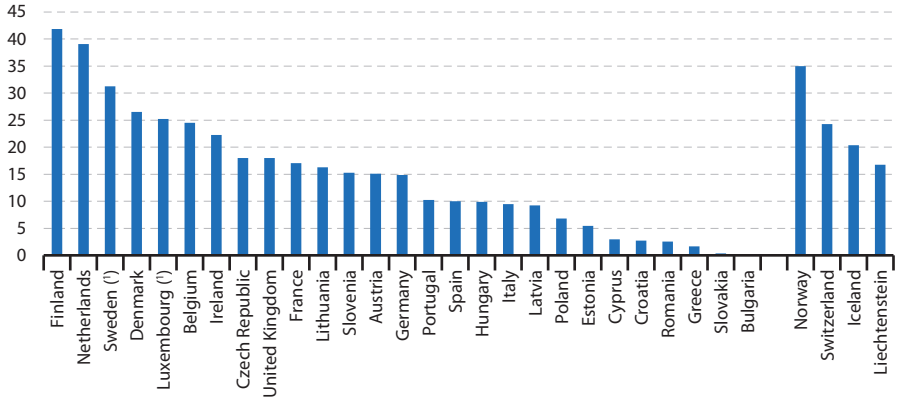
(1) Provisional.
(2) Definitions differ.

Source: Eurostat (online data code: hlth_sha11_hp)

The second largest healthcare provider (in expenditure terms) was generally that of ambulatory health care providers, their share of healthcare expenditure ranging in 2014 from 11.4 % in Romania to more than 30.0 % in Denmark and Germany, peaking at close to one third (32.1 %) of total healthcare expenditure in Belgium; ambulatory health care providers in Liechtenstein also accounted for 32.1 % of healthcare expenditure.

In 2014, the share of long-term care services (including both the health and social components of long-term care) in current healthcare expenditure varied considerably among the EU Member States as can be seen in Figure 3.8. In six EU Member States — Cyprus, Croatia, Romania, Greece, Slovakia and Bulgaria — long-term care accounted for less than 3.0 % of current healthcare expenditure. The next lowest share was recorded in Estonia (5.4 %), while there were four additional Member States (no data for Malta) that recorded shares below 10.0 %. Almost half of the Member States reported a share of long-term care in healthcare expenditure that was within the range of 10.0 %-30.0 %. At the other end of the scale, this share rose to almost one third (31.3 %) in Sweden, close to four fifths in the Netherlands (39.1 %), and peaked at 41.9 % in Finland. Among the EFTA countries, Norway (35.0 %) also recorded a share of long-term care in healthcare expenditure that was over 30.0 %.

Figure 3.8: Long-term care as a share of current healthcare expenditure, 2014
(%)



Note: long-term care covers health and social care. Malta: not available.

(1) Provisional.

Source: Eurostat (online data code: hlth_sha11_hc)

3.5 Accidents at work

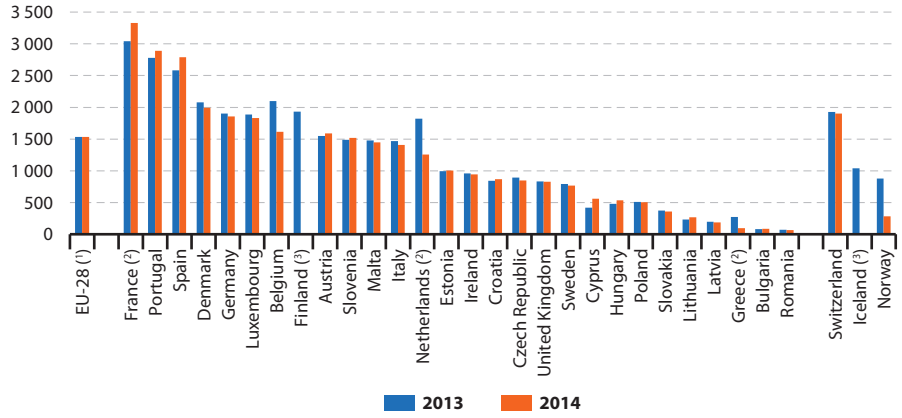
This subchapter presents main statistical indicators concerning non-fatal and fatal accidents at work in the EU collected within the framework of the European statistics on accidents at work (ESAW) administrative data collection.

An accident at work is defined in ESAW methodology as a discrete occurrence during the course of work which leads to physical or mental harm. Fatal accidents at work are those that lead to the death of the victim within one year. Non-fatal accidents at work collected within ESAW are those that imply at least four full calendar days of absence from work.

In 2014, there were close to 3.2 million non-fatal accidents that resulted in at least four calendar days of absence from work and 3 739 fatal accidents in the EU-28, a ratio of approximately 850 non-fatal accidents for every fatal one. In the EU-28, more than two out of every three (68.7 %) non-fatal accidents at work involved men.

An alternative way to analyse the information on accidents at work is to express the number of accidents in relation to the number of persons employed. For fatal accidents this ranged in 2014 from less than 1.0 per 100 000 persons employed in Sweden, the United Kingdom, Finland (2013 data), Greece and the Netherlands (as well as Iceland in 2013) to more than 4.0 fatal accidents per 100 000 persons employed in Bulgaria, Latvia, Lithuania and Romania. For non-fatal accidents the range was from less than 100 per 100 000 persons employed in Greece, Bulgaria and Romania to more than 3 000 per 100 000 persons employed in France (see Figure 3.9).

Figure 3.9: Non-fatal accidents at work, 2013 and 2014
(incidence rates per 100 000 persons employed)



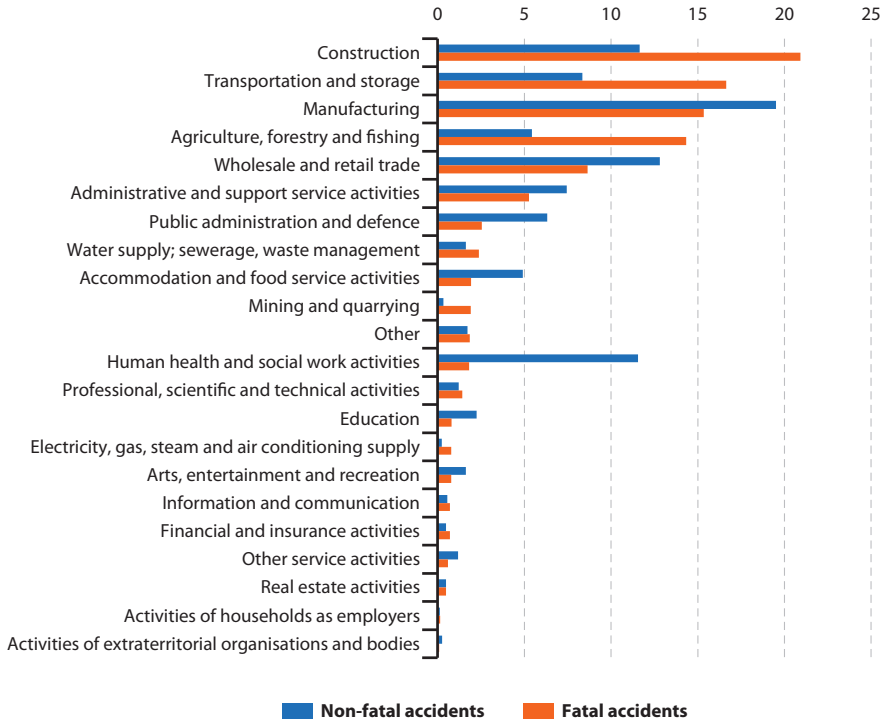
Note: non-fatal (serious) accidents reported in the framework of ESAW are accidents that imply at least four full calendar days of absence from work.

(1) Provisional.
(2) 2014: break in series.
(3) 2014: not available.

Source: Eurostat (online data code: hsw_n2_01)

Depending upon the economic activity in question (see Figure 3.10) and is positively skewed in relation to male-dominated activities. Within the EU-28, the construction, transportation and storage, manufacturing, and agriculture, forestry and fishing sectors together accounted for just over two thirds (67.2 %) of all fatal accidents at work and somewhat less than half (44.9 %) of all non-fatal accidents at work in 2014. More than one in five (20.9 %) fatal accidents at work in the EU-28 in 2014 took place within the construction sector, while the transportation and storage sector had the next highest share (16.6 %), followed by manufacturing (15.4 %) and agriculture, forestry and fishing (14.3 %). Apart from transportation and storage, most service activities recorded relatively low shares of the total number of fatal accidents. Nevertheless, non-fatal accidents were relatively common within wholesale and retail trade (12.8 % of the total in the EU-28 in 2014), human health and social work activities (11.5 %), administrative and support service activities (7.4 %), as well as accommodation and food service activities (4.9 %).

Figure 3.10: Fatal and non-fatal accidents at work by economic activity, EU-28, 2014
(% of fatal and non-fatal accidents)



Note: provisional.

Source: Eurostat (online data codes: hsw_n2_01 and hsw_n2_02)

4 Education and training

Introduction

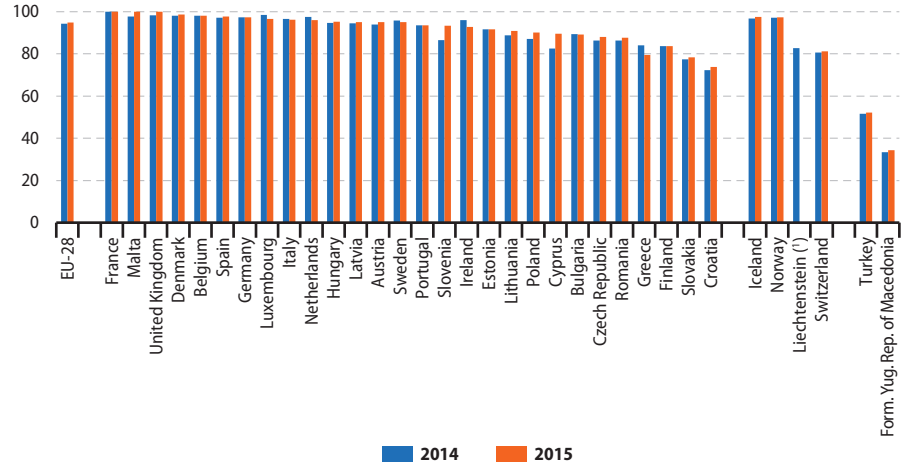
Education, vocational training and more generally lifelong learning play a vital role in both an economic and social context. The opportunities which the European Union (EU) offers its citizens for living, studying and working in other countries make a major contribution to cross-cultural understanding, personal development and the achievement of the EU's full economic potential. Each year, well over a million EU citizens of all ages benefit from EU-funded educational, vocational and citizenship-building programmes.

4.1 Early childhood and primary education

The strategic framework for European cooperation in education and training 2020 (ET 2020) adopted in May 2009 set a benchmark to be achieved (in the EU-27) by 2020 that at least 95 % of children between the age of four and the age for starting compulsory primary education should participate in early childhood education.

Overall, this target had nearly been reached by 2015, as the share of children in the EU-28 between the age of four and the starting age of compulsory education — which varies between four and seven depending on the EU Member State under consideration —attending school was 94.8 % (see Figure 4.1). At the lower end of

Figure 4.1: Pupils between the age of four and the starting age of compulsory education as a share of the corresponding age group, 2014 and 2015
(%)



(1) 2015: not available.

Source: Eurostat (online data code: educ_uoe_enra10)

the range, this ratio was 73.8 % in Croatia and also less than four fifths in Slovakia. A total of 14 EU Member States reported in 2015 that they had already achieved the 95 % benchmark.

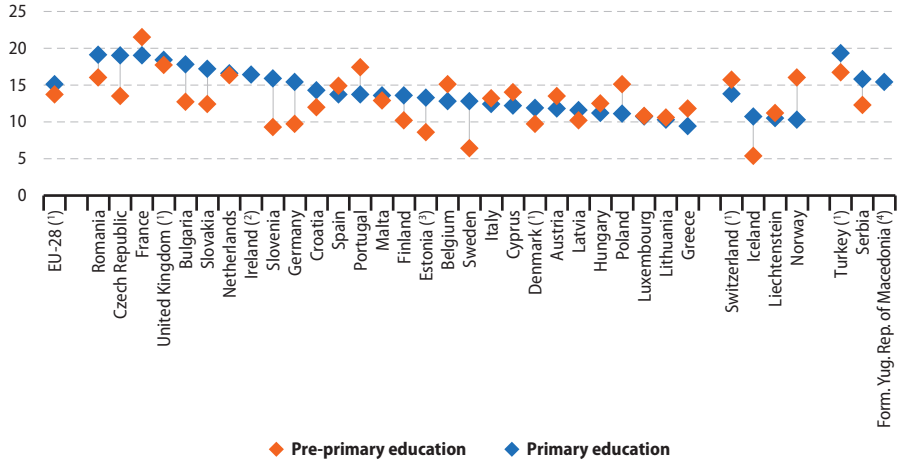
One measure which may be used to analyse the quality of schooling is the pupil-teacher ratio, which provides an indication of the average number of pupils there are for each teacher (see Figure 4.2).

In 2015, the pupil-teacher ratio for pre-primary education ranged among the EU Member States (no data for Ireland) from a low of 8.6 in Estonia (this ratio also covers early childhood development) up to 15-18 pupils per teacher in Belgium, Poland, Romania, the Netherlands, Portugal and the United Kingdom (2014 data), with France (21.5) above this range and Sweden (6.4) below it.

A comparison between pupil-teacher ratios for pre-primary education and primary education shows that there was no clear pattern, insofar as 15 out of the 27 EU Member States for which data are available recorded a lower ratio for pre-primary education.

In 2015, the lowest pupil-teacher ratio for primary education was recorded in Greece, at 9.4, the only EU Member State to report a single-digit ratio. At the other end of the range, the highest pupil-teacher ratios for primary education were reported in the Czech Republic, France (which recorded the highest ratio for pre-primary education) and Romania.

Figure 4.2: Pupil-teacher ratios in pre-primary and primary education, 2015
(number of pupils per teacher)



Note: ranked on ratio for primary education.

(1) Pre-primary education: 2014.
(2) Pre-primary education: not available. Primary education: 2013.
(3) Pre-primary education: includes early childhood educational development.
(4) Pre-primary education: not available. Primary education: 2014.

Source: Eurostat (online data code: educ_uoe_perp04)

4.2 Secondary education

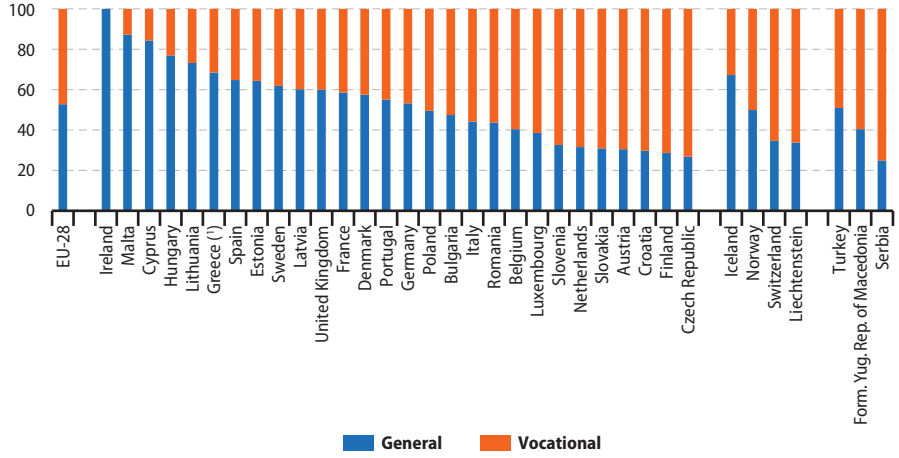
Pupils enter lower secondary education (ISCED level 2) typically between the ages of 10 and 13 (age 12 being the most common) and they typically enter upper secondary education (ISCED level 3) between the ages of 14 and 16.

In general, compulsory education is completed at the end of lower secondary education, although in some countries it continues into upper secondary education. On average, compulsory education lasts 9 or 10 years in most of the EU Member States; it lasts longest in Hungary, the Netherlands and the United Kingdom. As its name suggests, post-secondary non-tertiary education (ISCED level 4) starts after the completion of upper secondary education.

In the EU-28 there were 20.6 million pupils in lower secondary education in 2015. The number of pupils in upper secondary education in the EU-28 was slightly higher, at 21.8 million; a small majority (52.7 %) of upper secondary school pupils in the EU-28 followed a general programme of upper secondary education, with the remainder following vocational programmes — see Figure 4.3.

Post-secondary non-tertiary education was by far the smallest of the three education levels covered by this article, with 1.6 million pupils in the EU-28, with the vast majority (90.6 %) following vocational programmes. It should be noted that post-secondary non-tertiary education, which prepares students for labour market entry as well as for tertiary education, does not exist in some of the Member States (Denmark, Croatia, the Netherlands, Slovenia and the United Kingdom) and is relatively uncommon in several others.

Figure 4.3: Distribution of upper secondary education students, 2015
(%)



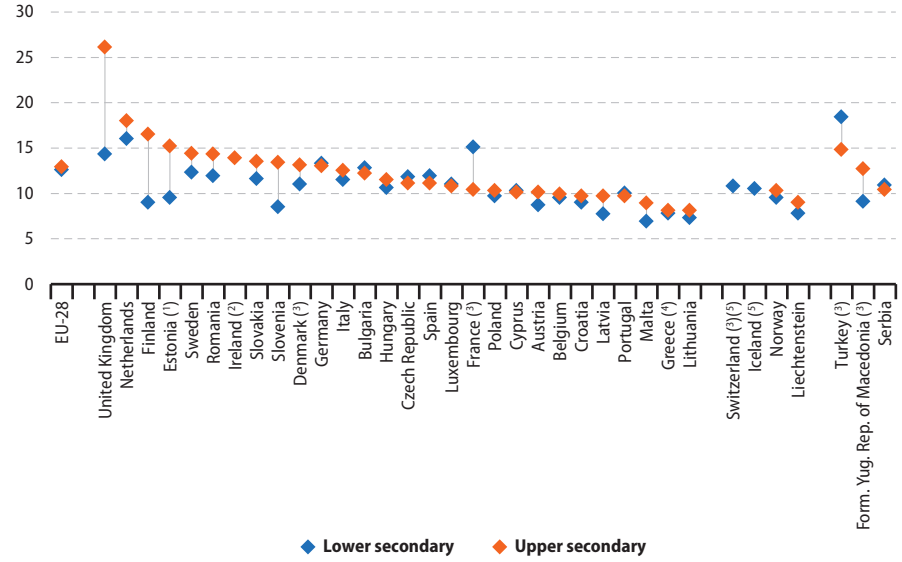
(1) 2014.

Source: Eurostat (online data code: educ_uoe_enrs04)

In 2015, pupil-teacher ratios in lower and upper secondary education were broadly similar to those observed for primary education. The pupil-teacher ratio for lower secondary education ranged among the EU Member States from less than 8.0 in Greece (2014 data), Latvia, Lithuania and Malta, to peaks of 14.3 in the United Kingdom, 15.1 in France (2014 data) and 16.0 in the Netherlands (see Figure 4.4).

In a relatively large majority of EU Member States, 19 out of the 27 for which data are available, pupil-teacher ratios for lower secondary education were lower than those reported for upper secondary education. France (2014 data) had a particularly low ratio for upper secondary education (10.4 pupils per teacher) compared with its ratio for lower secondary education (15.1). By contrast, the United Kingdom reported a notably higher ratio for upper secondary education than for lower secondary education (26.1 compared with 14.3, a difference of 11.8 percentage points (p.p)), as did Finland (7.5 p.p.) and Estonia (5.7 p.p.).

Figure 4.4: Pupil-teacher ratios in secondary education, 2015
(number of pupils per teacher)



Note: ranked on ratio for upper secondary education.

(1) Upper secondary education: includes lower secondary vocational education and post-secondary non-tertiary vocational education.
(2) 2013. Lower secondary: not available.
(3) 2014.
(4) Lower secondary education: 2014. Upper secondary education: 2013.
(5) Upper secondary: not available.

Source: Eurostat (online data code: educ_uoe_perp04)

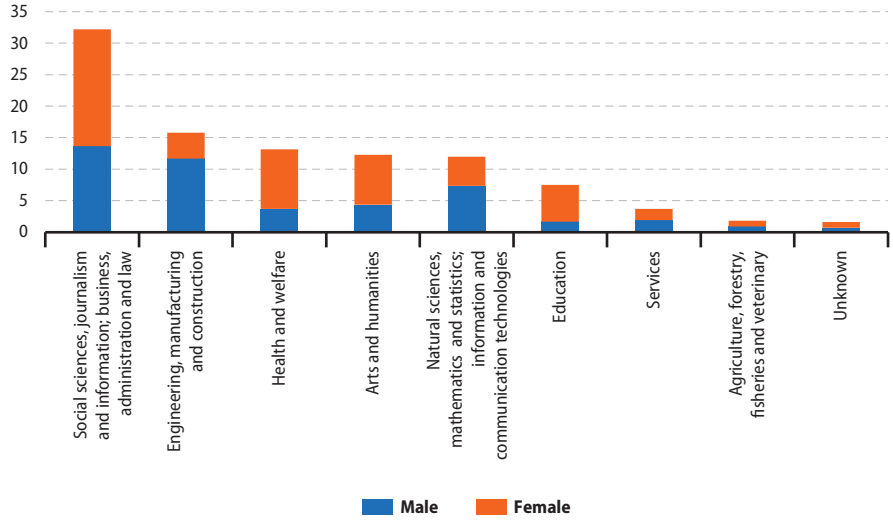
4.3 Tertiary education

Tertiary education — provided by universities and other higher education institutions — is the level of education following secondary schooling. It is seen to play an essential role in society, by fostering innovation, increasing economic development and growth, and improving more generally the wellbeing of citizens.

In the EU-28 there were 19.5 million tertiary education students in 2015. In 2015, women accounted for an estimated 54.1 % of all tertiary students in the EU-28.

Across the EU-28, almost one third (32.2 %) of all students in tertiary education were studying social sciences, journalism, information, business, administration or law in 2015 (note the information presented includes 2014 data for Ireland, Greece and Italy). There were considerably more female than male students studying social sciences, journalism, information, business, administration or law, with women accounting for 57.6 % of all students within this field of education — see Figure 4.5. The second most common field of education was engineering, manufacturing and construction-

Figure 4.5: Distribution of tertiary education students by field and sex, EU-28, 2015
(%)



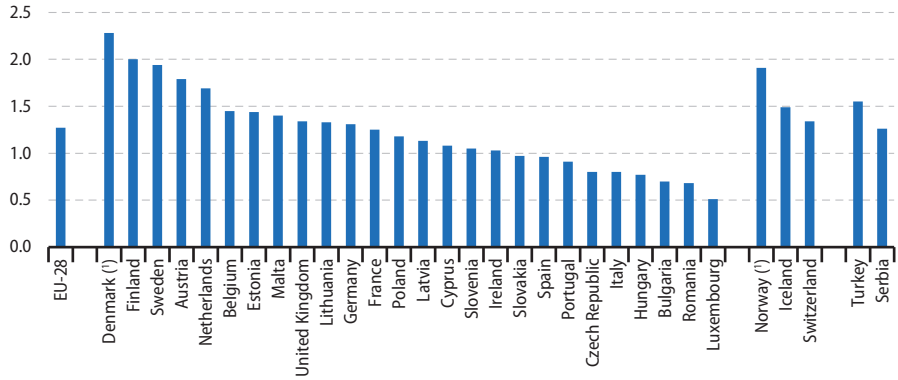
Note: includes data for Ireland, Greece and Italy for 2014.

Source: Eurostat (online data code: educ_uoe_enrt03)

related studies which accounted for 15.8 % of all tertiary education students. In this field, almost three quarters (74.0 %) of all students were male. The third largest field of study was health and welfare, with a 13.1 % share of all tertiary education students. In this field, women accounted for close to three quarters (71.9 %) of the total number of tertiary students. Among the remaining fields of education, the highest share of female students was recorded for those studying education (where 77.8 % of all students were women), while women accounted for almost two thirds (64.6 %) of all students studying arts and humanities. By contrast, within natural sciences, mathematics, statistics, and information and communication technologies the share of men in the total number of tertiary students was 61.3 %.

Data concerning public expenditure on tertiary education relative to gross domestic product (GDP) are available for 26 of the EU Member States — see Figure 4.6. This ratio ranged in 2014 from 0.5 % in Luxembourg and 0.7 % in Bulgaria and Romania to 2.0 % in Finland, peaking at 2.3 % in Denmark (2013 data). The average for the EU-28 was 1.3 %.

Figure 4.6: Public expenditure on tertiary education relative to GDP, 2014
(%)



Note: Greece and Croatia, not available.

(1) 2013.

Source: Eurostat (online data code: educ_uoe_fine06)

4.4 Early leavers from education and training

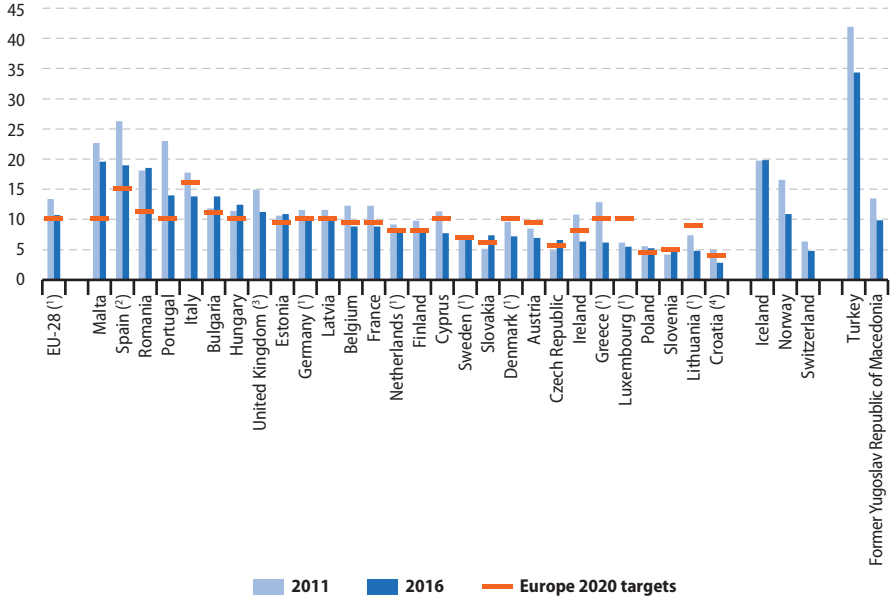
Early leavers from education and training may face considerable difficulties in the labour market: for example, they can find it difficult to obtain a secure foothold as employers may be more reluctant to take them on with their limited education.

The strategic framework for European cooperation in education and training (known as ET 2020) adopted a benchmark to be achieved by 2020, namely, that the share of early leavers from education and training in the EU-28 should be not more than 10 %.

In 2016, an average of 10.7 % of young people (aged 18-24) in the EU-28 were early leavers from education and training, in other words, they had completed at most a lower secondary education and were not in further education or training during the four weeks preceding the survey. The proportion of early leavers from education and training in 2016 in the EU-28 was 3.0 p.p. higher for young men (12.2 %) than for young women (9.2 %).

Among the EU Member States, the proportion of early leavers in 2016 ranged from 2.8 % in Croatia (note that data have low reliability) to 19.6 % in Malta (see Figure 4.7).

Figure 4.7: Early leavers from education and training, 2011 and 2016
(% of population aged 18-24)



Note: breaks in series.

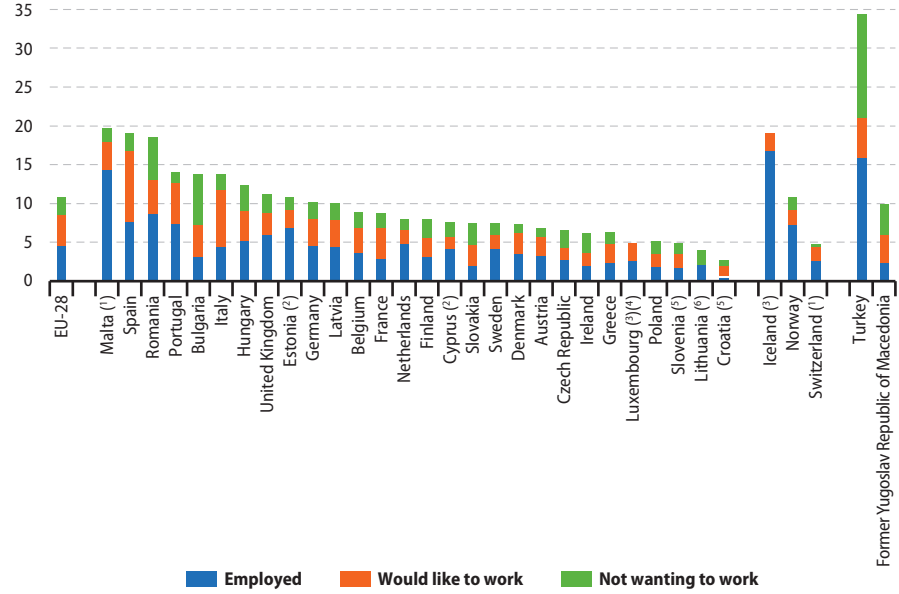
(1) For the target to be achieved, the share of early leavers from education and training should be below the target value.
(2) Europe 2020 target is defined as the school drop-out rate.
(3) No Europe 2020 target.
(4) 2016: low reliability.

Source: Eurostat (online data code: edat_lfse_14)

The overall share of early leavers from education and training fell in the EU-28 by 2.7 p.p. between 2011 and 2016. It should be noted that there is a break in series for all countries due to changes in the ISCED classification; nevertheless, at this broad level, the latest figures remain comparable with those for previous years, except Estonia.

Early leavers from education and training may face heightened difficulties in the labour market. Figure 4.8 ranks the EU Member States according to the share of early leavers in the population aged 18-24 and presents an analysis of whether these early leavers are employed or not: those not in employment may or may not want to work. In 2016, the 10.7 % of early leavers from education and training were composed as follows: a 4.5 % share of the EU-28's population aged 18-24 were early leavers in employment, while 4.0 % were early leavers not employed but wanting to work, and the remaining early leavers (2.2 % of the population aged 18-24) were not employed and did not want to work.

Figure 4.8: Distribution of early leavers from education and training by labour status, 2016
(% of population aged 18-24)



Note: ranked on overall share of early leavers.

(1) Not wanting to work: low reliability.
(2) Not wanting to work and would like to work: low reliability.
(3) Not wanting to work: not available due to a very low reliability.
(4) Would like to work: low reliability.
(5) Low reliability.
(6) 2015 instead of 2016. Not wanting to work and employed: low reliability. Would like to work: not available due to a very low reliability.

Source: Eurostat (online data code: edat_lfse_14)

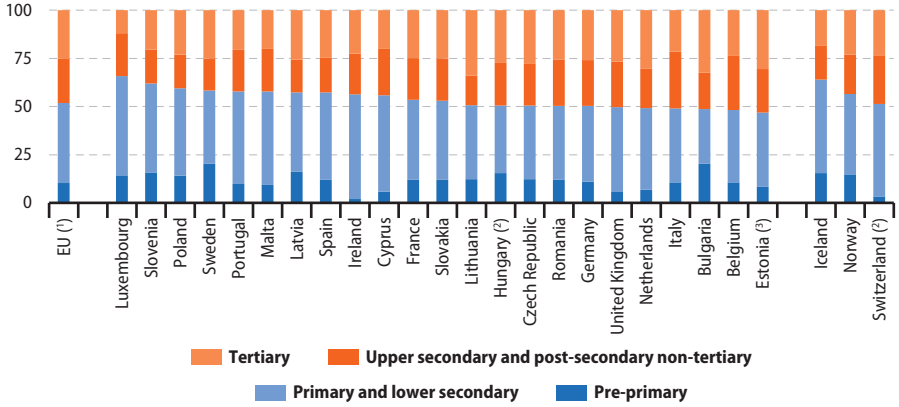
4.5 Educational expenditure

Within the EU, the proportion of financial resources devoted to education is one of the key choices made by national governments. In a similar vein, enterprises, students and their families also make decisions on the financial resources that they are able or willing to set aside for education.

Generally, the smallest share of educational expenditure in 2014 was recorded for pre-primary education, with shares ranging from 2.0 % in Ireland, 5.7 % in the United Kingdom and 5.9 % in Cyprus up to more than one fifth of total education expenditure in Bulgaria and Sweden (both 20.3 %) — see Figure 4.9. These latter two EU Member States were both atypical insofar as pre-primary education did not account for the lowest share of education expenditure, as the proportion of spending on upper secondary and post-secondary non-tertiary education was less; Luxembourg also had a different pattern of expenditure, as its share of total expenditure devoted to pre-primary education was higher than that for tertiary education.

Expenditure on tertiary education in 2014 was generally higher than the share for upper secondary and post-secondary non-tertiary education, although there were six exceptions: aside from Luxembourg, these included Italy, Belgium, Cyprus, Malta and Portugal. Tertiary education accounted for one fifth to one third

Figure 4.9: Distribution of expenditure on education (excluding early childhood educational development) by education level, 2014
(% of expenditure on education)



Note: Denmark, Greece, Croatia, Austria and Finland, not available. Ranked on the combined share for pre-primary, primary and lower secondary.

(1) Based on available data.
(2) 2013.
(3) 2012.

Source: Eurostat (online data code: educ_uoe_fine01)

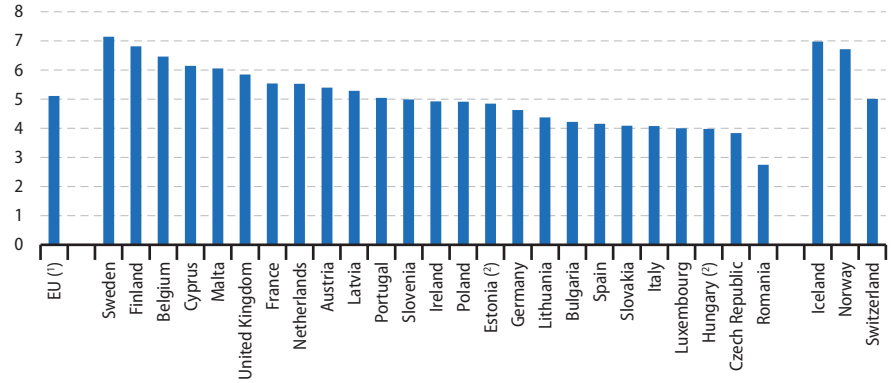
of total educational expenditure in all of the EU Member States for which data are available, except for Luxembourg (which was below this range) and Lithuania (which was slightly above it, 34.0 %). Upper secondary and post-secondary non-tertiary education typically accounted for one sixth to one quarter of total educational expenditure, with lower shares recorded in Lithuania and Sweden, while higher shares were registered in Belgium and Italy.

Public expenditure on education, in other words, expenditure by the government including payments and transfers for education to the non-educational private sector, totalled EUR 683 billion across 25 of the EU Member States in 2014 (2013 data for Estonia and Hungary; no data available for Denmark, Greece and Croatia).

Total expenditure on education in these 25 EU Member States was estimated at 5.1 % when measured relative to gross domestic product (GDP) (see Figure 4.10).

The highest public spending on education relative to GDP among the EU Member States was observed in Sweden (7.1 %), followed by Finland (6.8 %), while relatively high ratios were also recorded among the northern EFTA members of Iceland (7.0 %) and Norway (6.7 %). Aside from Sweden and Finland, most of the Member States reported ratios of public expenditure on education relative to GDP that were between 3.5 % and 6.0 %, with only Romania below this range and Belgium, Cyprus and Malta above it.

Figure 4.10: Public expenditure on education (excluding early childhood educational development) as a share of GDP, 2014
(%)



Note: Denmark, Greece and Croatia, not available.

(1) Based on available data.
(2) 2013.

Source: Eurostat (online data code: educ_uoe_fine06)

5 Labour market

Introduction

Labour market statistics are at the juxtaposition of economic and social domains. Market outcomes within the labour market directly affect not only the economy, but also the personal lives of virtually all Europeans. From an economic viewpoint, these statistics address labour as an input for economic activity, providing measures in relation to hours worked, labour productivity, vacant posts, wage levels, labour costs, and so on. However, labour market statistics also shed light on social and socioeconomic matters, such as the jobless (unemployed persons), earnings and their structural components, social inequalities (for example, the gender pay gap), working patterns and social integration.

The European employment strategy seeks to create more and better jobs throughout the EU. Through an open method of coordination it provides a framework for European Union (EU) Member States to share information, and to discuss and coordinate their employment policies. With the aim of stimulating economic recovery, the European Commission set up the Europe 2020 strategy for smart, sustainable and inclusive growth. Two of its flagship initiatives concerned labour market issues, namely 'An agenda for new skills and jobs' and 'Youth on the move' (which came to an end in December 2014).

In June 2016 the European Commission adopted a Skills Agenda for Europe (COM(2016) 381/2) under the heading 'Working together to strengthen human capital, employability and competitiveness'. This is intended to ensure that people develop the skills necessary for now and the future, in order to boost employability, competitiveness and growth across the EU.

5.1 Employment

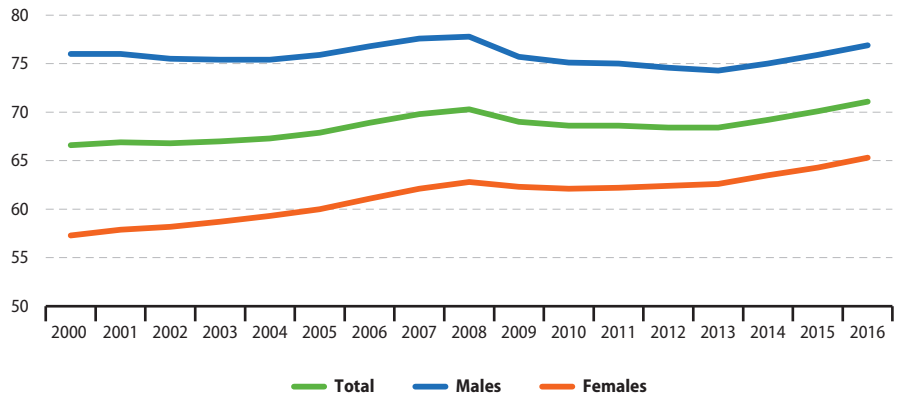
Labour market statistics are at the heart of many EU policies following the introduction of an employment chapter into the Amsterdam Treaty in 1997. The employment rate, in other words the proportion of the working age population that is in employment, is considered to be a key social indicator for analytical purposes when studying developments within labour markets.

In 2016, the EU-28 employment rate for persons aged 20 to 64, as measured by the EU labour force survey (EU LFS), stood at 71.1 %, the highest annual average ever recorded for the EU.

Figure 5.1 shows the development of the employment rate for men and women since 2000. One of the most visible characteristic is the decreased employment rate gap between them. This results from increasing employment rates among women.

Figure 5.2 clearly shows that for the EU-28 the employment rate among the persons aged 25-54 years has stayed practically the same since 2000, whereas it has increased very markedly for older persons (55-64 years) and has decreased for younger persons (15-24 years).

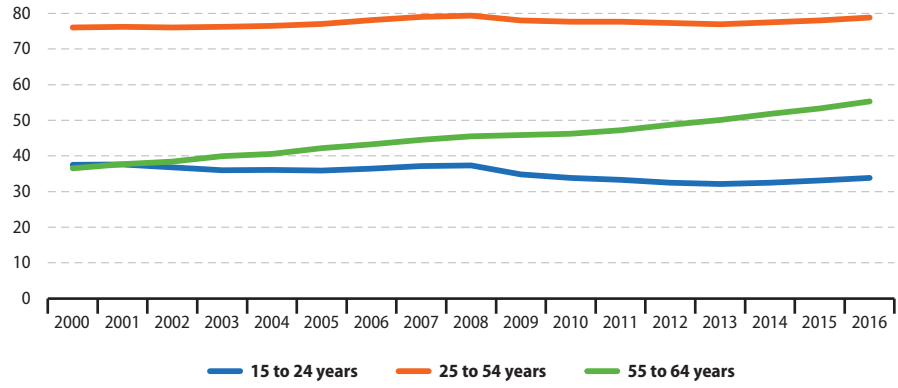
Figure 5.1: Employment rate by sex, persons aged 20-64, EU-28, 2000-2016



Note: EU-27 data for 2000.

Source: Eurostat (online data code: lfsi_emp_a)

Figure 5.2: Employment rate by age, EU-28, 2000-2016



Note: EU-27 data for 2000.

Source: Eurostat (online data code: lfsi_emp_a)

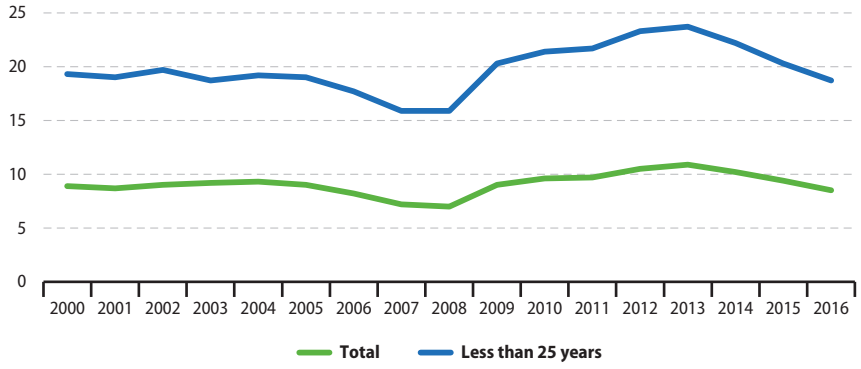
5.2 Unemployment

Unemployment levels and rates move in a cyclical manner, largely related to the general business cycle. However, other factors such as labour market policies and demographic changes may also influence the short and long-term development of unemployment.

In the third quarter of 2005 a period of steadily falling unemployment started across the EU, lasting until the first quarter of 2008, when unemployment reached a low of 16.2 million persons (equivalent to a rate of 6.8 %) before rising sharply in the wake of the financial and economic crisis. Between the first quarter of 2008 and the second quarter of 2010, the level of EU-28 unemployment rose by 6.9 million persons, taking the rate up to 9.7 % (at that time the highest rate recorded since the start of the series in 2000). The unemployment rate was relatively unchanged during the following four quarters, although this was an illusory sign as regards any end to the crisis and increased stability in labour market conditions within the EU. Indeed, between the second quarter of 2011 and the second quarter of 2013, EU-28 unemployment once again increased at a steady pace to a record level of 26.5 million, corresponding to a rate of 11.0 %. There was subsequently a reduction in the unemployment rate, such that it stood at 8.5 % by the third quarter of 2016, corresponding to 20.9 million persons. This drop continued into 2017, with an unemployment rate of 8.0 % in the first quarter of 2017, and 7.8 % in April 2017, the lowest monthly unemployment rate since January 2009.

Figure 5.3 shows that the youth unemployment rate (persons between 15 and up to 24 years) has always been higher than the total unemployment rate. The general pattern is that the youth unemployment mirrors the unemployment for the total population, but that younger people are often more affected by increase in unemployment than older people.

Figure 5.3: Unemployment rate by age, EU-28, 2000-2016
(%)

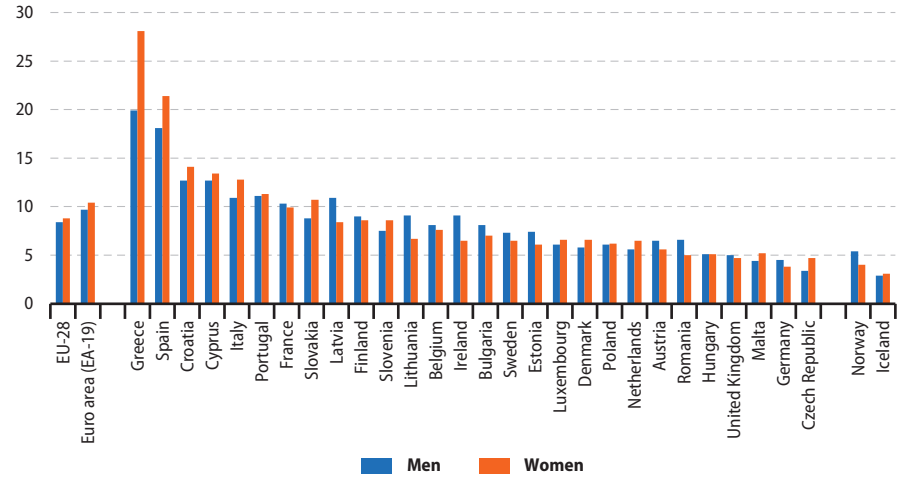


Source: Eurostat (online data codes: une_rt_a and lfsa_urgan)

As for the total unemployment rate, the youth unemployment rate in the EU-28 declined sharply between 2005 and 2007, reaching its lowest value (15.2 %) in the first quarter of 2008. The financial and economic crisis, however, severely hit the younger members of the labour force. From the second quarter of 2008, the youth unemployment rate followed an upward path peaking at 23.9 % in the first quarter of 2013 (aside from temporary reductions during the third quarter of 2010 and first quarter of 2011), before declining to 18.5 % by the third quarter of 2016. It has since then steadily decreased further, to 16.7 % in April 2017, the lowest rate since November 2008.

The unemployment rates for men were higher than the corresponding rates for women during 2016 in 13 out of the 28 EU Member States (see Figure 5.4). The gap between unemployment rates for men and women varied from 8.2 percentage points (p.p.) in Greece (lower unemployment rate for men) to 2.6 p.p. in Ireland (higher unemployment rate for men).

Figure 5.4: Unemployment rate by sex, 2016
(%)



Source: Eurostat (online data codes: une_rt_a)

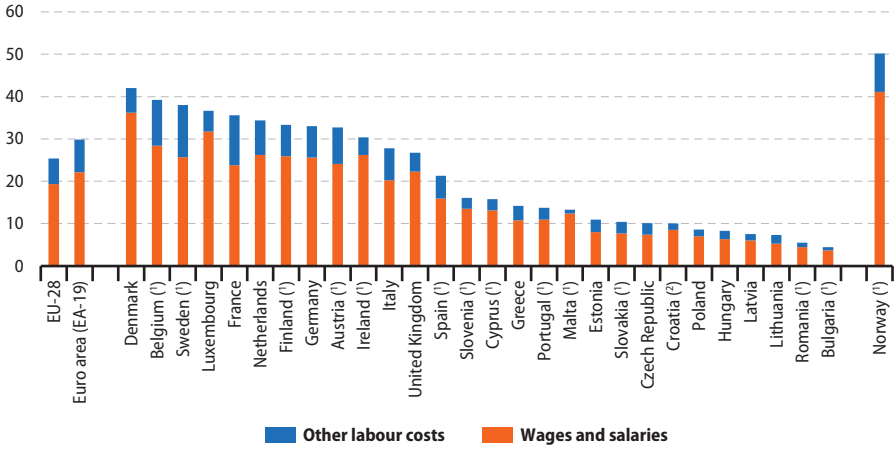
5.3 Wages and labour costs

Labour plays a major role in the functioning of an economy. From the point of view of businesses, it represents a cost (labour costs) that includes not only the wages and salaries paid to employees but also non-wage costs, mainly social contributions payable by the employer. Thus, it is a key determinant of business competitiveness.

The average hourly labour cost in 2016 was estimated at EUR 25.40 in the EU-28 and at EUR 29.80 in the euro area (EA-19). However, this average masks significant differences between EU Member States, with hourly labour costs ranging between EUR 4.40 in Bulgaria and EUR 42.00 in Denmark (see Figure 5.5); the average was higher still (EUR 50.20) in Norway.

Labour costs are made up of costs for wages and salaries plus non-wage costs such as employers' social contributions. In 2016, the share of non-wage costs in total labour costs was 23.9 % in the EU-28, while it was 26.0 % in the euro area. The share of non-wage costs also varied substantially across EU Member States: the highest shares of non-wage costs were recorded in France (33.2 %), Sweden (32.5 %), Belgium (27.5 %), Lithuania (27.8 %) and Italy (27.4 %), while the lowest shares were recorded for Malta (6.6 %), Luxembourg (13.4 %), Ireland (13.8 %), Denmark (13.9 %) and Croatia (14.9 %).

Figure 5.5: Estimated hourly labour costs, 2016
(EUR)



Note: enterprises with 10 or more employees. NACE Rev. 2 Sections B to S excluding O.

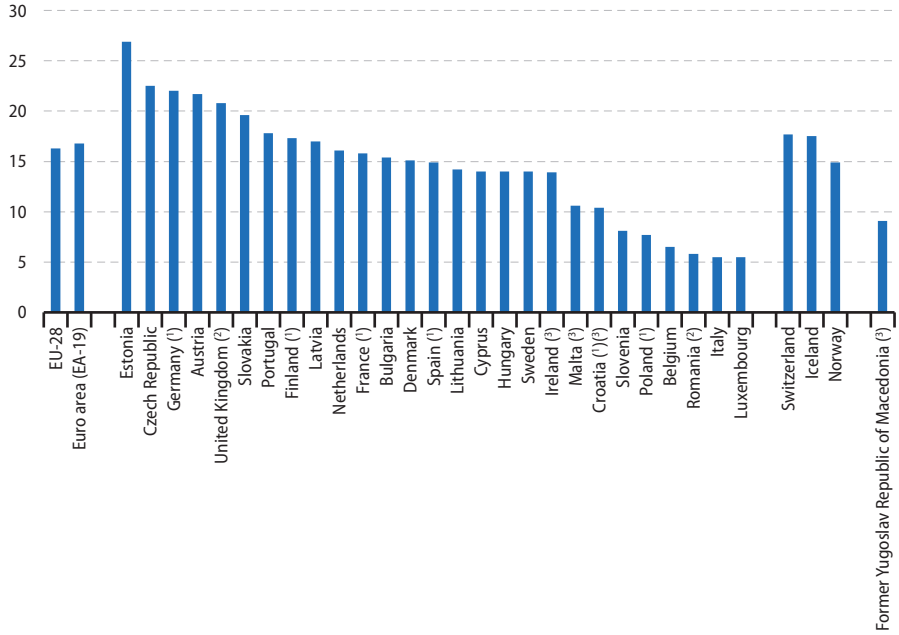
(1) Provisional.
(2) Estimates.

Source: Eurostat (online data code: lc_lci_lev)

The unadjusted gender pay gap is an important indicator to measure differences between the average earnings of men and women in the EU. In 2015, in the EU-28 as a whole, women were paid, on average, 16.3 % less than men, while the difference was 16.8 % for the euro area. The smallest differences in average pay between the sexes were found in Luxembourg, Italy, Romania, Belgium, Poland and Slovenia (less than 10.0 % difference in each of these). The biggest gender pay gaps were identified in Estonia (26.9 %), the Czech Republic (22.5 %), Germany (22.0 %), Austria (21.7 %), and the United Kingdom (20.8 %) — see Figure 5.6.

Various issues contribute to these gender pay gaps, such as: differences in labour force participation rates, differences in the occupations and activities that tend to be male- or female-dominated, differences in the extent to which men and women work on a part-time basis, as well as the attitudes of personnel departments within private and public bodies towards career development and unpaid and/or maternity/parental leave.

Figure 5.6: Gender pay gap, 2015
(% difference between average gross hourly earnings of male and female employees, as % of male gross earnings, unadjusted form)



Note: enterprises with 10 or more employees. NACE Rev. 2 Sections B to S excluding O. Greece: not available.

(1) Provisional.
(2) Estimate.
(3) 2014.

Source: Eurostat (online data code: earn_gr_gpgr2)

5.4 Minimum wage

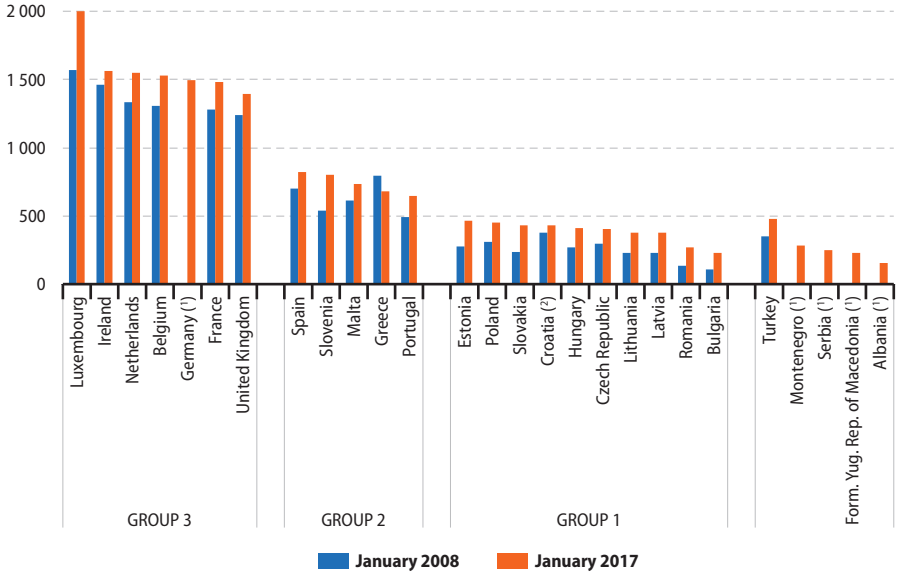
In January 2017, 22 out of the 28 EU Member States (Denmark, Italy, Cyprus, Austria, Finland and Sweden were the exceptions) had a national minimum wage, as did all of the EU candidate countries. As of 1 January 2017, monthly minimum wages varied widely across the Member States, from EUR 235 in Bulgaria to EUR 1 999 in Luxembourg (see Figure 5.7).

Compared with 2008, minimum wages (expressed in euro) were higher in 2017 in every EU Member State having a national minimum wage, except in Greece where they were 14 % lower. Between 2008 and 2017, minimum wages approximately doubled in Bulgaria (an increase of 109 %) and Romania (99 %). In addition, Slovakia (80 %) as well as the three Baltic Member States — Estonia (69 %), Latvia (65 %) and Lithuania (64 %) — also recorded significant increases.

In 2008, among EU candidate countries, only Turkey had a national minimum wage and by 2017 this had increased by 35 % compared with the January 2008 level of EUR 354.

Figure 5.8 compares gross minimum wages taking into account differences in price levels by applying purchasing power parities (PPPs) for household final consumption expenditure; as might be expected, adjusting for differences in price levels reduces the variation between countries.

Figure 5.7: Minimum wages, January 2008 and 2017
(EUR per month)



Note: Denmark, Italy, Cyprus, Austria, Finland and Sweden, no national minimum wage.

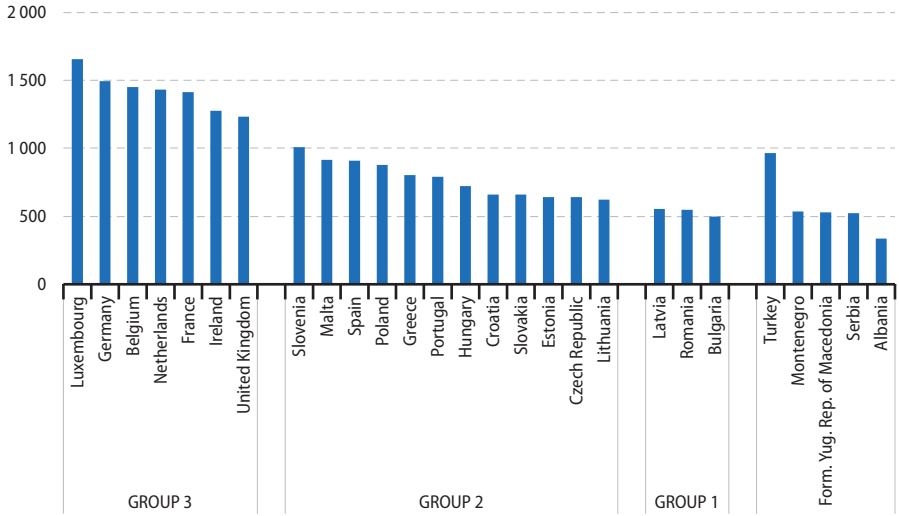
(1) January 2008 and rate of change: not available.
(2) June 2008 instead of January 2008.

Source: Eurostat (online data code: earn_mw_cur)

The EU Member States in Group 1, with relatively low minimum wages in euro terms, tended to have lower price levels and therefore relatively higher minimum wages when expressed in purchasing power standard (PPS). On the other hand, Member States in Group 3, with relatively high minimum wages in euro terms, tended to have higher price levels and their minimum wages in PPS terms were therefore often lower.

The disparities in minimum wage rates between the EU Member States were reduced from a ratio of 1:8.5 in euro (meaning that the highest minimum wage was 8.5 times as high as the lowest one, expressed in euro) to a ratio of 1:3.3 when expressed in PPS (meaning that the highest minimum wage was 3.3 times as higher as the lowest one, expressed in PPS). Across the Member States, monthly minimum wages in January 2017 ranged from 501 PPS in Bulgaria to 1 659 PPS in Luxembourg.

Figure 5.8: Minimum wages, January 2017
(PPS per month)



Note: estimates. Denmark, Italy, Cyprus, Austria, Finland and Sweden, no national minimum wage.

Source: Eurostat (online data code: earn_mw_cur)

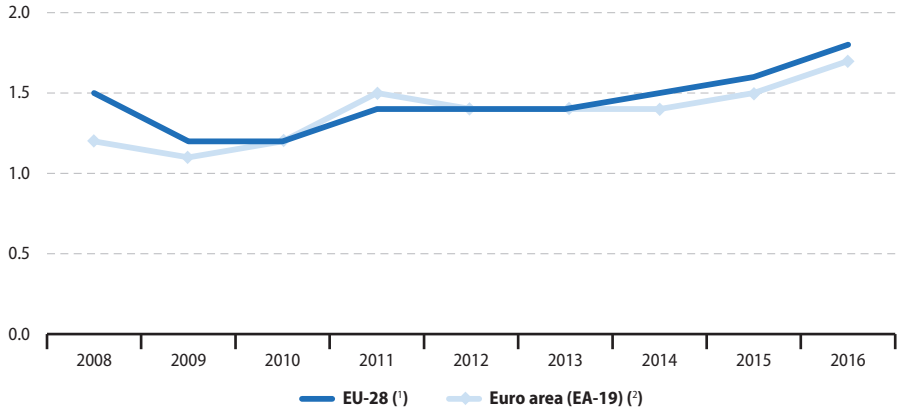
5.5 Job vacancy trends

EU policies in the area of job vacancies aim to improve the functioning of the labour market by trying to help to match supply and demand more closely. The European jobs and mobility portal (EURES) was set up in order to enable job seekers to consult all vacancies publicised by the employment services of each EU Member State.

There was a downward development in the annual job vacancy rate in the EU-27/EU-28 ([1]) from 2008 to 2009, with the rate reaching a low of 1.2 % in 2009 (at the height of the global financial and economic crisis) and staying at this level in 2010. The EU-28 job vacancy rate increased from 1.2 % in 2010 to reach 1.8 % in 2016. This overall increase was composed of an increase to 1.4 % in 2011, stability in 2012 and 2013, and further increases in 2014, 2015 and 2016 — see Figure 5.9.

([1]) Note that there is a break in series for the EU between 2009 and 2010 as the coverage increased from 27 to 28 EU Member States.

Figure 5.9: Job vacancy rate, 2008-2016
(%)



Note: NACE Rev. 2 Sections B to S.

([1]) 2008 and 2009: EU-27.
([2]) Estimates.

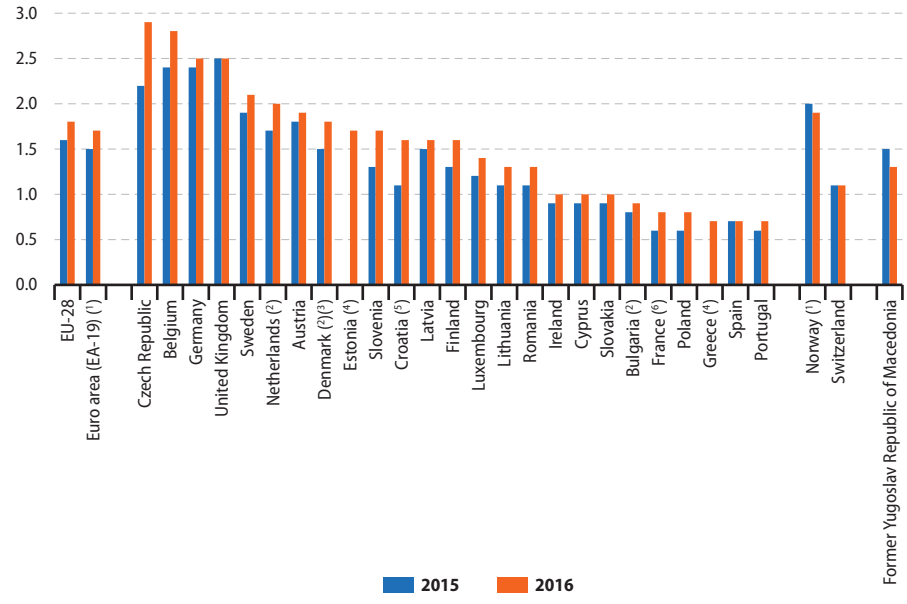
Source: Eurostat (online data code: jvs_a_rate_r2)

The pattern of development for the euro area (EA-19) was quite similar to that recorded for the EU. The job vacancy rate for the euro area fell less strongly than was observed in the EU between 2008 and 2009 (to reach a low of 1.1 %), before increasing in both 2010 and 2011, compared with just 2011 for the EU-28. A fall in the rate for the euro area in 2012 brought the rates for the euro area and the EU-28 back together where they stayed in 2013. In 2014, the increase in the rate observed for the EU-28 was not reflected in the rate for the euro area, while in 2015 and 2016 the rates for the two aggregates increased in parallel, with the latest job vacancy rate for the euro area reaching 1.7 % in 2016 (0.1 percentage points lower than the latest figure for the EU-28).

Among the EU Member States (data not available for Italy, Hungary or Malta), the annual job vacancy rate in 2016 was highest in the Czech Republic (2.9 %) and Belgium (2.8 %), while rates ranged between 2.0 % and 2.5 % in Germany, the United Kingdom, Sweden and the Netherlands — see Figure 5.10. The job vacancy rate was lower than 1.0 % in six of the Member States in 2016, with the lowest rates (0.7 %) recorded in Greece, Spain and Portugal.

Figure 5.10: Job vacancy rate, 2015 and 2016

(%)



Note: NACE Rev. 2 Sections B to S. Italy, Hungary and Malta: not available.

(1) Estimates.
(2) Provisional.
(3) NACE Rev. 2 Sections B to N.
(4) 2015: not available.
(5) Break in series.
(6) Units with 10 or more employees.

Source: Eurostat (online data code: jvs_a_rate_r2)

6 Economy and finance

Introduction

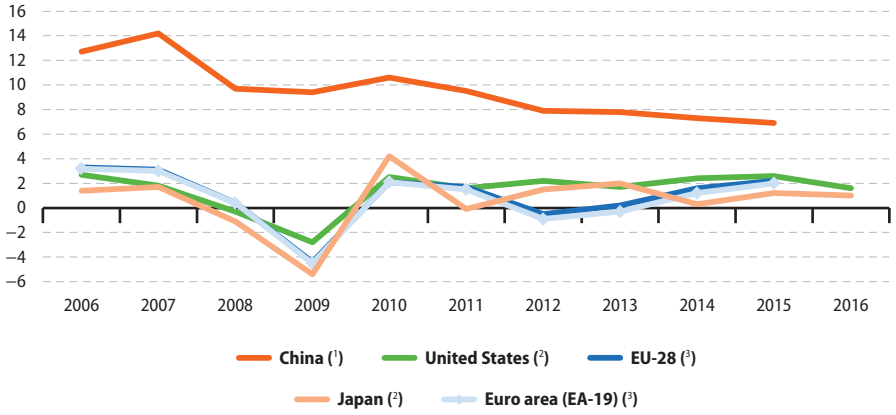
In 2014, the European Commission set out a list of 10 key priorities, which would be the focus of its 2015 work programme. Three of these were of particular relevance for economic statistics, namely: the top priority to boost jobs, growth and investment; the European Union's (EU) internal market; and economic and monetary union. It is envisaged that the European Commission's jobs, growth and investment package will focus on cutting regulation, making smarter use of existing financial resources and making flexible use of public funds in order to provide up to EUR 300 billion in additional private and public investment over three years.

6.1 National accounts and GDP

Gross domestic product (GDP) is the most frequently used measure for the overall size of an economy, while derived indicators such as GDP per capita are widely used for a comparison of living standards, or to monitor economic convergence or divergence within the EU.

The global financial and economic crisis resulted in a severe recession in the EU, Japan and the United States in 2009 (see Figure 6.1), followed by a recovery in 2010. The crisis was already apparent in 2008 when there had been a considerable reduction in the rate of increase for GDP in the EU-28 and this was followed by a fall in real GDP of 4.4 % in 2009. The recovery in the EU-28 saw the volume index of GDP (based on chain linked volumes) increase by 2.1 % in 2010 and there was a further gain of 1.7 % in 2011. Subsequently, GDP contracted 0.5 % in 2012 in

Figure 6.1: Real GDP growth, 2006-2016
(% change compared with the previous year)



Note: based on chain linked volumes.

(1) 2006-2010: estimates. 2016: not available. Including Hong Kong.
(2) 2016: estimate.
(3) 2016: not available.

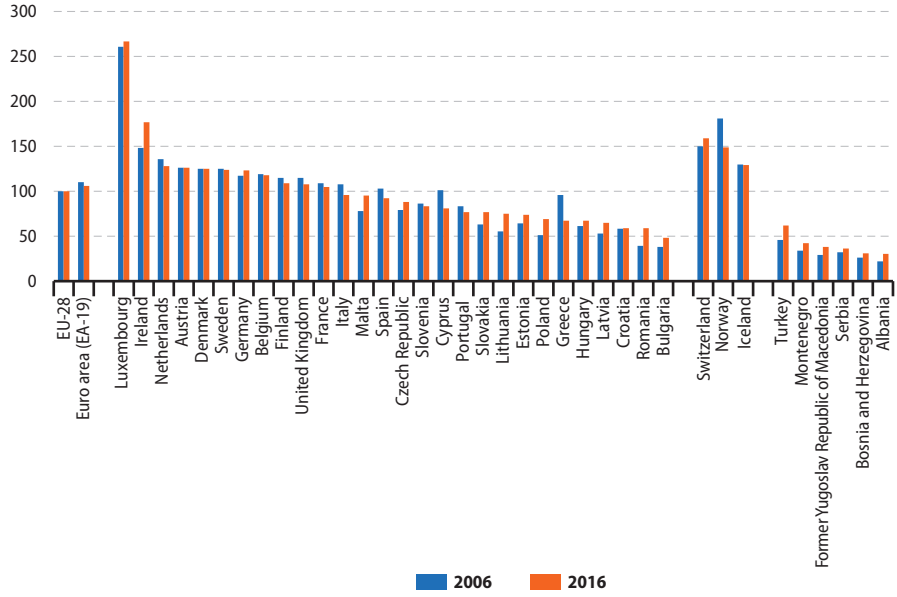
Source: Eurostat (online data code: naida_10_gdp), OECD and World Bank

real terms, before progressively larger positive rates of change were recorded in 2013 (0.2 %), 2014 (1.6 %) and 2015 (2.2 %).

To evaluate standards of living, it is commonplace to use GDP per capita, in other words, adjusted for the size of an economy in terms of its population. For comparing GDP per head between EU Member States (and with non-member countries), values expressed in purchasing power standards (PPS) have been analysed as they are adjusted for differences in price levels across countries. The relative position of individual countries can be expressed through a comparison with the EU-28 average, with this set to equal 100 (see Figure 6.2). The highest value among the EU Member States was recorded for Luxembourg, where GDP per capita in PPS was about 2.7 times the EU-28 average in 2016 (which is partly explained by the importance of cross-border workers from Belgium, France and Germany). On the other hand, GDP per capita in PPS was less than half the EU-28 average in Bulgaria.

Although PPS figures should, in principle, be used for cross-country comparisons in a single year rather than over time, the development of these figures during the past decade suggests that some convergence in living standards took place.

Figure 6.2: GDP per capita at current market prices, 2006 and 2016
(EU-28 = 100; based on PPS per inhabitant)



Note: 2016, provisional.

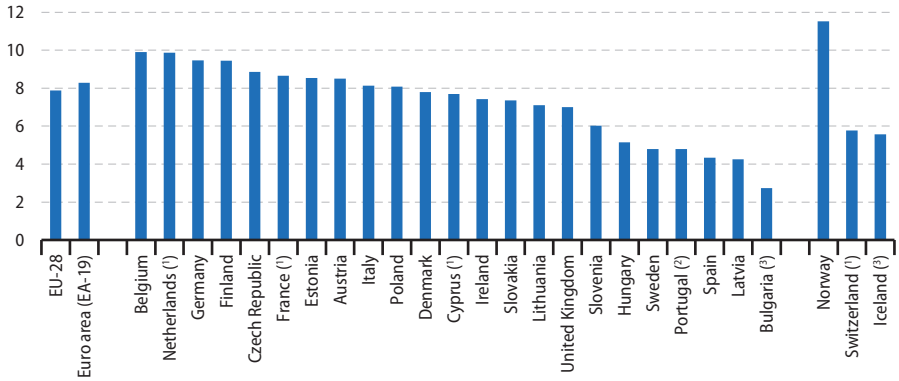
Source: Eurostat (online data codes: naida_10_gdp, nama_10_pc and naida_10_pe), OECD and World Bank

6.2 Sector accounts

Economic developments in production, income generation and (re)distribution, consumption and investment may be better understood when analysed by institutional sector. In particular, the EU's sector accounts provide several key indicators for households and non-financial corporations, like the household saving rate and business profit share. The analysis in this subchapter focuses on investment rates.

In 2015, the (gross) household investment rate in the EU-28 was 7.9 % in the EU-28 (see Figure 6.3), while the corresponding figure for the euro area was 0.4 percentage points (p.p.) higher at 8.3 %. The household investment rate ranged (among the 23 EU Member States for which data are available) from 9.9 % in Belgium and the Netherlands and 9.5 % in Germany and Finland, down to 4.3 % in Spain and Latvia and a low of 2.7 % in Bulgaria (2014 data). The household investment rate was unchanged between 2014 and 2015 for both the EU-28 and euro area.

Figure 6.3: Household investment rate (gross), 2015
(%)



Note: including non-profit institutions serving households. Greece, Croatia, Luxembourg, Malta and Romania, not available.

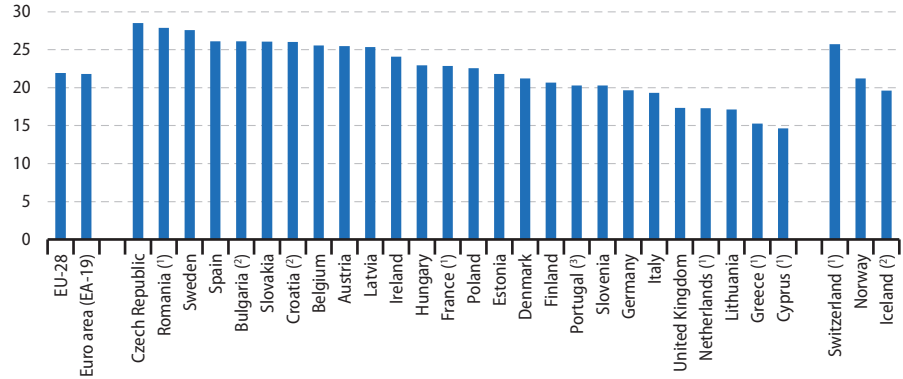
(1) Provisional.
(2) Estimate.
(3) 2014.

Source: Eurostat (online data code: nasa_10_ki)

Figure 6.4 shows that the business investment rate (for non-financial corporations) in 2015 was 21.9 % in the EU-28 and marginally lower in the euro area (21.8 %). Between 2014 and 2015, the business investment rate increased in both of these areas by a small margin, rising by 0.2 p.p. in the EU-28 and by 0.1 points for the euro area.

The highest business investment rates among the 26 EU Member States (for which data are available) were recorded in the Czech Republic, Romania, Sweden, Spain, Bulgaria (2014 data), Slovakia, Croatia (2014 data), Belgium, Austria and Latvia, all above 25.0 %; this was also the case in Switzerland. The lowest rates were recorded in Greece (15.3 %) and Cyprus (14.6 %). The business investment rates of the five largest EU-28 economies varied quite considerably: in Spain (26.1 %) and France (22.9 %) the latest rates for 2015 were clearly above the EU-28 average, while in Germany (19.7 %), Italy (19.3 %) and the United Kingdom (17.3 %) they were clearly below the EU-28 average.

Figure 6.4: Investment rate (gross) of non-financial corporations, 2015
(%)



Note: Luxembourg and Malta, not available.

(1) Provisional.
(2) 2014.
(3) Estimate.

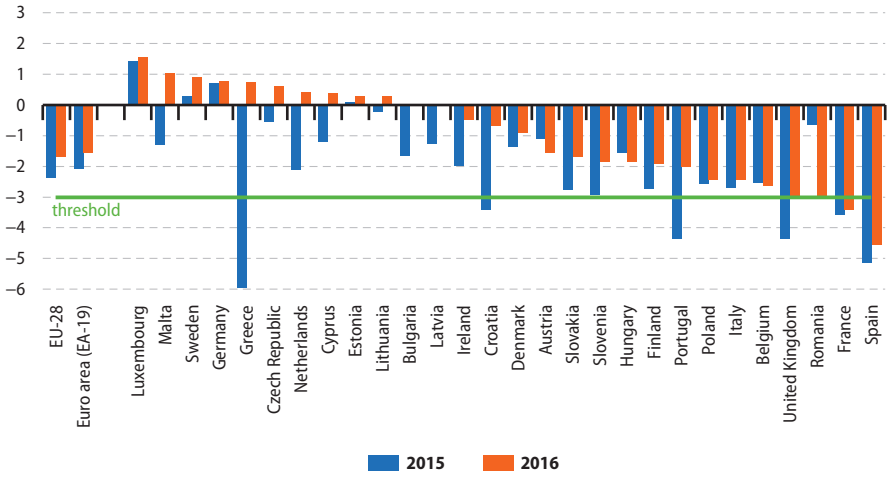
Source: Eurostat (online data code: nasa_10_ki)

6.3 Government finances

Government finance statistics are crucial indicators for determining the health of the economies of the EU Member States. Under the terms of the EU's Stability and Growth Pact (SGP), Member States pledged to keep their deficits and debt below certain limits: a Member State's government deficit may not exceed −3 % of its GDP, while its debt may not exceed 60 % of GDP. If a Member State does not respect these limits, the so-called excessive deficit procedure (EDP) is triggered.

The EU-28's government deficit-to-GDP ratio decreased from −2.4 % in 2015 to −1.7 % in 2016, while this ratio decreased in the EA-19 from −2.1 % to −1.5 % — see Figure 6.5. Ten EU Member States registered government surpluses in 2016. Bulgaria and Latvia recorded a very slight surplus of 0.0 % of GDP. There were 14 EU Member States which recorded deficits in 2016 that were smaller than or equal to −3.0 % of GDP. France and Spain recorded deficits of −3.4 % of GDP and −4.5 % of GDP respectively. Both Member States also reported that their deficits (relative to GDP) had exceeded −3.0 % during each of the three previous years.

Figure 6.5: Public balance, 2015 and 2016
(Net lending or net borrowing of the general government sector, % of GDP)



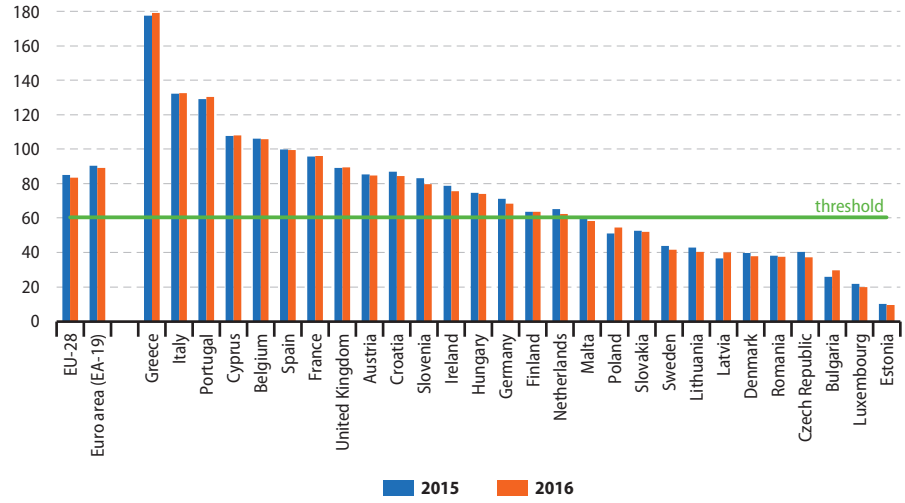
Note: data extracted on 24.04.2017.

Source: Eurostat (online data code: tec00127)

In the EU-28, the government debt-to-GDP ratio decreased from 84.9 % at the end of 2015 to 83.5 % at the end of 2016, while in the EA-19 it fell from 90.3 % to 89.2 % (see Figure 6.6). A total of 16 EU Member States reported a debt ratio above 60 % of GDP at the end of 2016: the highest of these was registered by Greece (179.0 %), followed by Italy (132.6 %), Portugal (130.4 %), Cyprus (107.8 %) and Belgium (105.8 %). The lowest ratios of government debt-to-GDP were recorded in Estonia (9.5 %), Luxembourg (20.0 %) and Bulgaria (29.5 %).

At the end of 2016, government debt-to-GDP ratios were higher for nine EU Member States than they had been at the end of 2015, while this ratio was lower for 19 Member States, most notably for Slovenia (−3.5 p.p. of GDP), Ireland (−3.3 p.p.) and the Czech Republic (−3.1 p.p.). The highest increases of debt-to-GDP ratios between the end of 2015 and the end of 2016 were observed in Latvia (3.6 p.p.), Bulgaria (3.5 p.p.) and Poland (3.3 p.p.).

Figure 6.6: General government debt, 2015 and 2016
(General government consolidated gross debt, % of GDP)



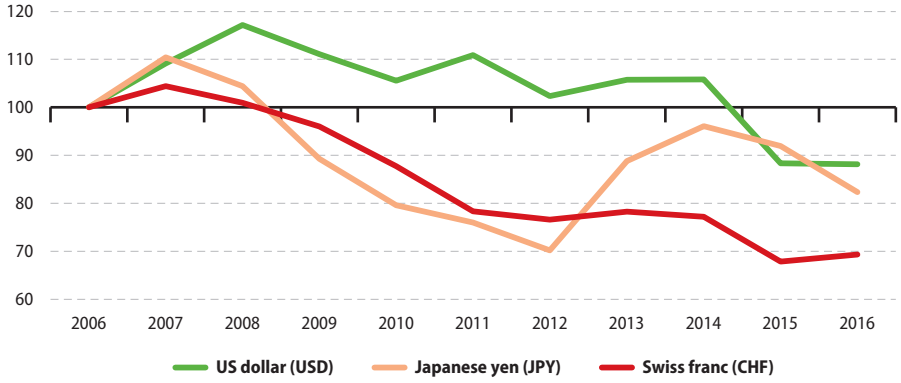
Note: data extracted on 24.04.2017.

Source: Eurostat (online data code: tsdde410)

6.4 Exchange rates and interest rates

The indices presented in Figure 6.7 start in 2006, towards the end of a period when the euro was still appreciating from historically low levels against many other currencies. There was a marked appreciation in the value of the euro compared with the Japanese yen in 2007 (10.4 %) after which the euro depreciated rapidly, falling, on average, by 9.5 % per year between 2007 and 2012. The euro appreciated again between 2012 and 2014 (14.5 % per year) bringing the exchange rate back close to its level in 2006. However, there were further depreciations in the value of the euro against the yen in 2015 and particularly in 2016, by when the value of the euro against the yen was 17.7 % lower than it had been a decade earlier in 2006. Initially, a similar pattern was observed against the United States dollar, with the euro appreciating on average by 7.6 % per year during the period 2006-2008. Thereafter, a more gentle but less regular depreciation was observed through to 2014 (−2.1 % per year), followed by a considerably sharper depreciation (−19.7 %) in 2015 and almost no change in 2016 (−0.2 %), such that the euro was worth 11.8 % less against the dollar in 2016 than it had been in 2006. By contrast, there was a relatively low degree of fluctuation between the euro and the Swiss franc during the period 2006-2009, with the exchange rate varying by less than 5 %.

Figure 6.7: Exchange rates against the euro, 2006-2016
(2006 = 100)



Note: a reduction in the value of the index shows an appreciation in the value of the foreign currency and a depreciation in the value of the euro.

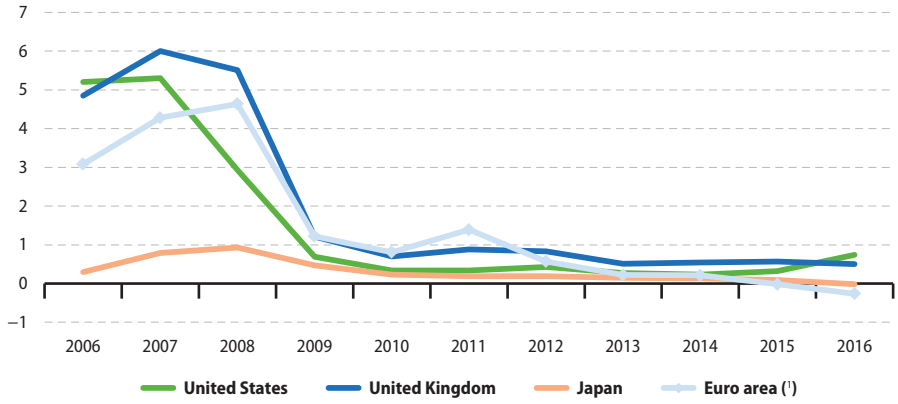
Source: Eurostat (online data code: ert_bil_eur_a)

Thereafter, the euro depreciated at a rapid pace against the Swiss franc, with a period of relative stability between 2011 and 2014. This resulted from the Swiss central bank introducing a minimum exchange rate of CHF 1.20 = EUR 1.00 in September 2011, effectively capping the Swiss franc's appreciation. This minimum exchange rate was maintained until 15 January 2015; the euro depreciated by 13.7 % in 2015 against the Swiss franc and despite a modest appreciation in the value of the euro in 2016 (2.0 %), the euro remained 30.7 % lower against the Swiss franc in 2016 than it had been in 2006, equivalent to an average annual fall of 3.6 %

Money market rates, also known as interbank rates, are interest rates used by banks for operations among themselves. In the money market, banks are able to trade their surpluses and deficits; Figure 6.8 shows three-month interbank rates. In recent years, these rates peaked around 2007 or 2008 and fell at a rapid pace in 2009 as the effects of the global financial and economic crisis were felt. Subsequently, interbank rates generally continued to fall, although at a much more moderate pace. During the whole of the period 2012-2016, interbank rates for the euro area, the United Kingdom, Japan and the United States were consistently found within the range of −1.00 to +1.00 % (this was the case in Japan for the whole of the time series). Average short-term interest rates in the euro area turned negative (−0.02 %) in 2015 and this pattern was continued in 2016 when the latest annual rate was −0.26 %.

Figure 6.8: Short-term interest rates — three-month interbank rates (annual average), 2006-2016

(%)



(1) 2006: EA-12. 2007: EA-13. 2008: EA-15. 2009-2010: EA-16. 2011-2013: EA-17. 2014: EA-18. 2015-2016: EA-19. Euribor.

Source: Eurostat (online data code: tec00035), ECB

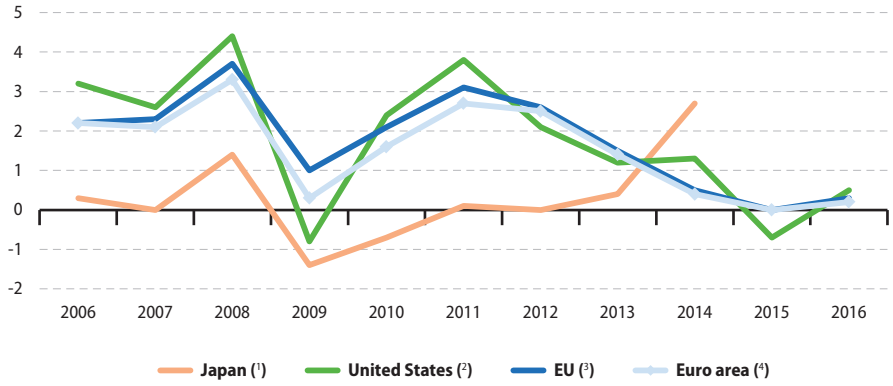
6.5 Consumer prices

Inflation is the increase in the general level of prices of goods and services in an economy; the reverse situation is deflation when the general level of prices falls. Inflation and deflation are usually measured by consumer price indices or retail price indices. Within the EU, a specific consumer price index has been developed — the harmonised index of consumer prices (HICP). Other factors (such as wages) being equal, inflation in an economy means that the purchasing power of consumers falls as they are no longer able to purchase the same amount of goods and services with the same amount of money.

In the EU, average annual inflation reached 3.7 % in 2008. However, after relatively sharp movements during the period 2008-2012 (see Figure 6.9), the rate at which prices were rising slowed to 1.5 % in 2013, 0.5 % in 2014 and in 2015 there was no change (0.0 %); the latest information available relates to 2016 when the EU inflation rate reached 0.3 %.

The overall change in the HICP in the EU during the period 2006-2016 was 18.4 %, equivalent to an average of 1.7 % per annum. Price changes in the United States were broadly similar, rising overall by 18.1 % during the same period, with a pattern of development that was very close to that observed in the EU.

Figure 6.9: HICP all-items, development of the annual average inflation rates, 2006-2016
(%)

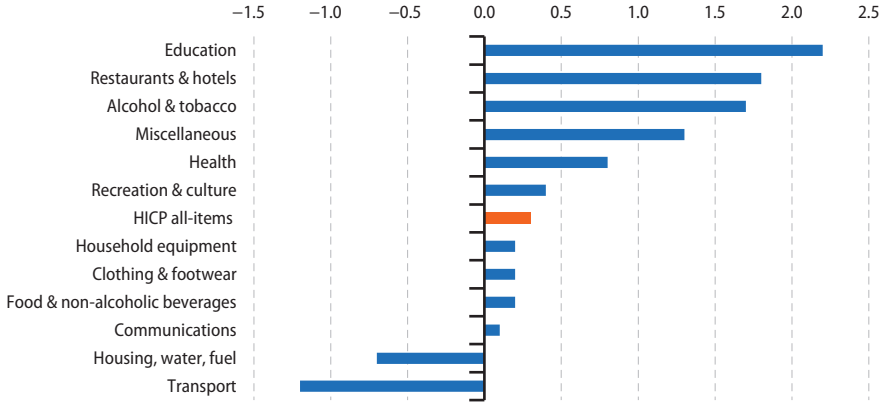


(1) National CPI: not strictly comparable with the HICP. 2015 and 2016: not available.
(2) Definition differs.
(3) The data refer to the official EU aggregate, its country coverage changes in line with the addition of new EU Member States and integrates them using a chain-linked index formula.
(4) The data refer to the official euro area aggregate, its country coverage changes in line with the addition of new EA Member States and integrates them using a chain-linked index formula.

Source: Eurostat (online data codes: prc_hicp_aind and prc_ipc_a)

Looking in more detail at the latest developments, the prices of education and alcoholic beverages and tobacco continued to rise at a fast pace between 2015 and 2016, with annual increases in the EU of 2.2 % and 1.7 % respectively, while the price of restaurants and hotels also rose relatively rapidly (1.8 %) — see Figure 6.10. The only other heading to record a price increase of more than 1.0 % was that of miscellaneous goods and services (where prices in the EU rose by 1.3 %). At the other end of the spectrum, prices fell between 2015 and 2016 for housing, water and fuel (−0.7 %) and transport (−1.2 %).

Figure 6.10: HICP main headings, annual average inflation rates, EU-28, 2016
(%)



Source: Eurostat (online data code: prc_hicp_aind)

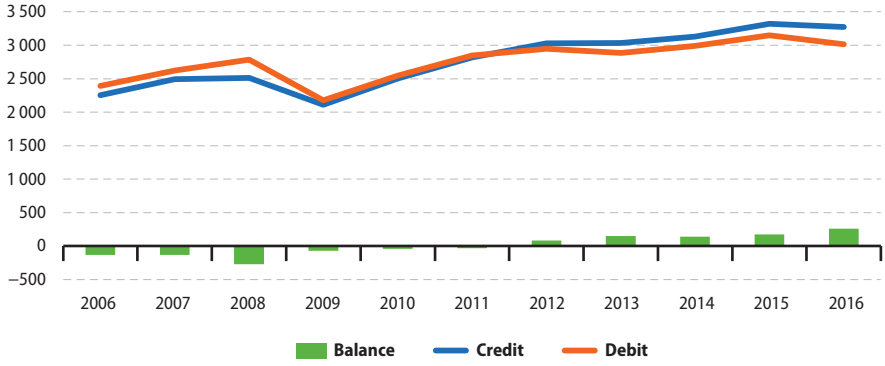
6.6 Balance of payments

The balance of payments records all economic transactions between resident and non-resident entities during a given period. This article presents data on the current and financial accounts of the balance of payments for the EU and its Member States. Data are presented in regard to the new compilation standard of the IMF's sixth balance of payments manual (BPM6).

The balance of the current and capital accounts balance determine the exposure of an economy to the rest of the world, whereas the financial account explains how it is financed.

The current account surplus of the EU-28 was EUR 258.5 billion in 2016 (see Figure 6.11), corresponding to 1.7 % of GDP. The latest developments for the EU-28's current account show a continuation of the pattern established since 2008: while the current account deficit peaked in 2008 at 2.1 % of GDP, it gradually diminished, and in 2012 turned into a surplus equivalent to 0.6 % of GDP; the surplus was equivalent to 1.0 % of GDP in 2014 and 1.2 % in 2015. The current account surplus of the EU-28 for 2016 was based on firm surpluses in the component accounts for goods (1.2 % of GDP), services (0.9 % of GDP) and to a lesser extent for primary income (0.2 % of GDP), while secondary income (−0.5 % of GDP) balanced slightly negatively.

Figure 6.11: Current account transactions, EU-28, 2006-2016
(EUR billion)

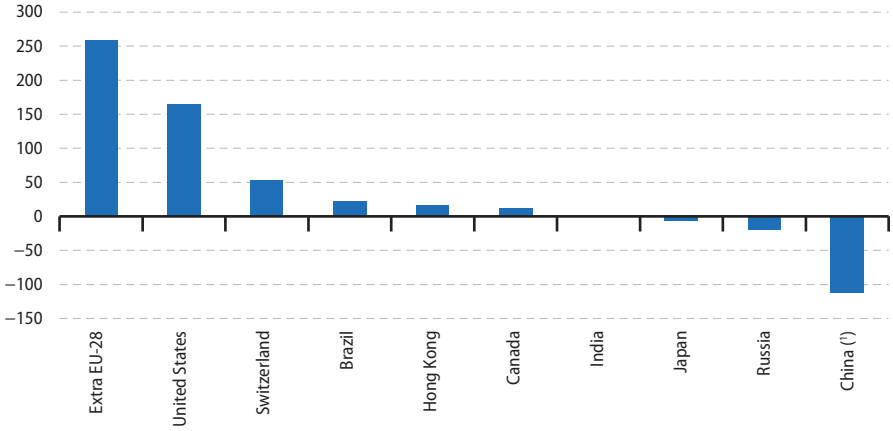


Note: EU-28 vis-à-vis extra-EU-28.

Source: Eurostat (online data code: bop_eu6_q)

Among the partner countries and regions shown in Figure 6.12, the EU-28's current account deficit was largest with China, standing at EUR 112.5 billion in 2016, followed by Russia (EUR 19.3 billion) and Japan (EUR 6.6 billion). On the other hand, the highest current account surpluses were recorded with the United States (EUR 164.8 billion) and Switzerland (EUR 53.7 billion). Smaller surpluses were recorded with Brazil, Hong Kong, Canada and India.

Figure 6.12: Current account balance with selected partners, EU-28, 2016
(EUR billion)



(1) Excluding Hong Kong.

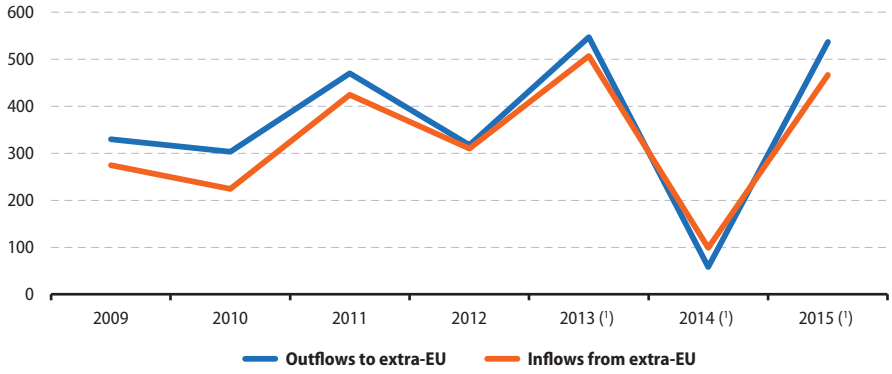
(Source: Eurostat (online data code: bop_eu6_q)

6.7 Foreign direct investment

This subchapter gives an overview of foreign direct investments (FDI) for the EU. The analysis covers the period 2009-2015 for the EU-28; note that the 2013-2015 figures are based on new methodological standards — Balance of Payments Manual, 6th edition (BPM6), and Benchmark Definition of FDI, 4th edition (BD4) — and therefore that the statistics from 2013 onwards are not directly comparable with those for previous years.

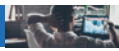
Both EU inward flows (direct investments in EU Member States from non-member countries) and outward flows (EU Member States' direct investments in countries outside the EU) fell sharply in 2014 and were at their lowest levels during the period 2009-2015 (see Figure 6.13). These big falls were mainly due to large disinvestments in the traditional partner countries — the United States and Switzerland — as well as disinvestments from the United States in the EU. In 2015, the level of inward and outward FDI flows returned to a similar level to that recorded in 2013.

Figure 6.13: FDI flows, EU-28, 2009-2015
(billion EUR)



(1) Based on international standards BPM6 and BD4.

Source: Eurostat (online data codes: bop_fdi_main, bop_fdi6_flow and bop_fdi6_pos)



At the end of 2015, North America had the biggest share (40.8 %) of EU-28 FDI stocks abroad. The United States alone accounted for some 37.1 % (EUR 2 560 billion) of all EU-28 outward stocks (see Table 6.1).

European countries outside the EU accounted for 19.6 % of EU-28 outward stocks at the end of 2015. Switzerland was the second most important location, accounting for 11.9 % of EU-28 outward stocks, its main activity being financial intermediation.

At the end of 2015, the United States held more than two fifths (41 %) of total EU-28 FDI inward stocks from the rest of the world. The United States thus maintained its position as the major holder of FDI stocks in the EU-28, having invested, as of the end of 2014, mostly in the financial services sector, followed by manufacturing; one third of the latter was in the manufacture of petroleum, chemical, pharmaceutical, rubber and plastic products, and nearly one third in the manufacture of food products, beverages and tobacco products.

Similar to the ranking for FDI outward positions, Switzerland was the second largest FDI stock holder in the EU-28 at the end of 2015, with stocks valued at EUR 619 billion, more than half (56 %) of which were in the financial services sector (end of 2014).

Table 6.1: Top 10 countries as extra EU-28 partners for FDI stocks, EU-28, end 2013-2015
(billion EUR)

	Outward				Inward			
	Value (billion EUR)			Share (%)	Value (billion EUR)			Share (%)
	2013	2014	2015	2015	2013	2014	2015	2015
Extra EU-28	5 456.2	6 000.2	6 891.6	100.0	4 130.3	4 758.5	5 744.9	100.0
United States	1 835.6	2 059.4	2 559.8	37.1	1 676.0	1 784.9	2 380.9	41.4
Switzerland	676.8	691.8	821.8	11.9	491.5	501.6	619.3	10.8
Bermuda	276.2	304.5	362.6	5.3	310.8	426.8	495.0	8.6
Brazil	276.8	331.6	329.9	4.8	101.1	116.6	127.6	2.2
Canada	227.5	273.5	248.8	3.6	131.4	199.4	219.2	3.8
China	126.0	143.2	167.9	2.4	36.0	23.5	34.9	0.6
Russia	192.1	162.7	162.2	2.4	52.6	56.4	61.0	1.1
Mexico	111.8	135.1	161.6	2.3	25.3	31.1	36.5	0.6
Singapore	98.5	116.4	153.2	2.2	36.8	52.7	57.0	1.0
Hong Kong	112.6	127.6	119.2	1.7	57.5	89.8	79.0	1.4

Note: based on international standards BPM6 and BD4.

Source: Eurostat (online data codes: bop_fdi_main and bop_fdi6_pos)

7 International trade

Introduction

International trade in goods is often cited as being at the forefront of the process of economic globalisation. This pattern has been evident throughout history, as countries specialise in the production of certain goods (following their comparative advantages), while relying on imports to obtain others.

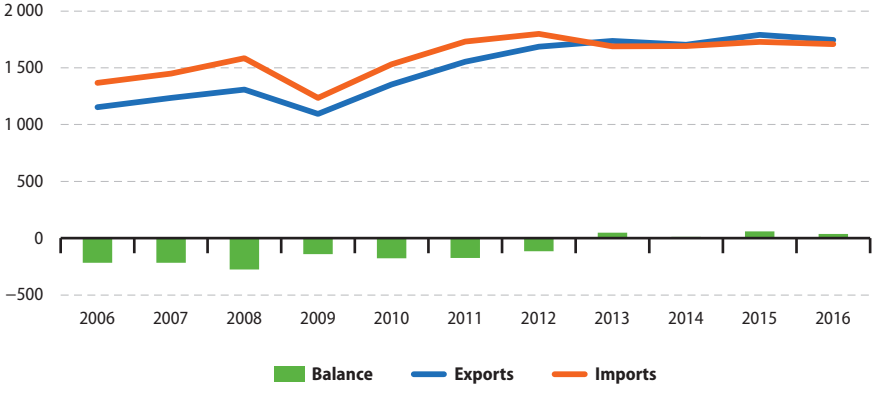
The European Union (EU) has a common international trade policy, often referred to as the common commercial policy. In other words, the EU acts as a single entity on trade issues, including issues related to the World Trade Organisation (WTO). In these cases, the European Commission negotiates trade agreements and represents Europe's interests on behalf of the EU Member States.

7.1 International trade in goods

EU-28 international trade in goods with the rest of the world (the sum of extra-EU exports and imports) was valued at EUR 3 453 billion in 2016. Both imports and exports were marginally lower in comparison with 2015, with the reduction for exports (EUR 44 billion) approximately twice the size of that recorded for imports (EUR 21 billion). As a result, the EU-28's trade surplus remained positive, but fell from EUR 60 billion in 2015 to EUR 38 billion in 2016.

After experiencing a sharp fall in both exports and imports in 2009, the EU-28 saw its exports rise 58.7 % over four years to a record level of EUR 1 736 billion in 2013 — see Figure 7.1. Exports then fell 1.9 % in 2014 before rising

Figure 7.1: Development of international trade in goods, EU-28, 2006–2016
(billion EUR)



Note: external trade flows with extra EU-28.

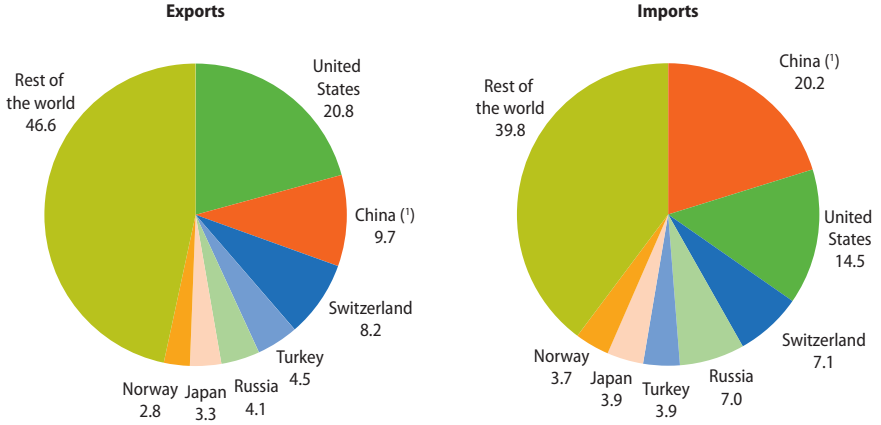
Source: Eurostat (online data code: ext_lt_intertrd)

5.1 % to a new peak in 2015 of EUR 1 789 billion and then declining again by 2.4 % in 2016. By contrast, the increase in imports after 2009 was 45.6 % over three years to peak in 2012 at EUR 1 799 billion. Imports fell 6.2 % in 2013 before stabilising (up 0.3 %) in 2014, increasing by 2.2 % in 2015 and then falling by 1.2 % in 2016, when their level was still below the value reached in 2012.

The United States remained, by far, the most common destination for goods exported from the EU-28 in 2016 (see Figure 7.2), although the share of EU-28 exports destined for the United States fell from 28.0 % of the total in 2002 to 16.7 % in 2013 before recovering to 20.8 % by 2016. China was the second most important destination market for EU-28 exports in 2016 (9.7 % of the EU-28 total), followed by Switzerland (8.2 %). In 2015, Turkey overtook Russia to be the fourth largest destination for EU-28 exports of goods and this pattern continued in 2016 when Turkey accounted for 4.5 % of EU-28 exports.

The seven largest suppliers of EU-28 imports of goods were the same countries as the seven largest destination markets for EU-28 exports, although their order was slightly different. These seven countries accounted for a larger share of the EU-28's imports of goods than their share of EU-28 exports of goods: just over three fifths (60.2 %) of all imports of goods into the EU-28 came from these seven countries. China was the origin for more than one fifth (20.2 %) of all imports into the EU-28 in 2016 and was the largest supplier of goods imported into the EU-28.

Figure 7.2: Main trading partners for international trade in goods, EU-28, 2016
(%)



(1) Excluding Hong Kong.

Source: Eurostat (online data code: ext_lt_maineu)

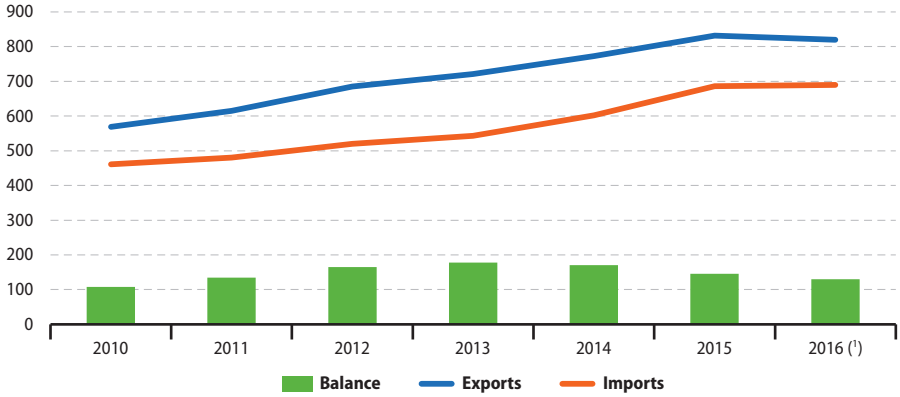
7.2 International trade in services

Services play an important role in all modern economies. A resilient tertiary service sector, as well as an increased availability of services, may boost economic growth and enhance industrial performance. In an increasingly globalised world, services such as finance, insurance, transport, logistics and communications deliver key intermediate inputs and thereby provide crucial support to the rest of the economy.

Over the period studied, from 2010 to 2015 the EU-28's exports of services to non-member countries increased every year, from EUR 569 billion in 2010 to EUR 832 billion in 2015, whereas in 2016 (provisional figures) they fell slightly to EUR 820 billion. On the other hand, during the same period, EU-28 imports of services from non-member countries progressed from EUR 461 billion in 2010 to EUR 690 billion in 2016, resulting in the surplus for trade in services increasing from EUR 108 billion to EUR 130 billion (see Figure 7.3).

The most recent data indicate that the EU-28 recorded surpluses in trade in services with all its main partners, except for Hong Kong (deficit of EUR 0.9 billion in 2016) and India (deficit of EUR 0.8 billion). The largest surpluses in 2016 were recorded with Switzerland (EUR 24.7 billion), Japan (EUR 13.1 billion), Russia (EUR 12.5 billion), the United States (EUR 11.8 billion) and China (EUR 10.9 billion).

Figure 7.3: Development of international trade in services, EU-28, 2010–2016
(billion EUR)



Note: external trade flows with extra EU-28.

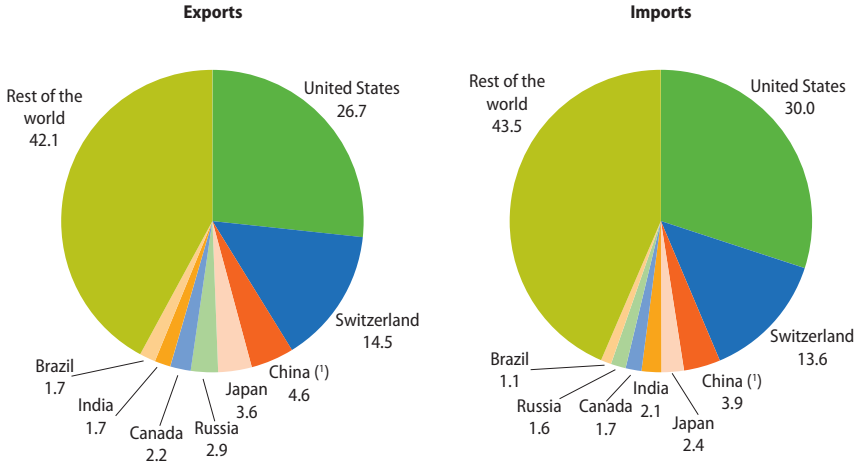
(1) Provisional.

Source: Eurostat (online data code: bop_its6_tot)

In 2016, the United States remained, by far, the largest destination for EU-28 exports of services, with this trade valued at EUR 219 billion, representing more than one quarter (27 %) of all exports to non-member countries — see Figure 7.4. The next largest destinations were Switzerland (14 %), China (5 %), Japan (4 %), Russia (3 %), Canada, India and Brazil (all 2 %). These eight countries collectively received 58 % of all exports of services from the EU-28 to non-member countries in 2016.

The main countries of origin for EU-28 imports of services were the same as the destinations with the highest shares of EU-28 exports of services: the eight countries shown in Figure 7.4 collectively accounted for 57 % of all EU-28 services imported from non-member countries in 2016. Again, the United States accounted for the largest value of imported services, some EUR 207 billion which was equivalent to 30 % of the total from non-member countries. The next highest shares were from Switzerland (14 %) and China (4 %).

Figure 7.4: Main trading partners for international trade in services, EU-28, 2016
(%)



Note: provisional data.

(1) Excluding Hong Kong.

Source: Eurostat (online data code: bop_its6_det)

8 Agriculture, forestry and fisheries

Introduction

European Union (EU) agricultural statistics were initially designed to monitor the main objectives of the common agricultural policy (CAP), for example the production and supply of agricultural products and income in the agricultural sector.

The main elements of the CAP post-2013 concern: a fairer distribution of direct payments (with targeted support and convergence goals); strengthening the position of farmers within the food production chain (such as through: the promotion of professional and inter-professional organisations; changes to the organisation of the sugar and wine sectors; revisions to public intervention and private storage aid; and new crisis management tools); and continued support for rural development, safeguarding the environment and biodiversity.

While the EU has no separate policy on forestry, forests are affected by a broad array of EU sectoral policies. Environmental forest functions have attracted increasing attention in relation to the protection of biodiversity and in the context of energy policies and the impact of climate change.

The common fisheries policy (CFP) is designed to conserve fish stocks and to manage them as a common resource; it gives all European fishing fleets equal access to EU waters and fishing grounds. It aims to ensure that the EU's fishing industry is environmentally, economically and socially sustainable, through high long-term fishing yields for all stocks (at the latest by 2020); this is referred to as maximum sustainable yield.

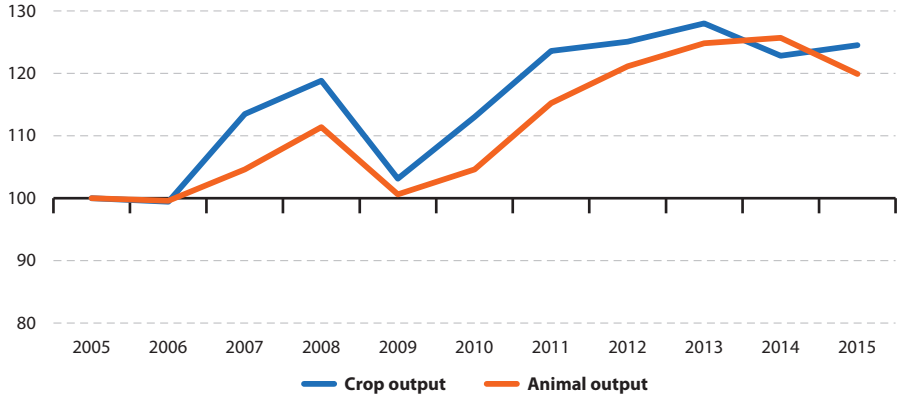
8.1 Agricultural output

The gross value of EU-28 crop output fell to a relative low of EUR 177.2 billion in 2009. This was followed by a rebound and four years of consecutive growth through to 2013 (peaking at EUR 220.1 billion). However, the latest information available reveals that crop output in the EU-28 fell by 4.1 % in 2014 to EUR 211.0 billion, before rallying (+1.5 %) in 2015, when output was valued at EUR 214.1 billion.

EU-28 gross animal output at basic prices also recorded a relative low in 2009 (EUR 138.0 billion), but then grew for five consecutive years to 2014 (see Figure 8.1). The rate of change slowed towards the end of this period and in 2014 there was almost no change (up 0.7 %) in the value of animal output in the EU-28, which reached EUR 172.4 billion. In 2015 there was a considerable fall in the animal output of the EU-28, which was valued at EUR 164.4 billion, some 4.6 % lower than the year before.

An analysis over time shows that EU-28 agricultural income rose, on average by 4.0 % per annum between 2005 and 2010, while the rate of change for agricultural income slowed thereafter, rising on average by 1.9 % per annum between 2010 and 2015 (see Figure 8.2).

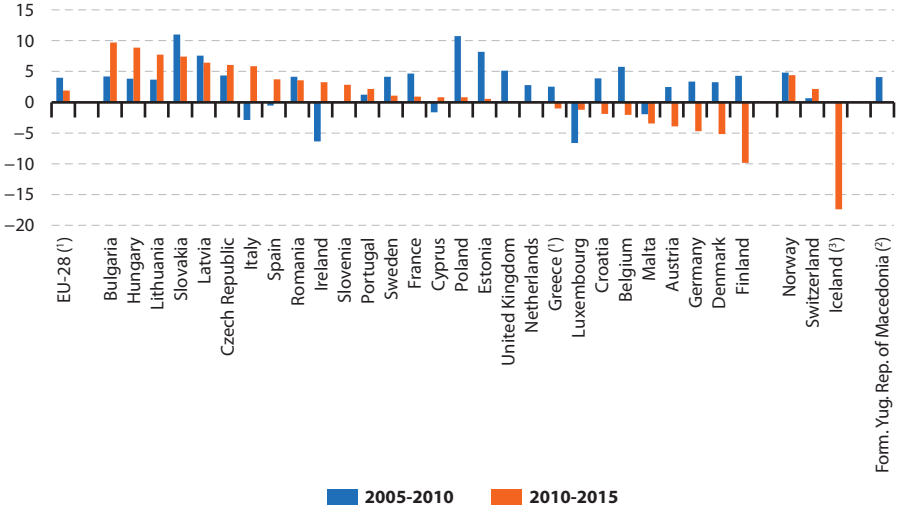
Figure 8.1: Agricultural output and gross value added, EU-28, 2005-2015
(2005 = 100)



Note: 2014, break in series.

Source: Eurostat (online data code: aact_eaa05)

Figure 8.2: Index of income from agricultural activity (indicator A), 2005-2010 and 2010-2015
(average annual rate of change, %)



(1) Provisional.
(2) 2005-2010: not available.
(3) 2010-2015: not available.

Source: Eurostat (online data code: aact_eaa06)

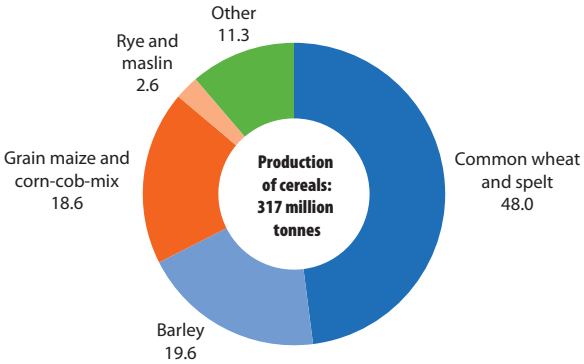
8.2 Agricultural products

There is a wide diversity of natural environments, climates, economic conditions and farming practices across the EU. They are reflected in the broad array of food and drink products that are made available for human consumption and animal feed, as well as a range of inputs for non-food processes. Indeed, agricultural products contribute to the cultural identity of Europe's people and regions.

In 2015, the EU-28 produced 317.0 million tonnes of cereals (including rice) — see Figure 8.3. This was 5.7 % above the average for the previous five years (2010-2014). Almost half (48.0 %) of the total production of cereals was accounted for by common wheat and spelt, while close to one fifth of the total was composed of barley (19.6 %) and grain maize and corn-cob-mix (18.6 %).

The EU-28 produced 101.9 million tonnes of sugar beet in 2015, which was 12.9 % less than the average for the previous five years. The production of the other main root crop in the EU-28 — potatoes — was 53.1 million tonnes, 7.0 % less than the average for the previous five years. In the EU-28, the most important vegetables in terms of the level of production were tomatoes, onions and carrots. The total production of tomatoes among the EU Member States was 17.6 million tonnes in 2015. The most important fruits in terms of the level of production in the EU-28 were apples and oranges.

Figure 8.3: Production of cereals, EU-28, 2015
(%, based on tonnes)

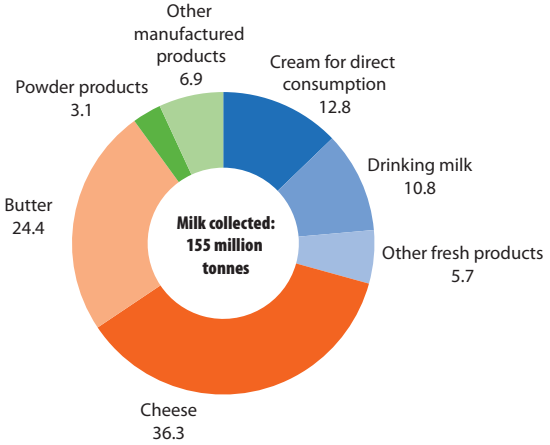


Source: Eurostat (online data code: apro_acs_a)

Dairy production has a diverse structure across the EU Member States, in terms of farm and dairy herd sizes, as well as milk yields. Figure 8.4 shows that 29.3 % of the whole milk that was utilised in the EU-28 in 2015 was used for fresh products, mainly as drinking milk or cream. The remaining 70.7 % was transformed into manufactured products; with 36.3 % of all whole milk converted into cheese, and 24.4 % into butter.

The principal meat product in the EU-28 was pig meat (23.0 million tonnes in 2015), with the weight of production three times as high as the share recorded for meat from bovines ((beef/veal), which stood at 7.6 million tonnes); the production of sheep meat in the EU-28 was relatively modest (0.7 million tonnes).

Figure 8.4: Utilisation of whole milk, EU-28, 2015
(%)



Note: includes Eurostat estimates made for the purpose of this publication.
Source: Eurostat (online data code: apro_mk_pobta)

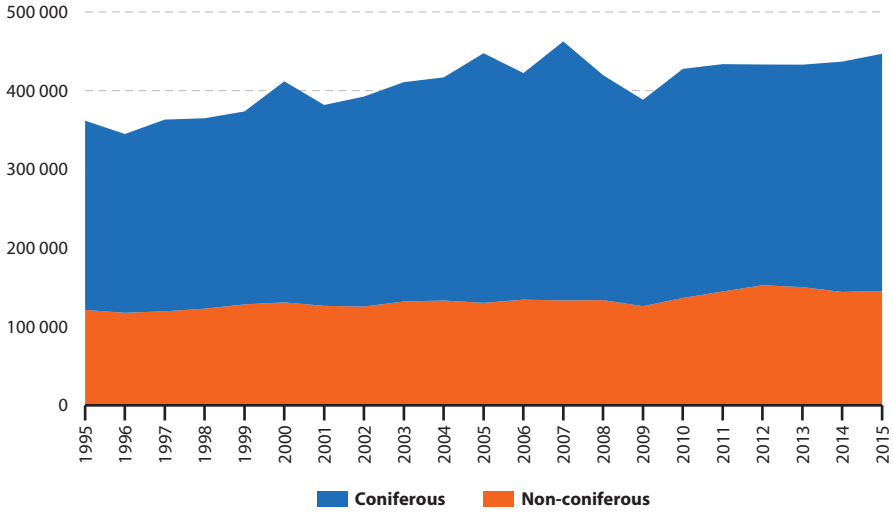
8.3 Forestry

From 1995 to 2007, there was a relatively steady rise in the level of roundwood production in the EU-28, both for coniferous (softwood) and non-coniferous (broadleaved or hardwood) species — see Figure 8.5. However, the effects of the financial and economic crisis led to the level of coniferous production falling in 2008 and this pattern was confirmed with a further reduction in 2009, when non-coniferous production also fell.

EU-28 roundwood production (for coniferous and non-coniferous species combined) rebounded strongly in 2010 (up 10.1 %) and continued to rise in 2011, but at a much more modest pace (up 1.4 %). This was followed by two years when there was almost no change in the level of output. In 2014 and 2015, there were moderate increases in EU-28 roundwood production of 0.9 % and 2.3 %, such that output stood at 447 million m^3 in 2015, some 16 million m^3 (or 3.4 %) lower than its pre-crisis high of 2007.

A comparison of production levels in 2015 with those recorded before the crisis shows that roundwood production from coniferous species remained 8.4 % lower than it was in 2007. Having declined by 13.2 % in 2008 and a further 8.2 % in 2009, there was a considerable rebound in the level of roundwood production from coniferous species in 2010 (up 11.0 %). Thereafter, the fluctuations in output were less marked, with production falling by 0.7 % in 2011 and 2.9 % in 2012, before a modest increase of 0.8 % in 2013 and somewhat stronger growth in 2014 (3.5 %) and 2015 (3.1 %).

Figure 8.5: Annual production of roundwood, EU-28, 1995-2015
(thousand m^3)



Note: estimates.

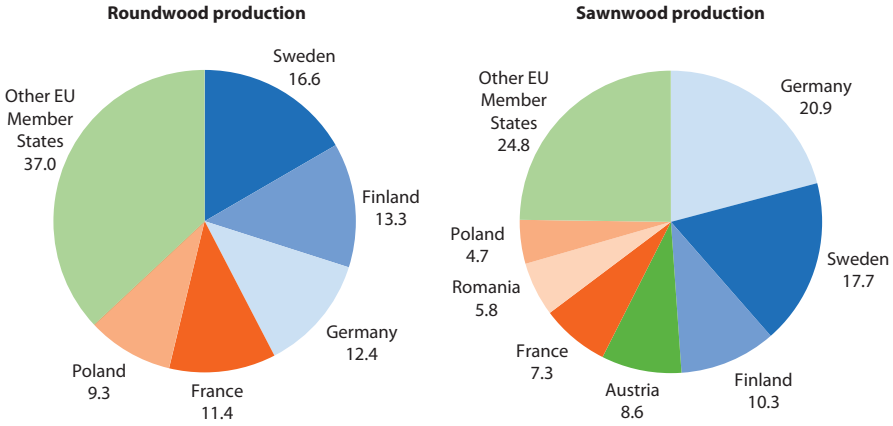
Source: Eurostat (online data code: for_removv)

By contrast, production from non-coniferous species reached a peak in 2008, after which there was a reduction in output of 5.8 % in 2009. However, by 2010 production from non-coniferous species had already surpassed its relative high of 2008, and this pattern of expanding output continued in 2011 and 2012, with annual growth rates of 5.5-8.3 % during the three-year period from 2010 to 2012. Thereafter, there were two consecutive reductions in EU-28 production from non-coniferous species, as output declined by 1.6 % in 2013 and 4.1 % in 2014, with growth returning in 2015 as production expanded by 0.7 %.

Among the EU Member States, Sweden produced the most roundwood (74.3 million m^3) in 2015, followed by Finland, Germany and France (each producing between 51 million and 59 million m^3) — see Figure 8.6. Approximately one quarter of roundwood production is used as wood for fuel and three quarters is industrial roundwood that is used either for sawnwood and veneers, or for pulp and paper production.

Some 102.9 million m^3 of sawnwood were produced in the EU-28 in 2015, close to two thirds of which came from the five largest producing EU Member States, namely, Germany (20.9 %), Sweden (17.7 %), Finland (10.3 %), Austria (8.6 %) and France (7.3 %).

Figure 8.6: Wood production, 2015
(%)



Source: Eurostat (online data codes: for_remov and for_swpan)

8.4 Fisheries

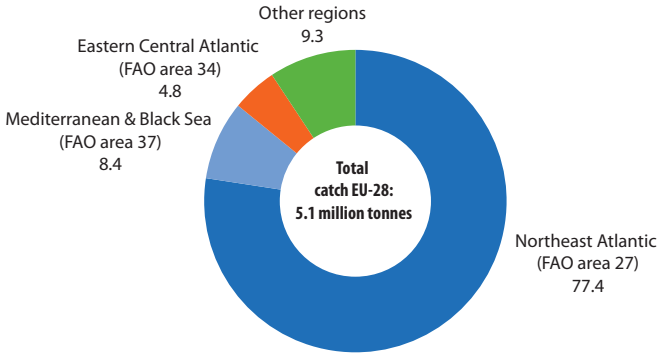
Fish are a natural, biological, mobile (sometimes over wide distances) and renewable resource. Aside from fish farming, fish cannot be owned until they have been caught. For this reason, fish stocks continue to be regarded as a common resource, which needs to be managed collectively. This has led to a range of policies that regulate the amount of fishing that is conducted in EU waters, as well as the types of fishing techniques and gear used in fish capture.

Having peaked in 1995 at 7.6 million tonnes of live weight, the total EU-28 catch (calculated as the sum of catches in the seven regions for which statistics are covered by EU legal acts) fell almost every year until 2007. Thereafter, the weight of EU-28 catches was relatively stable up until 2013, with a marked jump in 2014 (up 11.5 %). A smaller reduction followed in 2015 (−5.0 %), with the total EU-28 catch amounting to 5.1 million tonnes. This quantity was 7.0 % less than 10 years earlier and approximately one third lower than in 1995.

Total catches by the fishing fleets of Spain, Denmark, the United Kingdom and France accounted for a little more than half (58.1 %) of all the catches made by the fishing fleets of the EU Member States in 2015.

Some 77.4 % of the catches made by the EU-28 in 2015 were in the Northeast Atlantic, with the Mediterranean and Black Sea the second largest fishing area (8.4 %), followed by the Eastern Central Atlantic area (4.8 %) — see Figure 8.7.

Figure 8.7: Catches by fishing region, EU-28, 2015
(%, based on tonnes)



Note: total catches in the seven regions covered by legal acts, namely: 21 - Atlantic, Northwest; 27 - Atlantic, Northeast; 34 - Atlantic, Eastern Central; 37 - Mediterranean and Black Sea; 41 - Atlantic, Southwest; 47 - Atlantic, Southeast; and 51 - Indian Ocean, Western. Consequently catches in inland waters are excluded.

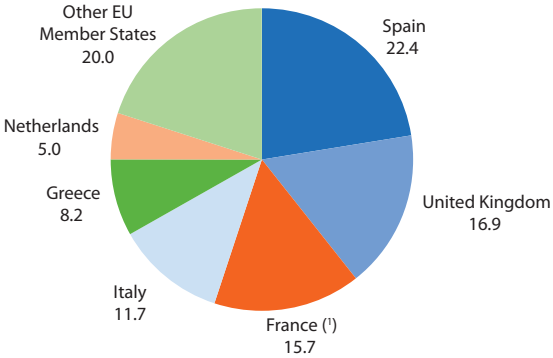
Source: Eurostat (online data code: fish_ca_main)

The EU-28 had a stable output of aquaculture products during the period 2004-2014, with a production quantity fluctuating around 1.2-1.3 million tonnes live weight. The lowest quantity was 1.18 million tonnes recorded in 2013 and the highest 1.33 million tonnes recorded in 2004.

The five largest aquaculture producers among the EU Member States in 2014 were Spain (285 thousand tonnes), the United Kingdom, France, Italy and Greece, which together accounted for three quarters of the EU-28 total (see Figure 8.8); none of the other EU Member States reported a level of production above 100 thousand tonnes of live weight.

Slightly more than half of the total EU-28 production quantity in 2014 was finfish, followed by molluscs; the production of crustaceans and seaweeds was rather minor. The vast majority of finfish were produced in sea water.

Figure 8.8: Aquaculture production, 2014
(%, based on tonnes of live weight)



Note: excluding production from hatcheries and nurseries, fish eggs for human consumption, ornamental and aquarium species. Figures do not sum to 100 % due to rounding.

(1) Estimate.

Source: Eurostat (online data code: fish_aq_2a)

9 Industry, trade and services

Introduction

Business statistics cover industry, construction, trade and services, including tourism. Several other statistical domains also provide information on businesses or business activities, for example some science, technology and digital society statistics as well as many social statistics, especially those related to the labour market.

The European Commission's enterprise policies aim to create a favourable environment for business to thrive within the European Union (EU), thus creating higher productivity, economic growth, jobs and wealth. Policies are aimed at reducing administrative burden, stimulating innovation, encouraging sustainable production, and ensuring the smooth functioning of the EU's internal market.

The 23.3 million small and medium-sized enterprises (SMEs) in the EU-28 in 2014 represented 99.8 % of enterprises in the non-financial business economy, and are regarded as a key driver for economic growth, innovation, employment and social integration. The European Commission aims to promote successful entrepreneurship and improve the business environment for SMEs, to allow them to achieve their full potential in the global economy.

In January 2014, the European Commission adopted as Communication 'For a European Industrial Renaissance' (COM(2014) 14 final). This Communication stresses the importance of full and effective implementation of industrial policy in the EU and aims to facilitate this.

In April 2016, the industrial renaissance policy was complemented by a Communication 'Digitising European industry — reaping the full benefits of a digital single market' (COM(2016) 180 final), which addresses the growing footprint of digital technologies and their potential impact on industrial activities and individual businesses, while examining the possibilities for digital transformations (for example, of public services) and addressing challenges in areas such as funding, information and communication technologies (ICT) standardisation, big data or skills.

9.1 Structural business statistics

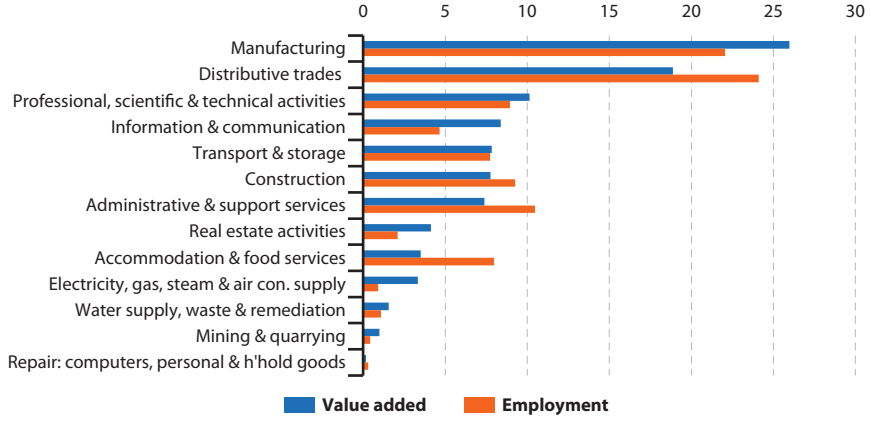
Structural business statistics can provide answers to questions on the wealth creation (value added), investment and labour input of different economic activities. The data can be used to analyse structural shifts, for example between industry and services, country specialisations in particular activities, sectoral productivity and profitability, as well as a range of other topics.

In 2014, a total of EUR 6 581 billion of gross value added at factor cost was generated in the EU-28's non-financial business economy. The non-financial business economy workforce reached 136 million persons employed, approaching two thirds (64.0 %) of the total number of persons employed across all activities within the EU-28.

Among the NACE Rev. 2 sections in the non-financial business economy, manufacturing was the largest in terms of value added: 2.1 million manufacturing enterprises in the EU-28 generated EUR 1 710 billion of value added in 2014 (26.0 % of the total), while providing employment to 29.9 million persons (22.1 %). Distributive trades enterprises had the largest share of employment (24.1 %): these enterprises provided employment to 32.7 million persons and generated EUR 1 243 billion of value added. Professional, scientific and technical activities had the third highest value added but only the fifth largest workforce, behind administrative and support services as well as construction — see Figure 9.1.

Figure 9.1: Analysis of non-financial business economy value added and employment, EU-28, 2014

(% of non-financial business economy value added and employment)



Note: estimates.

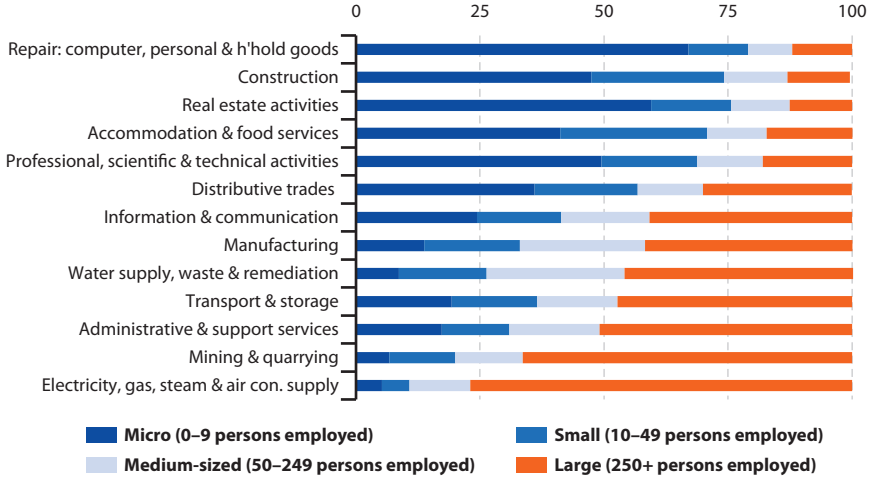
Source: Eurostat (online data code: sbs_na_sca_r2)

The overwhelming majority (99.8 %) of enterprises active within the EU-28's non-financial business economy in 2014 were micro, small and medium-sized enterprises (SMEs) — some 23.3 million — together they contributed 57.4 % of the value added generated within the EU's non-financial business economy. More than 9 out of 10 (93.0 %) enterprises in the EU-28 were micro enterprises (employing less than 10 persons) and their share of value added within the non-financial business economy was considerably lower, around one fifth (20.9 %).

Perhaps the most striking phenomenon of SMEs is their contribution to employment. No less than two thirds (66.8 %) of the EU's non-financial business economy workforce was active in an SME in 2014.

Micro enterprises employed more people than any other enterprise size class in all service sectors (at the section level of detail), with the exception of transport and storage and administrative and support service activities (see Figure 9.2). This pattern was particularly pronounced for real estate activities and the repair of computers, personal and household goods where an absolute majority of the workforce worked in micro enterprises. By contrast, in mining and quarrying as well as electricity, gas, steam and air conditioning supply large enterprises employed more than half of the workforce, as they also did in administrative and support service activities.

Figure 9.2: Enterprise size class analysis of employment, EU-28, 2014
(% of sectoral total)

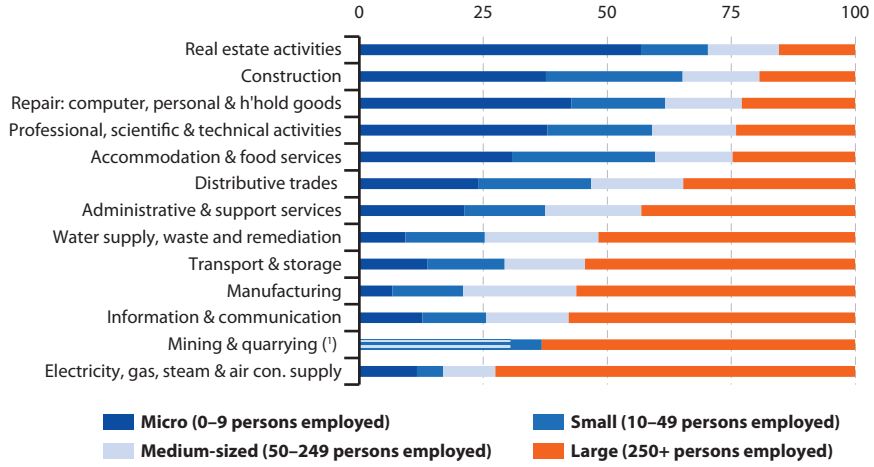


Note: estimates. Ranked on the share for SMEs.

Source: Eurostat (online data codes: sbs_sc_ind_r2, sbs_sc_con_r2, sbs_sc_dt_r2 and sbs_sc_1b_se_r2)

The contribution of SMEs to total value added (see Figure 9.3) within the EU-28's non-financial business economy was lower than their contribution to total employment, resulting in a lower level of apparent labour productivity. This pattern was particularly prevalent in 2014 among activities such as manufacturing or information and communication services. However, it was also observed across most other activities, the exceptions were: administrative and support service activities; and electricity, gas, steam and air conditioning. As a result, large enterprises tended to record higher apparent labour productivity ratios than SMEs.

Figure 9.3: Enterprise size class analysis of value added, EU-28, 2014
(% of sectoral total)



Note: estimates. Ranked on the share for SMEs.

(1) Micro and medium-sized enterprises: combined.

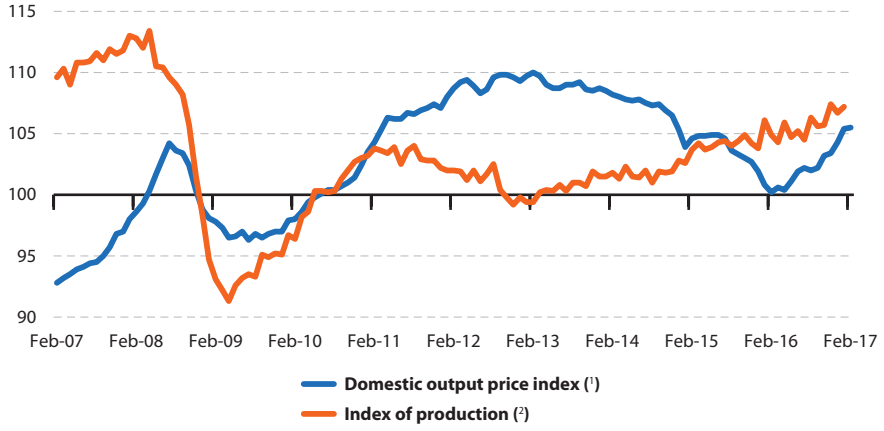
Source: Eurostat (online data codes: sbs_sc_ind_r2, sbs_sc_con_r2, sbs_sc_dt_r2 and sbs_sc_1b_se_r2)

9.2 Industry and construction

Short-term business statistics (STS) are provided in the form of indices that allow the most rapid assessment of the economic climate within industry and construction (as well as services), providing a first evaluation of recent developments for a range of economic activities.

Industrial output (see Figure 9.4) in the EU-28 recovered during a period of slightly more than two years from its relative low in April 2009, recording positive month-on-month rates of change for 19 out of the next 28 months through to a peak in August 2011: this peak was 13.9 % above the April 2009 low but nevertheless production remained 8.3 % below its pre-crisis peak of April 2008. Thereafter, there was a gradual decline in EU-28 industrial output observed through until November 2012 during which time output contracted by 4.6 %; subsequently industrial output grew at a relatively slow pace to March 2015, increasing 5.0 % over the course of two years and four months. Between March 2015 and July 2016, the overall development in the industrial production index was irregular, with no sustained period of expansion or contraction. From July 2016 through to January 2017 (the latest data available at the time of writing) the EU-28 index of industrial production increased, up 2.6 %.

Figure 9.4: Production and domestic output price indices for industry (excluding construction), EU-28, 2007-2017
(2010 = 100)



(1) Unadjusted series.
(2) Seasonally and calendar adjusted. January 2017: estimate.

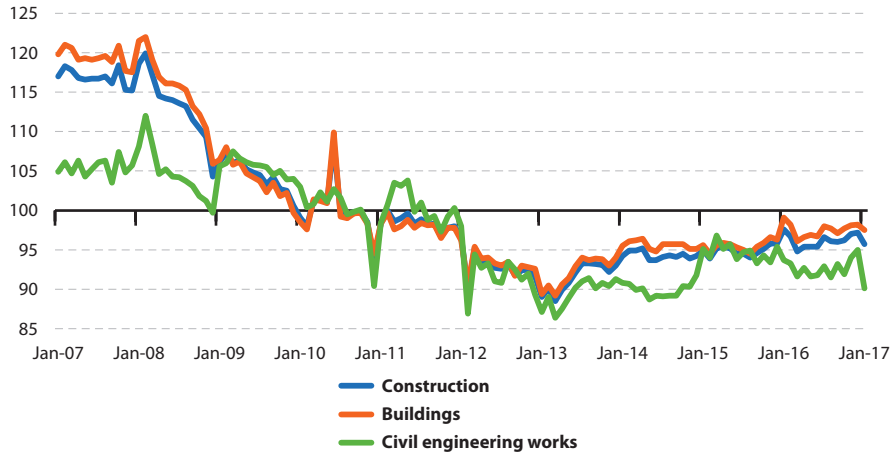
Source: Eurostat (online data codes: sts_inppd_m and sts_inpr_m)

The downturn in activity for construction within the EU-28 lasted longer than for industry. Despite occasional short-lived periods of growth, the index of production for construction fell from a peak in February 2008 to a low in March 2013, a decline that lasted in total five years and one month and left construction output 26.2 % lower than it had been. Construction output expanded by a total of 7.6 % during the next 13 months and between then (April 2014) and the most recent period for which data are available at the time of writing (January 2017) output remained relatively stable (see Figure 9.5).

The construction of buildings is the dominant part of construction output, and unsurprisingly output for building work shows a similar development to the overall indicator for construction.

For civil engineering the developments were less clear cut: from February to December 2008, civil engineering output in the EU-28 fell in a similar manner to the developments seen for building output. However, there followed a substantial increase in January 2009, mainly due to a large expansion in civil engineering work in Spain. Civil engineering output then followed the broad downward path observed for construction as a whole, also reaching a low point in March 2013. The recovery in activity from this relative low was more muted and short-lived for civil engineering than for buildings. During the first half of 2014 there was a dip in civil engineering activity (down 2.8 %), followed by a more substantial recovery (9.1 %). This in turn was followed by a further decline between March 2015 and January 2017 (the most recent period for which data are available), such that in January 2017 the level of civil engineering output in the EU-28 was just 4.3 % above its March 2013 low point.

Figure 9.5: Index of production, construction, EU-28, 2007-2017
(2010 = 100)



Note: seasonally and calendar adjusted; January 2017: estimates.

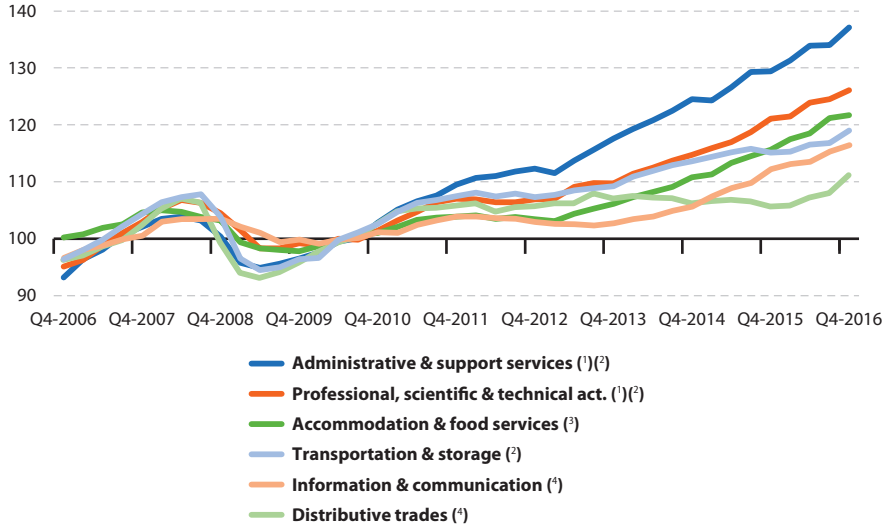
Source: Eurostat (online data code: sts_copr_m)

9.3 Services

Services turnover (in current price terms) fell by 8.5 % in the EU-28 in 2009 compared with the year before, but rebounded in 2010 and 2011 increasing by 4.8 % and 5.5 % respectively. Growth continued in each of the next five years (2012-2016), although at a more modest pace, rising annually by an amount in the range of 0.8-3.0 %. Overall growth between 2009 and 2016 was 20.6 %.

Having peaked in various quarters of 2008, EU-28 turnover for all six of the services shown in Figure 9.6 reached a low point at some stage between the second quarter of 2009 and the first quarter of 2010. From these lows, the strongest growth in turnover across the different services through to the final quarter of 2016 (latest available data) was recorded for administrative and support services (44.5 %), followed by professional, scientific and technical activities (28.3 %). Transportation and storage services and accommodation and food services also recorded relatively high growth rates, as their sales rose by around one quarter, while the growth rates recorded for distributive trades and for information and communication services were within the range of 17-19 %.

Figure 9.6: Index of turnover, selected service activities, EU-28, 2006-2016
(2010 = 100)



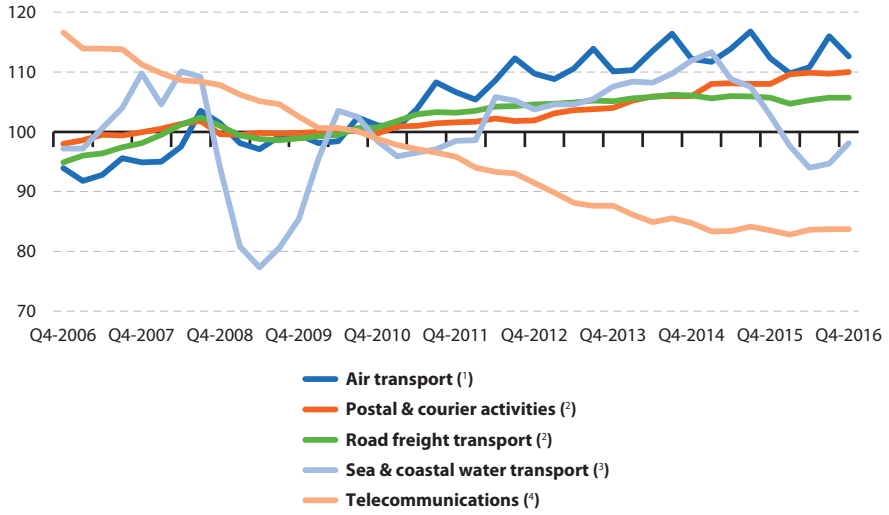
Note: seasonally and calendar adjusted.

(1) As required by the STS Regulation.
(2) Q4-2006-Q4-2009: estimates. 2016: estimates.
(3) Q4-2006-Q4-2009: estimates. Q3-2015-Q4-2016: estimates.
(4) Q4-2006-Q4-2008: estimates. 2016: estimates.

Source: Eurostat (online data codes: sts_trtu_q and sts_setu_q)

Among the services for which an EU-28 price index is shown in Figure 9.7, two stand out as having developments which deviate from the general pattern: telecommunications; sea and coastal water transport. Since the start of 2006 (the beginning of each time series), EU-28 producer prices for telecommunications have followed a steady downward path; over a period of almost 11 years, prices fell by a total of 30.1 %. Producer prices for sea and coastal water transport displayed a far higher degree of volatility than the indices for the other services shown in Figure 9.7, in particular the magnitude of the fall and subsequent rise in prices related to the global financial and economic crisis was greater, while there was also another rapid fall in prices that started in 2015 and continued until the second quarter of 2016. The net impact of these distinct movements was that the producer price index for sea and coastal water transport services was almost the same in the final quarter of 2016 as it had been in the first quarter of 2006.

Figure 9.7: Producer price indices, transport and communications services, EU-28, 2006-2016
(2010 = 100)



Note: unadjusted series.

(1) Q4-2006-Q4-2009 and Q1-2015-Q4-2016: estimates.
(2) Q4-2006-Q4-2009: estimates.
(3) Q4-2006-Q4-2013: estimates.
(4) Q4-2006-Q4-2009: estimates. Q4-2016: estimate.

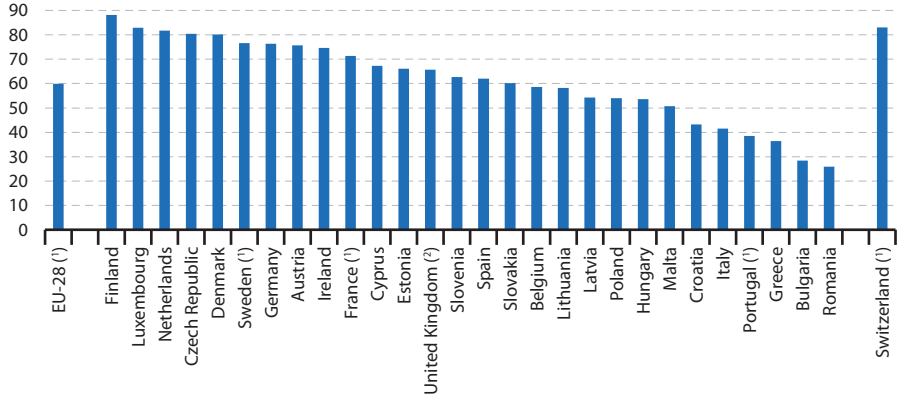
Source: Eurostat (online data code: sts_sepp_q)

9.4 Tourism

Tourism plays an important role in the EU because of its economic and employment potential, as well as its social and environmental implications. Tourism statistics are not only used to monitor the EU's tourism policies but also its regional and sustainable development policies.

It is estimated that 60 % of the EU-28's population aged 15 or over took part in tourism for personal purposes in 2014 (aggregates for 2015 not yet available), in other words they made at least one tourist trip for personal purposes during the year. Again, large differences can be observed between the EU Member States, as this participation rate ranged from 26.0 % in Romania to 88.2 % in Finland (see Figure 9.8).

Figure 9.8: Share of population participating in tourism, 2015
(% of population aged 15 years or more)



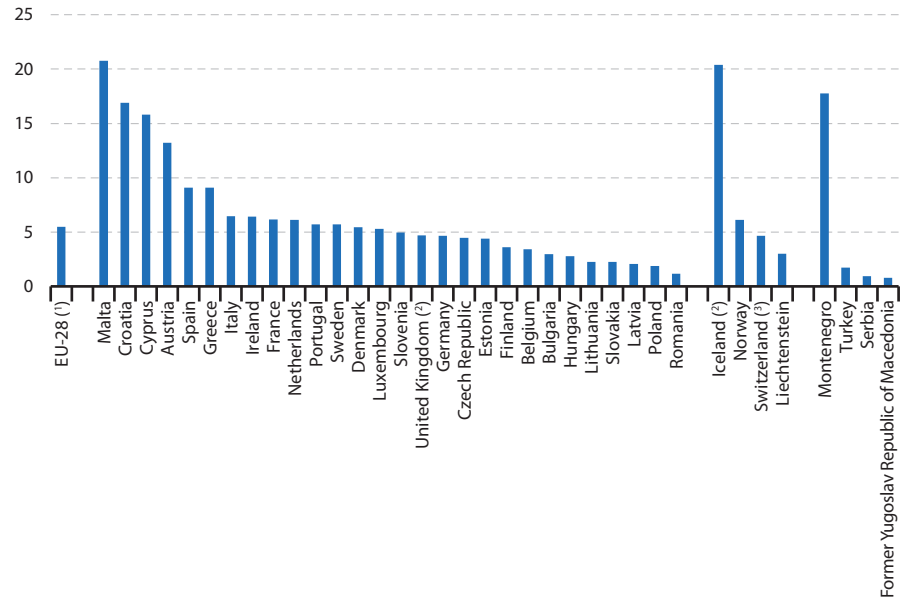
(1) 2014.
(2) 2012.

Source: Eurostat (online data code: tour_dem_tttot)

In 2015, Spain was the most common tourism destination in the EU for non-residents (people coming from abroad), with 270 million nights spent in tourist accommodation establishments, or 21.3 % of the EU-28 total. Across the EU, the top four most popular destinations for non-residents were Spain, Italy (193 million nights), France (130 million nights) and the United Kingdom (118 million nights, estimation based on 2015 monthly data), which together accounted for more than half (56.2 %) of the total nights spent by non-residents in the EU-28.

The number of nights spent (by residents and non-residents) can be put into perspective by making a comparison with the size of each country in population terms, providing an indicator of tourism intensity. In 2015, using this measure, the Mediterranean destinations of Malta, Croatia and Cyprus, as well as the alpine and city destinations of Austria were the most popular tourist destinations in the EU-28 (see Figure 9.9). Iceland (estimation based on 2015 monthly data) and Montenegro were also popular destinations using this measure of tourism intensity.

Figure 9.9: Tourism intensity, 2015
(nights spent by residents and non-residents at tourist accommodation establishments per inhabitant)



(1) Estimate made for the purpose of this publication, based on available data.
(2) Number of nights spent estimated using monthly data.
(3) Excluding nights spent in holiday and other short stay accommodation establishments.

Source: Eurostat (online data code: tour_occ_ninat)

10 Science, technology and digital society

Introduction

European Union (EU) statistics in the fields of science, technology and digital society cover a range of issues, most notably: research and development (R & D) statistics, innovation statistics and statistics on human resources in science and technology.

Science is part of almost every aspect of our lives: at the flick of a switch, we have light; when we are ill, medicines help us get better; when we want to talk to a friend we just pick up the telephone or send a text message or e-mail. The EU has a long tradition of excellence in research and innovation. The EU is a global player in a range of cutting-edge industrial sectors, for example, biotechnology, pharmaceuticals, telecommunications or aerospace.

R & D is often considered as one of the driving forces behind growth and job creation. However, its influence extends well beyond the economic sphere, as it can potentially — among others — resolve environmental or international security threats, ensure safer food, or lead to the development of new medicines to prevent and fight illness and disease.

In October 2010, the European Commission launched a Europe 2020 flagship initiative titled 'Innovation union' (COM(2010) 546 final) which sets out a strategic approach to a range of challenges like climate change, energy and food security, health and an ageing population.

The European innovation scoreboard is used to monitor the implementation of the innovation union. This tool aims to provide a comparative assessment of the relative strengths and weaknesses of national innovation systems across the EU Member States and also provides data for a range of non-member countries.

Horizon 2020 is the framework programme for research and innovation for the period running from 2014 through to 2020. By coupling research and innovation, Horizon 2020 emphasises excellent science, industrial leadership and tackling societal challenges. The goal is to ensure the EU produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together to deliver innovation.

The policy context for information and communication technologies (ICT) is a European Commission Communication concerning 'A digital agenda for Europe' (COM(2010) 245 final/2), which presented a strategy to promote a thriving digital economy in the EU by 2020. The digital agenda for Europe is one of seven flagships initiatives under the Europe 2020 strategy for smart, sustainable and inclusive growth. The agenda outlines seven priority areas for action including the creation of a digital single market.

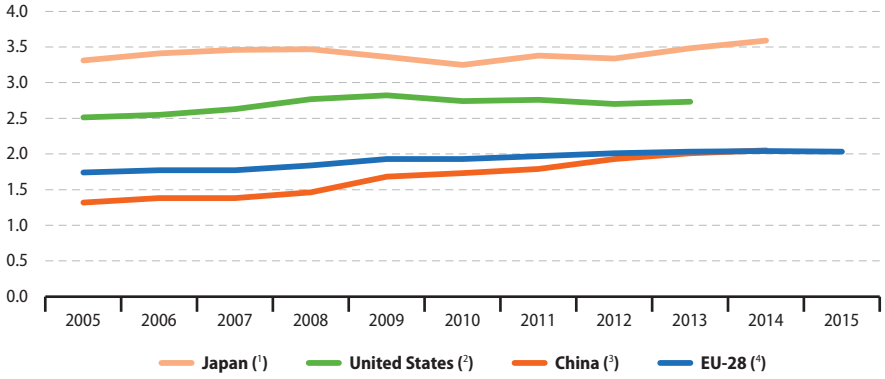
10.1 R & D expenditure

One of the key aims of the EU during the last couple of decades has been to encourage increasing levels of investment, in order to provide a stimulus to the EU's competitiveness. The Europe 2020 strategy adopted in 2010 maintains a long-standing objective, namely, for the EU to devote 3 % of gross domestic product (GDP) to R & D activities; this is one of the five key targets of this strategy.

Gross domestic expenditure on R & D (GERD) stood at EUR 299 billion in the EU-28 in 2015, which was a 4.4 % increase on the year before, and 47.8 % higher than 10 years earlier (in 2005) — note that these rates of change are in current prices and so reflect price changes as well as real changes in the level of expenditure.

In order to make figures more comparable, GERD is often expressed relative to GDP: the ratio of GERD to GDP is also known as R & D intensity. This ratio increased modestly in the EU-28 during the period from 2005 to 2007, rising from 1.74 % to 1.77 %. Between 2007 and 2012 it increased more rapidly, reaching 2.01 %, despite a period of stagnation in 2010; R & D intensity increased slightly to 2.03 % in 2013 and remained almost unchanged in 2014 and 2015 (see Figure 10.1). Despite the increases observed in recent years, the EU-28's R & D expenditure relative to GDP remained well below the corresponding ratios recorded in Japan (3.59 %, 2014 data) and the United States (2.73 %, 2013 data), as it has for a lengthy period of time. In 2014, R&D intensity in China surpassed that of the EU-28, with Chinese R & D expenditure equivalent to 2.05 % of GDP.

Figure 10.1: Gross domestic expenditure on R & D, 2005-2015
(% of GDP)

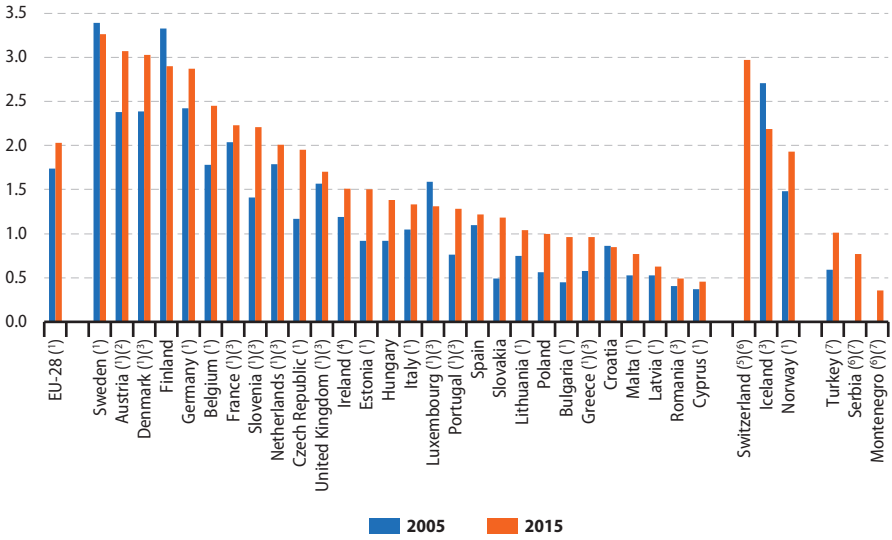


(1) 2008 and 2013: break in series. 2015: not available.
(2) Excludes most or all capital expenditure. 2013: provisional. 2014 and 2015: not available.
(3) 2009: break in series. 2015: not available. Excluding Hong Kong.
(4) 2015: provisional.

Source: Eurostat (online data code: tsc00001)

Nearly all EU Member States reported a higher R & D intensity in 2015 than in 2005, the exceptions being the two Member States with the highest intensities in 2005, Finland (-0.43 percentage points (p.p)) and Sweden (-0.13 points), as well as Luxembourg (-0.28 points), while there was almost no change in R & D intensity in Croatia during the period under consideration. At the other end of the range, the biggest increases in R & D intensity (in p.p. terms) between 2005 and 2015 were recorded in Slovenia, the Czech Republic, Austria, Slovakia and Belgium (see Figure 10.2).

Figure 10.2: Gross domestic expenditure on R & D, 2005 and 2015
(% of GDP)



(1) 2015: estimate or provisional.
(2) 2005: estimate.
(3) Break in series.
(4) 2014 instead of 2015. 2014: estimate.
(5) 2012 instead of 2015.
(6) 2005: not available.
(7) 2014 instead of 2015.

Source: Eurostat (online data code: rd_e_gerdtot)

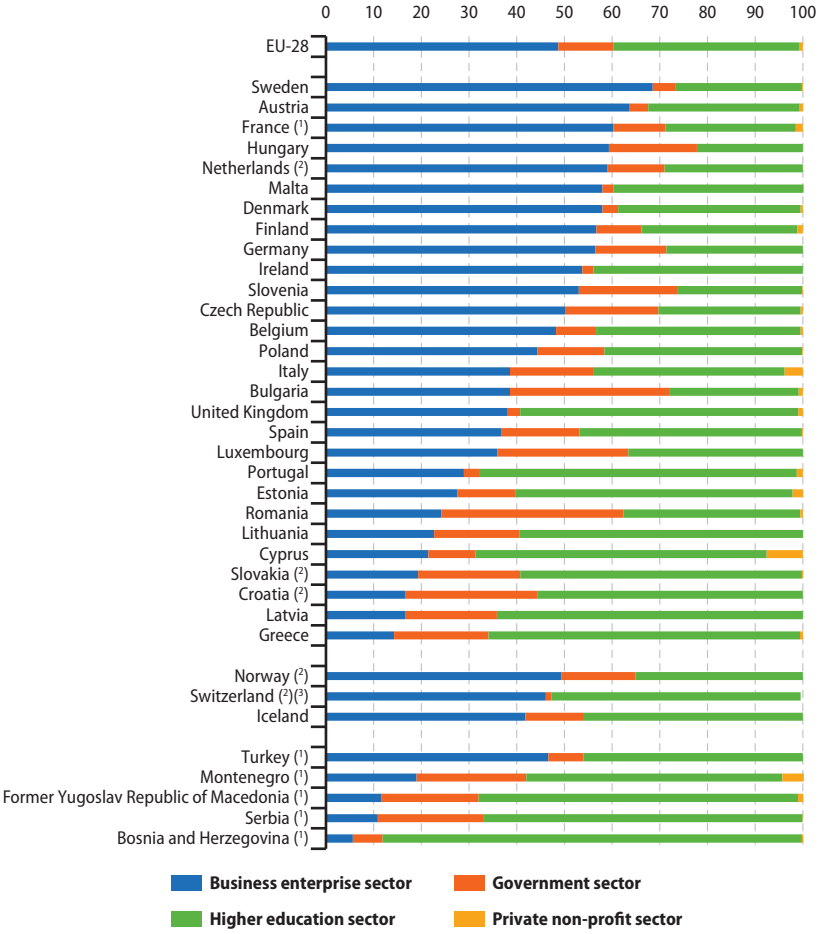
10.2 R & D personnel

The number of researchers in the EU-28 has increased in recent years: there were 1.82 million researchers (in full-time equivalents (FTE)) employed in the EU-28 in 2015 (see Figure 10.3), which marked an increase of 443 thousand (or 32.2 %) when compared with 2005.

An analysis of R & D personnel by sector in 2015 shows that in the EU-28 there was a high concentration of researchers in the business enterprise sector (49 %) and the higher education sector (39 %), while 12 % of the total number of researchers were working in the government sector. The relative importance of the different sectors varied considerably across the EU Member States, with business enterprises accounting for three fifths or more of all researchers in Sweden, Austria and France (2014 data). By contrast, the government sector employed the highest share of researchers in Romania (38 %). A majority of researchers working in Portugal (66 %), Greece (65 %), Latvia (64 %), Cyprus (61 %), Lithuania (59 %), Slovakia (59 %), the United Kingdom (58 %), Estonia (58 %) and Croatia (56 %) were employed within the higher education sector, and this sector also accounted for the highest share (although less than 50 %) of all researchers in Spain, Italy and Luxembourg.

R & D personnel from all sectors together accounted for a share of 2.0 % or more of the labour force in Denmark and Luxembourg in 2015, compared with an EU-28 average of 1.2 %. Aside from these two EU Member States, the share of R & D personnel in the labour force ranged from 0.3 % in Cyprus and 0.4 % in Romania up to 1.7 % in Sweden and 1.9 % in Finland.

Figure 10.3: Researchers in full-time equivalents (FTE), by sector, 2015
(% of total)



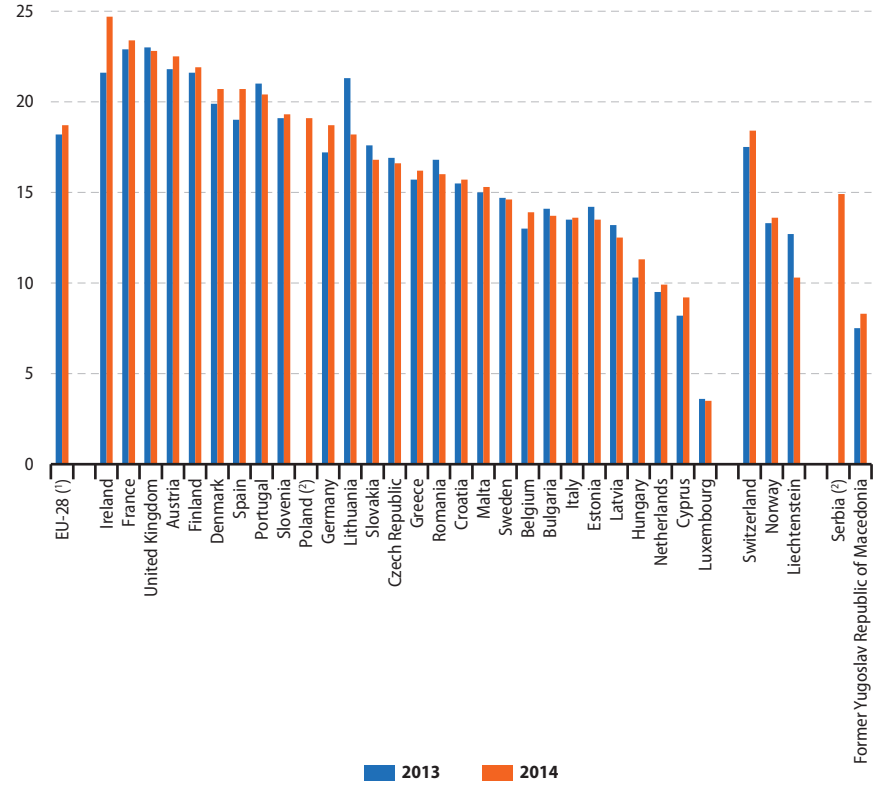
Note: EU-28, Belgium, Bulgaria, the Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Sweden, the United Kingdom and Norway, estimates or provisional.

(1) 2014.
(2) Definition differs.
(3) 2012.

Source: Eurostat (online data code: rd_p_persocc)

Within the EU-28 there were 18.7 graduates from science and technology fields of education per 1 000 persons aged 20 to 29 years in 2014, as shown in Figure 10.4. Among the EU Member States, particularly high ratios — above 20.0 graduates per 1 000 persons aged 20 to 29 years — were recorded in Portugal, Spain, Denmark, Finland, Austria, the United Kingdom, France and Ireland (where this ratio peaked at 24.7 graduates). Note this ratio should be interpreted with care as some graduates reported by a country may be foreigners who return home following their studies and so push up the ratio in the country where they studied and pull down the ratio for their country of origin; this may explain to a large extent the very low ratio recorded in one of the smallest EU Member States, namely Luxembourg (3.5 graduates from science and technology fields of education per 1 000 persons aged 20 to 29) and also the relatively low ratio recorded for Cyprus (9.2 %).

Figure 10.4: Science and technology graduates, 2013 and 2014
(tertiary graduates in science and technology per 1 000 persons aged 20-29 years)



(1) 2013: definition differs.
(2) 2013: not available.

Source: Eurostat (online data code: educ_uoe_grad04)

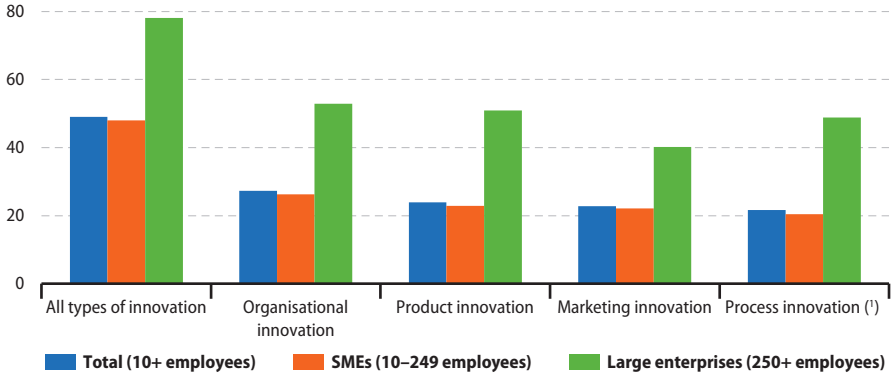
10.3 Innovation

Almost half of all the enterprises in the EU-28 reported some form of innovation activity (49.1 %) during the period 2012-2014. Compared with the period 2010-2012, the share of innovative enterprises remained relatively stable (rising by 0.2 p.p.).

In the EU-28, more than one quarter (27.3 %) of all enterprises reported organisational innovation during the period 2012-2014 (see Figure 10.5). The second most common type of innovation concerned product innovation (innovation that encompasses new or significantly improved goods or services), which took place in 23.9 % of all enterprises, followed by marketing innovation (22.8 %) and process innovation (21.6 %). It is important to note that individual enterprises may have introduced more than one of these types of innovation.

An analysis based on enterprise size reflects, to some degree, the distribution of the total population of enterprises, as the vast majority are small and medium-sized enterprises (SMEs, with 10-249 employees); indeed, there was almost no difference in the share of innovative enterprises among the SME population compared with the total population. By contrast, there was a different pattern for large enterprises as, on average, these were more likely to have introduced innovations than SMEs; this observation held consistently across all four types of innovation. Almost 8 in 10 (78.1 %) large enterprises in the EU-28 were innovative during the period 2012-2014. Slightly more than the half of all large enterprises introduced an organisational (52.9 %) or a product innovation (50.9 %), a somewhat smaller share of large enterprises introduced a process innovation (48.9 %), while marketing innovations were implemented by around 4 in 10 (40.2 %) large enterprises.

Figure 10.5: Share of enterprises that are innovative, EU-28, 2012-2014
(%)



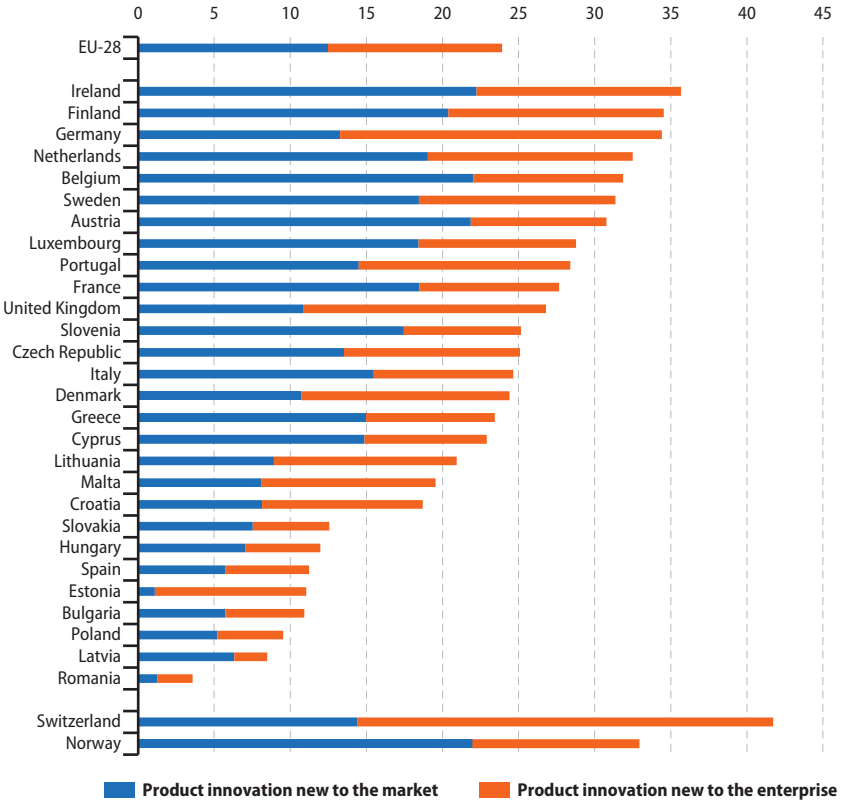
(1) SMEs and large enterprises: excluding Slovenia.

Source: Eurostat (online data codes: inn_cis9_type and inn_cis9_bas)

Product innovation requires an enterprise to have introduced a new or a significantly improved product. A distinction may be made between those product innovations that are new to the market or those which are new only to the innovating enterprise.

Within the EU-28, almost one quarter (23.9 %) of enterprises were product innovators during the period 2012-2014 (see Figure 10.6). The highest shares of product innovators (in the total number of enterprises) were recorded in Ireland (35.7 %), Finland (34.5 %) and Germany (34.4 %), while the Netherlands, Belgium, Sweden and Austria also recorded share that were in excess of 30.0 %. By contrast, share of less than 10.0 % were recorded in Poland (9.5 %), Latvia (8.5 %) and Romania (3.6 %).

Figure 10.6: Share of enterprises that had product innovations, 2012-2014
(%)



Source: Eurostat (online data code: inn_cis9_prod)

10.4 Digital economy and society statistics — households and individuals

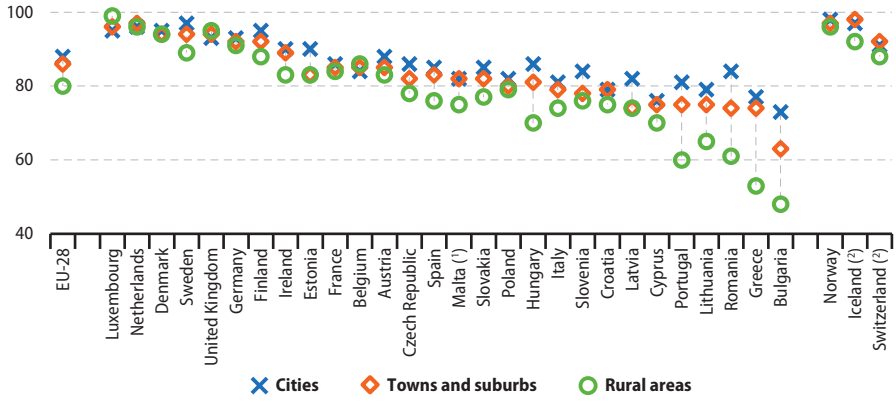
Information and communication technologies affect people's everyday lives in many ways, both at work and in the home, for example, when communicating or buying goods or services online. EU policies range from regulating entire areas such as e-commerce to trying to protect an individual's privacy.

ICTs have become widely available to the general public, both in terms of accessibility as well as cost. In 2016, the share of EU-28 households with internet access rose by 2 additional p.p. compared with 2015 to reach 85 %, 30 p.p. higher than in 2007.

The highest proportion (97 %) of households with internet access in 2016 was recorded in Luxembourg and in the Netherlands (see Figure 10.7), while Denmark, Sweden, the United Kingdom, Germany and Finland also reported that more than 9 out of every 10 households had internet access in 2016. The lowest rate of internet access among the EU Member Stat Bulgaria (64 %). However, Bulgaria, together with Spain and Greece, recorded a rapid expansion of the proportion of households having access to the internet with an increase of 19 p.p between 2011 and 2016.

Whereas households in the EU's cities as well as towns and suburbs had comparatively high access rates — 88 % in cities and 86 % in towns and suburbs — internet access was somewhat lower in rural areas (80 %). In 21 EU Member States, the proportion of households in rural areas having internet access was smaller than the equivalent proportion of households in cities or in towns and suburbs. The divide between rural areas and the two other types of areas was particularly strong in Greece, Portugal, Bulgaria, Romania, Hungary and Lithuania. In Estonia and Latvia, although the access to internet was higher in cities, there was no difference in

Figure 10.7: Internet access in households by degree of urbanisation, 2016
(% of all households)



Note: ranked on overall internet access.

(1) Rural areas: low reliability.
(2) 2014.

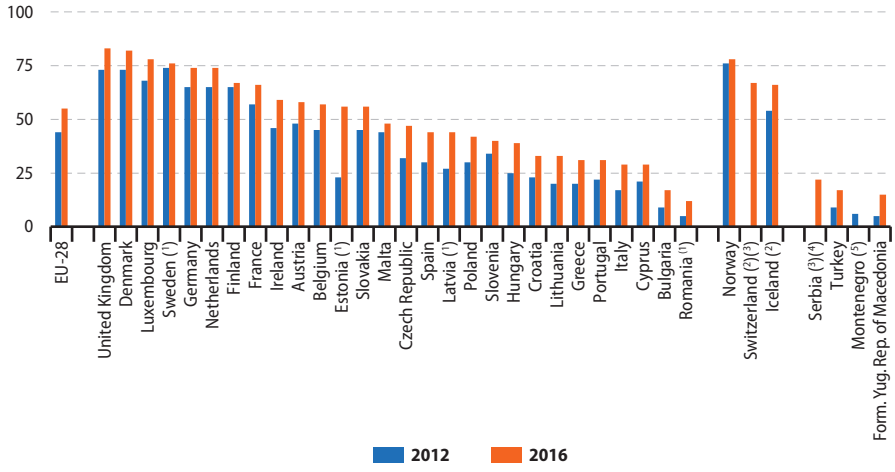
Source: Eurostat (online data code: isoc_ci_in_h)

the proportion of households having access to the internet between those in towns and suburbs and those in rural areas. In Luxembourg, Belgium and the United Kingdom the situation was opposite to the general pattern, as the proportion of households with internet access in rural areas was higher than in cities or in towns and suburbs. In the Netherlands and Denmark, comparably high proportions were observed for all three types of areas.

The proportion of individuals aged 16 to 74 in the EU-28 who ordered or bought goods or services over the internet for private use continued to rise: in 2016, it reached 55 %, an increase of 11 p.p. compared with 2012 (see Figure 10.8). Around three quarters of individuals in the Netherlands, Germany and Sweden ordered or bought goods or services over the internet in 2016 and this share was higher still in Luxembourg (78 %), Denmark (82 %) and the United Kingdom (83 %). By contrast, the proportion was less than 30 % in Italy and Cyprus, 17 % in Bulgaria and 12 % in Romania.

Excluding four EU Member States (that reported a break in series), the largest increase in the proportion of individuals who ordered or bought goods or services over the internet between 2012 and 2016 was observed in the Czech Republic (15 p.p.). Unsurprisingly, the smallest increases (2 p.p.) were observed in Finland and Sweden where the percentages of individuals ordering or buying goods or services online were already relatively high in comparison with other Member States.

Figure 10.8: Individuals who ordered goods or services over the internet for private use in the 12 months prior to the survey, 2012 and 2016
(% of individuals aged 16 to 74)



(1) Break in series.
(2) 2014 instead of 2016.
(3) 2012: not available.
(4) 2015 instead of 2016.
(5) 2016: not available.

Source: Eurostat (online data code: isoc_ec_ibuy)

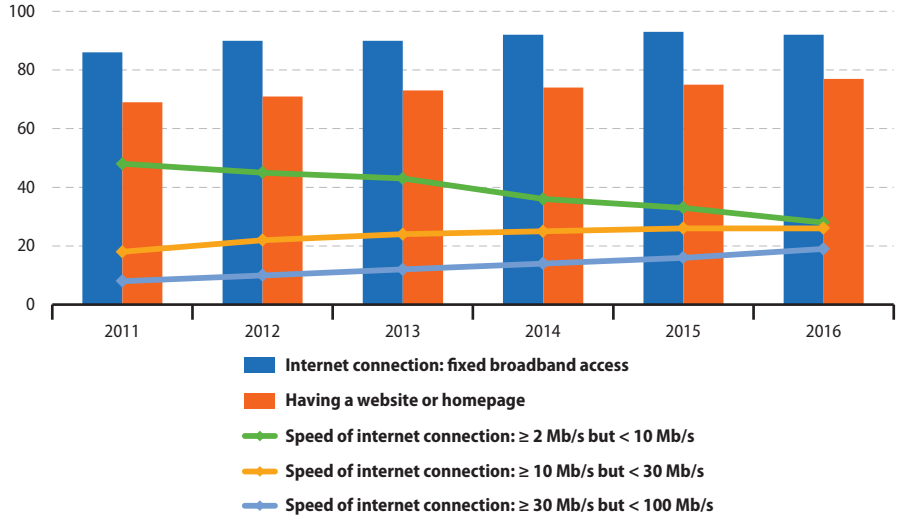
10.5 Digital economy and society statistics — enterprises

Progress in the development of the digital economy is regarded as critical to improve the competitiveness of the EU's economy. ICTs have quickly become an integral part of how enterprises function: indeed, their extensive use has had a profound impact on how businesses are run, touching upon a range of aspects such as how they organise their internal communications, share their information with business partners, or communicate with their customers.

In 2016, the vast majority (92 %) of enterprises in the EU-28 with at least 10 persons employed made use of a fixed broadband connection to access the internet (see Figure 10.9). This share remained between 92 % and 93 % during the latest three years, suggesting that the uptake of this technology was at saturation point. With almost all enterprises connected to the internet, the attention of policymakers has more recently switched to the uptake of mobile internet connections (as enterprises increasingly equip their staff with portable computers, smartphones and other mobile devices) and to the speed of fixed broadband connections.

In 2016, approximately one quarter (28 %) of enterprises in the EU-28 had an internet connection speed that was within the range

Figure 10.9: Enterprises connecting to the internet via fixed broadband and enterprises having a website, EU-28, 2011-2016
(% of enterprises)

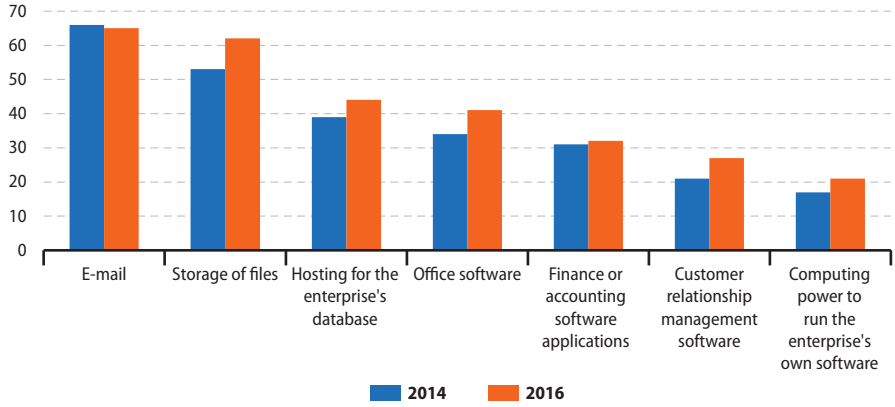


Source: Eurostat (online data codes: isoc_ci_it_en2 and isoc_ciweb)

of ≥ 2 Mb/s but < 10 Mb/s, with a similar but slightly smaller share (26 %) having a connection that was in the range of ≥ 10 Mb/s but < 30 Mb/s. Approximately one fifth (19 %) had a connection in the range of ≥ 30 Mb/s but < 100 Mb/s. As can be seen from Figure 10.9, the share of enterprises using slower connections fell during successive periods between 2011 and 2016 while the share using faster connections increased, albeit at a relatively modest pace, increasing by 2 or 3 p.p. each year.

The use of ICTs has the potential to make significant changes to the way that enterprises are run, the adoption of ICT-based solutions within business processes is often referred to using the generic term of 'e-business'. In 2016, more than three quarters (77 %) of enterprises in the EU-28 gave importance to their visibility on the internet and had either a website or homepage. This share was eight p.p. higher than it had been in 2011, when 69 % of enterprises had a website or homepage.

Figure 10.10: Enterprises using cloud computing services, by purpose, EU-28, 2014 and 2016
(% of enterprises using cloud services)



Source: Eurostat (online data code: isoc_cicce_use)

In principle, cloud computing involves two components, a cloud infrastructure and software applications. The first consists of the hardware resources required to support the cloud services being provided and typically includes server, storage and network components. The second component refers to software applications and computing power for running business applications, as provided via the internet by third parties.

Cloud computing can be seen as the technological extension of server-based computing: the cloud (internet) functions as an enormous networked server, allowing enterprises (and other users) to use the services by accessing the internet using relatively low-cost devices, such as desktop computers or mobile devices. The principal advantage for users is lower investment in developing and maintaining their own IT infrastructure and software applications.

Although nearly all enterprises in the EU-28 had access to the internet in 2016, only just over one fifth (21 %) used cloud computing. Large enterprises (with 250 or more persons employed) were much more likely to make use of cloud computing services, with 45 % doing so in 2016, compared with 29 % for medium-sized enterprises (with 50 to 249 persons employed) and 19 % for small enterprises (with 10 to 49 persons employed).

The two most common uses of cloud computing services in the EU-28 were for hosting e-mail and storing files in electronic form; these services were used by more than three fifths of enterprises using cloud computing services (see Figure 10.10). Just over two fifths of enterprises using cloud computing did so for hosting their own databases (44 %) and for using office software (41 %), while this share dropped to around one third (32 %) for cloud services relating to financial and accounting software applications. Cloud computing was also used for more advanced services, with more than one quarter (27 %) of enterprises using cloud services making use of customer relationship management software. In addition, more than one fifth (21 %) of enterprises using cloud services did so in order to access computing power to run their own software.

The different types of usage of cloud services in the EU-28 (as presented in Figure 10.10) were more widely used in 2016 than in 2014, with the exception of e-mail where the share was approximately stable. In p.p. terms, the largest increase was in the use of the cloud for file storage, up 9 p.p. between 2014 and 2016. In relative terms, the fastest growth was recorded for the use of cloud computing for customer relationship management software, as the share of enterprises using cloud services who made use of this service increased by more than a quarter.

11 Environment

Introduction

Eurostat produces statistics and accounts on environmental pressures, impacts on the state and change of environmental quality and on the measures to avoid or mitigate impacts on the environment.

Environmental accounts analyse the links between the environment and the economy by organising the environmental information in a way that is consistent with the accounting principles of national accounts. Environmental economic accounts can be used, for example, to identify: which are the most polluting activities or the ones that most deplete natural resources; what is the role of government and households; how expensive it is to protect the environment and who pays for it; how large is the environmental economy within the overall economy; how large is the production and consumption of natural resources and energy.

11.1 Greenhouse gas emissions by industries and households

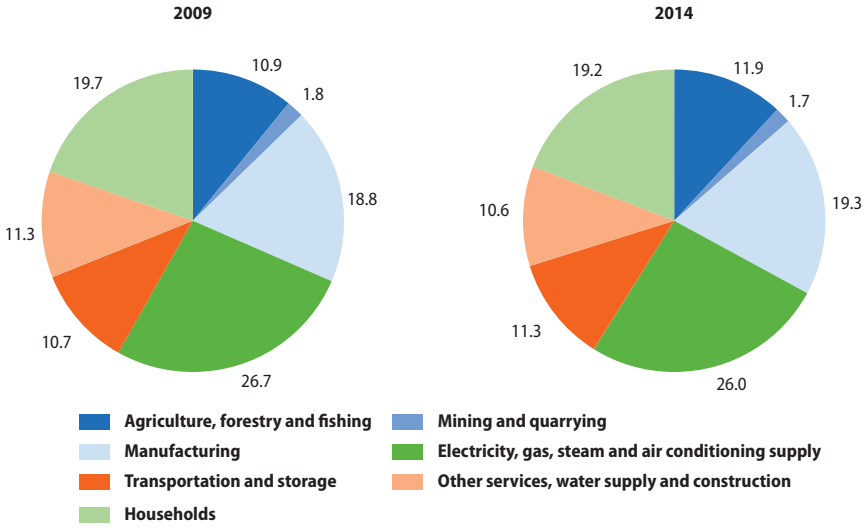
This subchapter analyses the emissions of three greenhouse gases (GHGs) in the European Union (EU) by the industries and households that are responsible for their generation. The three GHGs are carbon dioxide (CO_2), nitrous oxide (N_2O) and methane (CH_4). Fluorinated gases (hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride), which are responsible for about 2 % of the EU's greenhouse gas emissions, are not included in this analysis.

In 2014, GHG emissions generated by industries and households in the EU-28 stood at 4.4 billion tonnes of CO_2equivalents.

In 2014, the EU-28's electricity, gas, steam and air conditioning supply activities (NACE Section D) had the largest share, accounting for 26 % of the total GHGs emitted by industries and households (see Figure 11.1). Emissions from the suppliers of electricity, gas, steam and air conditioning result from fossil fuel combustion for electricity generation and district heating, but do not include emissions from combustion in individual houses or households. The share of manufacturing (NACE Section C) was 19 %, meaning that producers engaged in these two groupings of NACE activities together contributed nearly half (45 %) of all greenhouse gas emissions in the EU-28 in 2014. Households also accounted for 19 % of greenhouse gas emissions.

In most activities carbon dioxide was the most emitted GHG. Agriculture, forestry and fishing was the only grouping of activities where emissions of methane and nitrous oxide (expressed in CO_2 equivalents) were greater than those of carbon dioxide (see Figure 11.2).

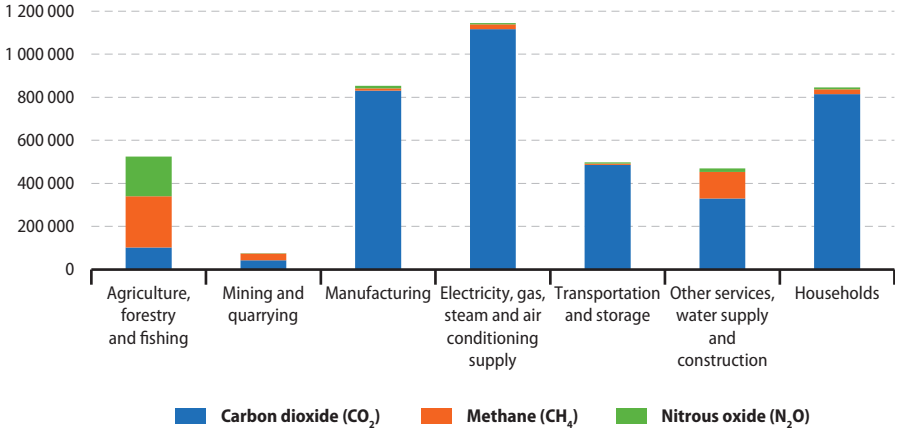
Figure 11.1: Greenhouse gas emissions by economic activity, EU-28, 2009 and 2014
(% of total emissions in CO_2 equivalents)



Note: estimates. Figures do not sum up to 100 % due to rounding.

Source: Eurostat (online data code: env_ac_ainah_r2)

Figure 11.2: Greenhouse gas emissions by economic activity and by pollutant, EU-28, 2014
(thousand tonnes of CO_2 equivalents)



Note: estimates.

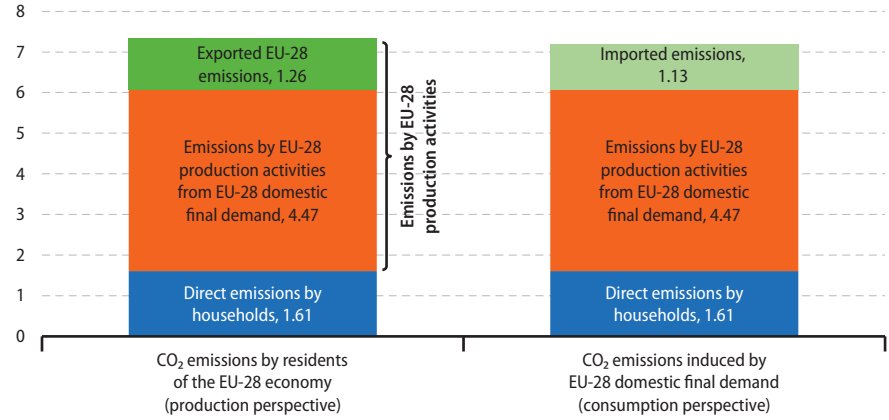
Source: Eurostat (online data code: env_ac_ainah_r2)

11.2 Carbon dioxide emissions from final use of products

The right-hand bar of Figure 11.3 shows the carbon dioxide (CO_2) emissions from final use of products within the EU-28 economy. The EU-28 final use of products encompasses consumption by private households and governments as well as the use of products for gross fixed capital formation, or in other words investments, such as buildings, plants and machinery, motor vehicles, and infrastructure. This type of estimate is also known as a 'carbon footprint'. The carbon footprint of the EU-28 measures how much CO_2 was emitted due to EU-28's demand for products.

The EU-28's total carbon footprint was equal to 7.2 tonnes CO_2 per person in 2014. It consists of about 1.6 tonnes of CO_2 per person (tonnes/person) directly emitted by private households from burning fossil fuels (for example for heating dwellings and fuelling private vehicles) and 5.6 tonnes/person emitted indirectly along the production chains of final products which were either consumed or invested in within the EU-28. A majority of the latter — 4.5 tonnes/person — stemmed from domestic production activities actually located in the EU-28. A smaller part, equal to 1.1 tonnes/person, is estimated to have

Figure 11.3: CO_2 emissions — production and consumption perspective breakdown, EU-28, 2014
(tonnes CO_2 per person)



Note: estimates.

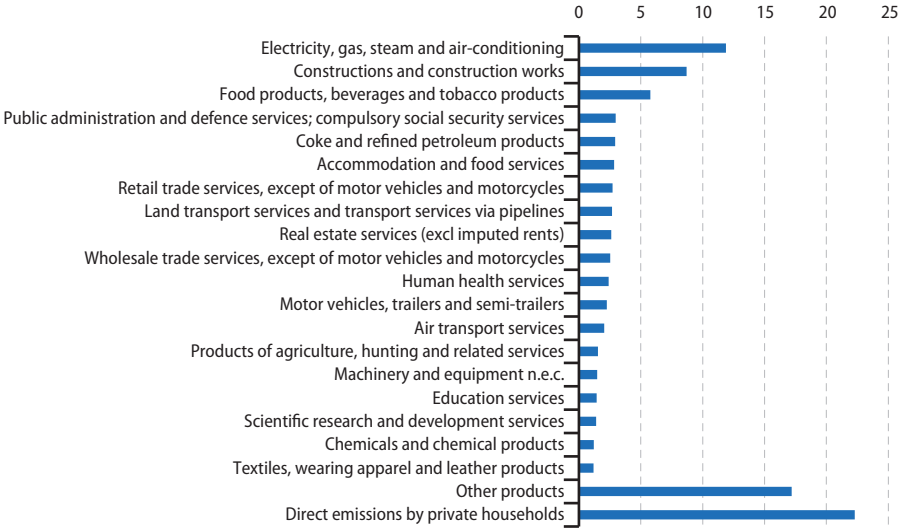
Source: Eurostat (online data code: env_ac_io10)

originated from production activities outside the EU-28 that created intermediate and final products that were then imported into the EU-28 for final use.

CO_2 emissions may also be analysed from a production perspective, in other words, emissions generated by the EU-28 economy. In 2014, these amounted in total to 7.3 tonnes CO_2 per person (see left-hand bar of Figure 11.3). CO_2 emitted in the EU-28 was made up of 1.6 tonnes/person direct emissions by private households (for example for heating and private transport) and 5.7 tonnes/person coming from domestic production activities, in other words from EU production activities. A smaller part of the EU production emissions is due to the production of goods and services that are exported outside the EU (1.3 tonnes/person).

Figure 11.4 shows which products caused the most CO_2 emissions worldwide (to meet EU-28 demand for final use of products).

Figure 11.4: Share of domestic and imported CO_2 emissions induced by final use of products, EU-28, 2014
(% of total)



Note: estimates.

Source: Eurostat (online data code: env_ac_io10)

11.3 Material flow accounts and resource productivity

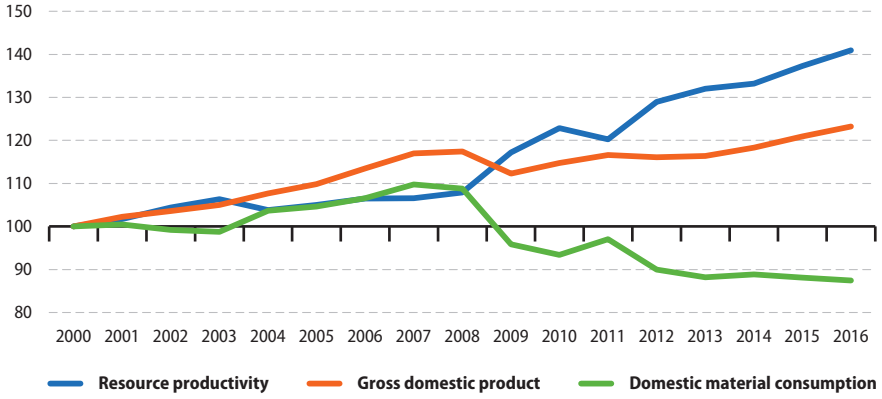
Eurostat's material flow accounts are a comprehensive data framework that systematically records the inputs of materials to European economies.

Resource productivity quantifies the relation between economic activity and the consumption of natural resources, and sheds light on whether they go hand-in-hand or the extent to which they are decoupled. Natural resources include biomass, metal ores, non-metallic minerals and fossil energy materials.

The resource productivity components are gross domestic product (GDP) in chain linked volumes and domestic material consumption (DMC). The latter measures the total amount of materials directly consumed in an economy by businesses for economic production and by households.

EU-28 resource productivity increased from 1.47 EUR/kg in 2000 to 2.07 EUR/kg in 2016, an increase of 41 %. This was not a steady increase: in particular the financial and economic crisis marked a change in 2008 (see Figure 11.5). Indeed, resource productivity reported a steady but modest increase from 2000 to 2008 (7.9 %). From 2008 to 2016 resource productivity surged from 1.59 to 2.07 EUR/kg, despite a dip in 2011. During this period annual growth was highest in 2009 (8.6 %) and 2012 (7.3 %).

Figure 11.5: Development of resource productivity in comparison with GDP and DMC, EU-28, 2000-2016
(2000 = 100)

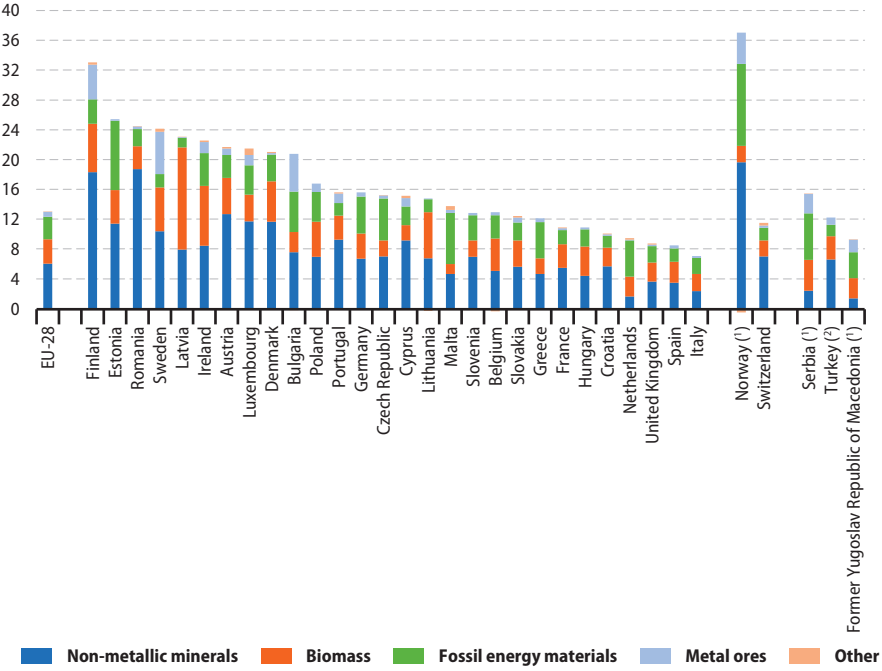


Note: GDP in chain-linked volumes, reference year 2010

Source: Eurostat (online data codes: nama_10_gdp and env_ac_mfa)

The level of DMC differed greatly among the EU Member States, ranging from 7 to 10 tonnes per capita in Italy, Spain, the United Kingdom and the Netherlands to 33 tonnes per capita in Finland in 2016. Furthermore, the structure of DMC — by main material category — varies between the Member States, as can be seen from Figure 11.6. The composition of DMC in each Member State is influenced by domestic extraction and by natural endowments with material resources, and the latter may form an important structural element of each economy.

Figure 11.6: Domestic material consumption by main material category, 2016
(tonnes per capita)



Note: 'Other' includes 'Other products' and 'Waste for final treatment and disposal'

(1) 2015
(2) 2014

Source: Eurostat (online data codes: env_ac_mfa and demo_gind)

11.4 Waste statistics

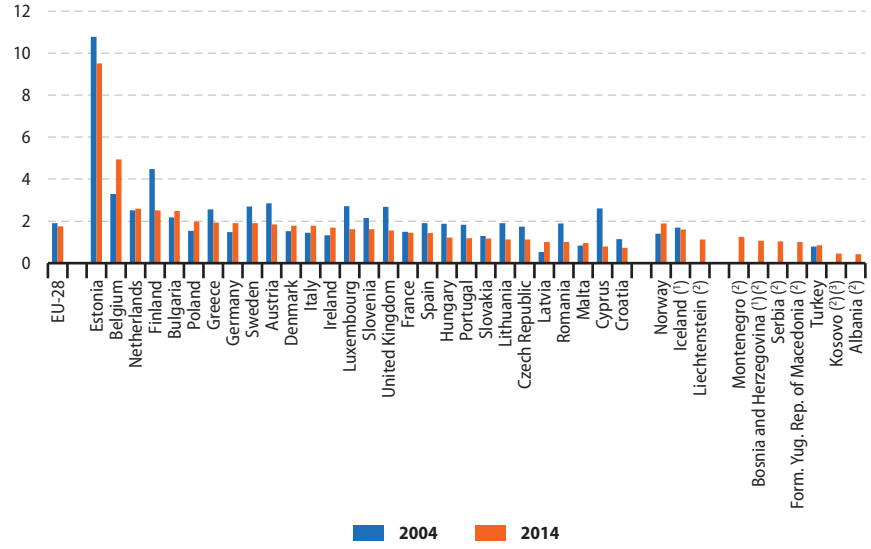
Waste, defined by Directive 2008/98/EC Article 3(1) as 'any substance or object which the holder discards or intends or is required to discard', potentially represents an enormous loss of resources in the form of both materials and energy. In addition, the management and disposal of waste can have serious environmental impacts. Landfill, for example, takes up land space and may cause air, water and soil pollution, while incineration may result in emissions of air pollutants.

In 2014, the total waste generated in the EU-28 by all economic activities and households amounted to 2 503 million tonnes.

In the EU-28, 891 million tonnes of waste excluding major mineral wastes were generated in 2014, equivalent to 36 % of the total waste generated. When expressed in relation to population size, the EU-28 generated, on average, 1.8 tonnes per inhabitant of waste excluding major mineral wastes in 2014 (see Figure 11.7). While the overall level of waste excluding major mineral wastes fell 5.3 % between 2004 and 2014, the quantity per inhabitant fell by 8.0 % (as the EU's population also grew over this period).

Across the EU Member States, waste generation excluding major mineral wastes ranged, in 2014,

Figure 11.7: Waste generation, excluding major mineral wastes, 2004 and 2014
(tonnes per inhabitant)



(1) 2012 instead of 2014.
(2) 2004: not available.
(3) According to UNSCR 1244/99.

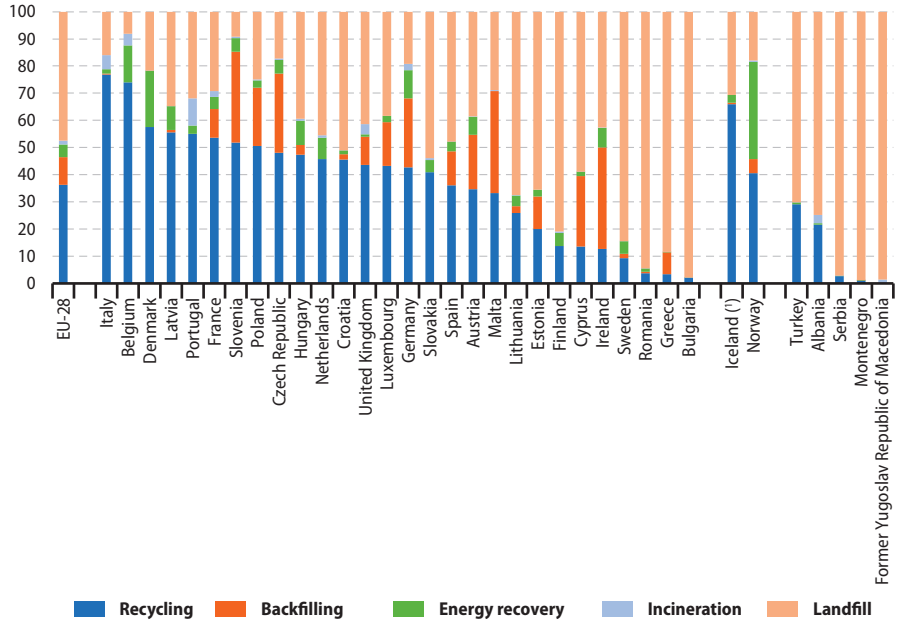
Source: Eurostat (online data code: env_wasgen)

from an average of 723 kg per inhabitant in Croatia to 9.5 tonnes per inhabitant in Estonia. The large quantity of waste generated in Estonia is related to energy production based on oil shale.

In 2014, some 2 320 million tonnes of waste were treated in the EU-28; this includes the treatment of waste imported into the EU and the reported amounts are therefore not directly comparable with those on waste generation.

Nearly half (47.4 %) of the waste treated in the EU-28 in 2014 was disposed of other than through incineration (landfilling). A further 36.2 % of the waste treated in the EU-28 in 2014 was sent to recovery operations other than energy recovery and backfilling (for simplification referred to as recycling). Just over one tenth (10.2 %) of the waste treated in the EU-28 was backfilled, while the remainder was sent for incineration, either with energy recovery (4.7 %) or without (1.5 %). Significant differences could be observed among the EU Member States concerning the use they made of these various treatment methods (see Figure 11.8). For instance, some Member States had very high recycling rates (Italy and Belgium), while others favoured landfill (Bulgaria, Romania, Greece, Sweden and Finland).

Figure 11.8: Waste treatment, 2014
(% of total)



(1) 2012.

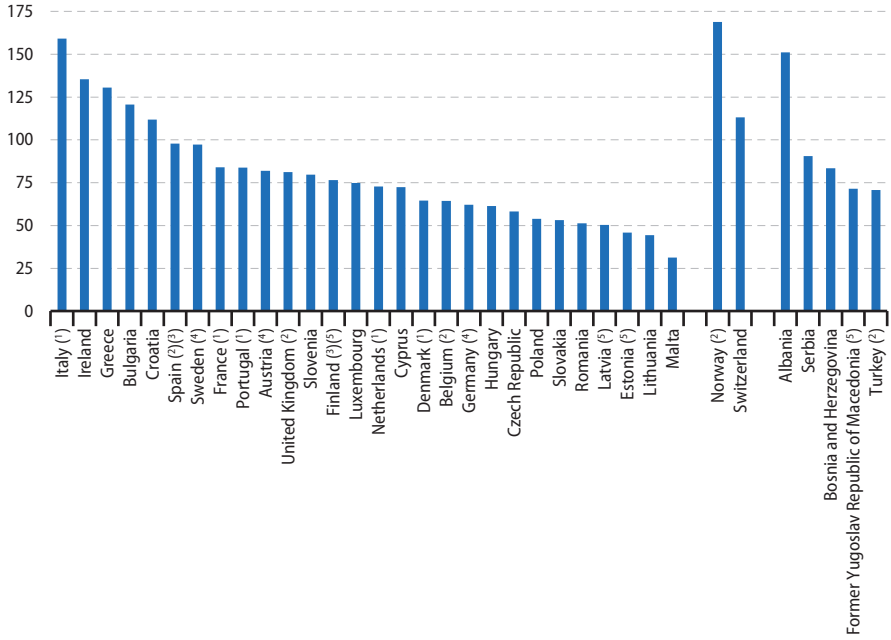
Source: Eurostat (online data code: env_wastrt)

11.5 Water statistics

Water is essential for life, it is an indispensable resource for the economy, and also plays a fundamental role in the climate regulation cycle. The management and protection of water resources, of fresh and salt water ecosystems, and of the water we drink and bathe in is therefore one of the cornerstones of environmental protection.

In 2015, freshwater abstraction by public water supply ranged across the EU Member States from a high of 159.1 m^3 of water per inhabitant in Italy (2012 data) down to a low of 31.3 m^3 per inhabitant in Malta — see Figure 11.9. Some of the patterns of freshwater abstraction from public supply reflect specific conditions in the EU Member States: for example, in Ireland (135.5 m^3 per inhabitant) the use of water from the public supply was still free of charge for many households, while in Bulgaria (120.7 m^3 per inhabitant) there were particularly high losses from the public network.

Figure 11.9: Total freshwater abstraction by public water supply, 2015
(m^3 per inhabitant)



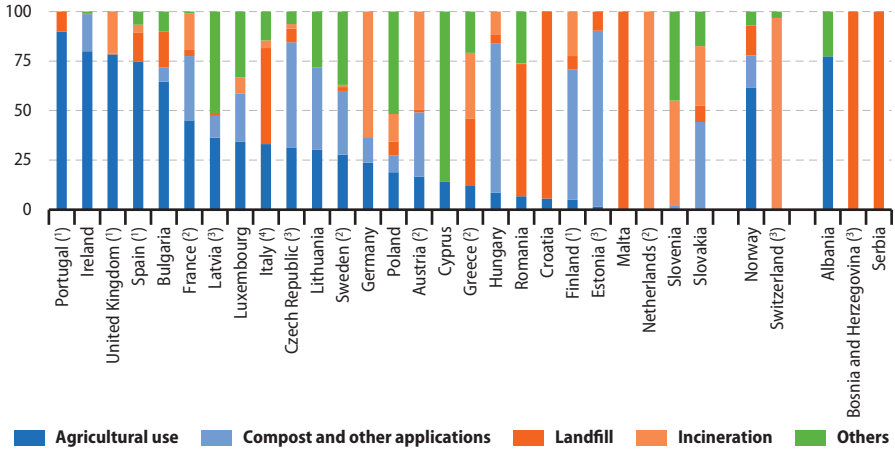
(1) 2012.
(2) 2014.
(3) Estimate.
(4) 2010.
(5) 2013.

Source: Eurostat (online data code: env_wat_abs)

The residual of wastewater treatment is sewage sludge. While the amount of sludge generated per inhabitant depends on many factors and hence is quite variable, the nature of this sludge — rich in nutrients, but also often loaded with high concentrations of pollutants such as heavy metals — has led countries to seek different pathways for its disposal, as illustrated in Figure 11.10.

Typically, four different types of disposal make up a considerable share of the total volume of sewage sludge treated: at least 70 % of the total was used as fertiliser for agricultural use in four of the EU Member States — Portugal, Ireland, the United Kingdom and Spain (data refer to 2012, except for Ireland where the latest information available is for 2015). By contrast, around two thirds of sewage sludge was composted in Estonia (2013 data) and Hungary (2015), rising to 88.6 % and 75.4 % of the total respectively. Alternative forms of sewage disposal may be used to reduce or eliminate the spread of pollutants on agricultural or gardening land; these include incineration and landfill. While the Netherlands, Germany, Slovenia and Austria reported incineration as their principal form of treatment for disposal, discharge into controlled landfills was practised as the principal type of treatment in Malta (where it was the sole form of treatment), Croatia, Romania and Italy.

Figure 11.10: Sewage sludge disposal from urban wastewater treatment, by type of treatment, 2015
(% of total mass)



Note: Belgium and Denmark, not available.

(1) 2012.
(2) 2014.
(3) 2013.
(4) 2010.

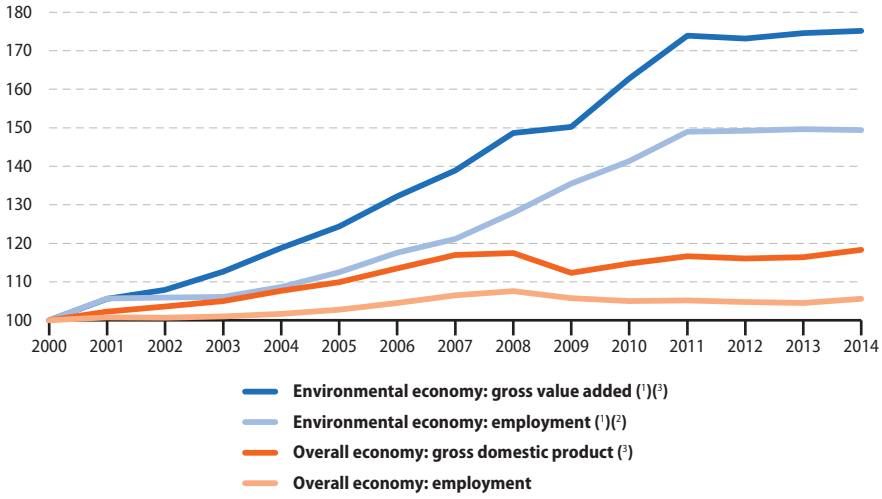
Source: Eurostat (online data code: env_ww_spd)

11.6 Environmental economy — employment and growth

The environmental economy encompasses two broad groups of activities and/or products: 'environmental protection' — all activities related to preventing, reducing and eliminating pollution and any other degradation of the environment; 'resource management' — preserving and maintaining the stock of natural resources and hence safeguarding against depletion.

According to Eurostat estimates, employment in the EU-28's environmental economy rose from 2.8 million full-time equivalents (FTEs) in 2000 to 4.2 million full-time equivalents in 2014. The environmental economy in the EU-28 generated EUR 710 billion of output and EUR 289 billion of value added in 2014. Between 2000 and 2014, employment and value added in the environmental economy grew considerably faster than employment in the overall economy and GDP (see Figure 11.11).

Figure 11.11: Development of key indicators for the environmental economy and the overall economy, EU-28, 2000-2014
(2000 = 100)

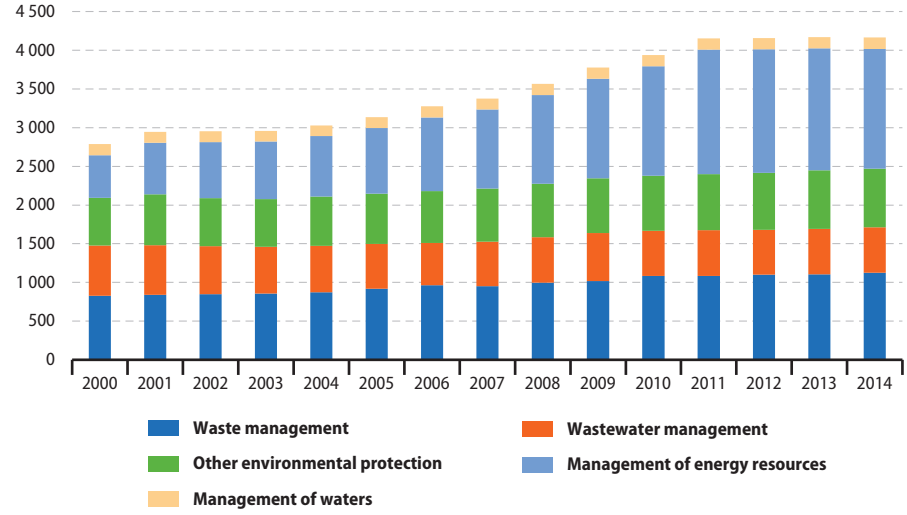


(1) Eurostat estimates.
(2) In full-time equivalents.
(3) Index compiled for chain-linked volumes data in EUR million (reference year 2010; at 2010 exchange rates).

Source: Eurostat (online data codes: nama_10_a10_e, nama_10_gdp, env_ac_egss1 and env_ac_egss2)

The growing number of persons employed within the environmental economy since 2000 was mainly due to growth in the management of energy resources, especially those concerning the production of energy from renewable sources (such as wind and solar power) and the production of equipment and installations for heat and energy saving (see Figure 11.12). Employment in this environmental domain increased from 0.5 million full-time equivalents in 2000 to 1.5 million full-time equivalents in 2014, in other words an increase of nearly a million full-time equivalents (or 182 %). The second most important contribution to employment growth in the environmental economy came from the domain of waste management, with employment rising from 0.8 million full-time equivalents in 2000 to 1.1 million full-time equivalents in 2014 (an overall increase of 36 %). By contrast, employment decreased in the domain of wastewater management by 10 % (63 thousand full-time equivalents) during the period 2000-2014, falling to 586 thousand full-time equivalents in 2014.

Figure 11.12: Employment in the environmental economy, by domain, EU-28, 2000-2014
(thousand full-time equivalents)



Note: Eurostat estimates.

Source: Eurostat (online data code: env_ac_egss1)

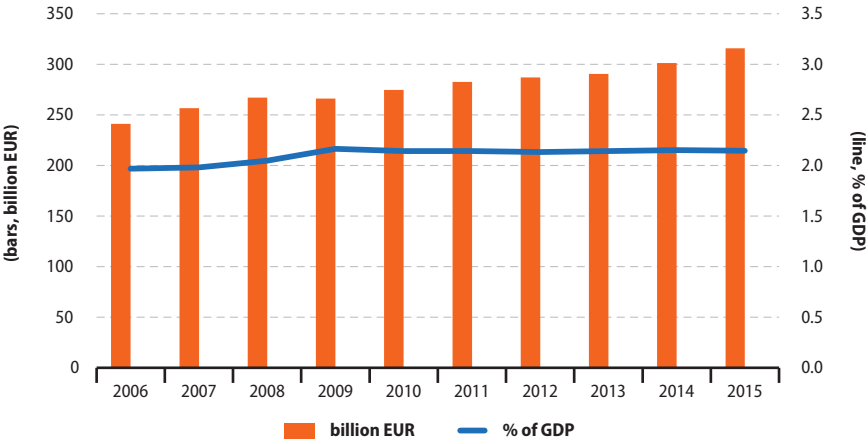
11.7 Environmental protection expenditure accounts

Environmental protection expenditure accounts (EPEA) describe production, consumption, investment, transfers and employment in environmental protection products or activities.

In 2015, national expenditure on environmental protection amounted to EUR 316 billion in the EU-28. Between 2006 and 2015 it grew by 31 % at current prices, which represents an average growth of 3 % per year — see Figure 11.13, left scale. In the years 2006-2008 an annual growth of 5 % was registered followed by a slight decrease (0.3 %) between 2008 and 2009, as the global financial and economic crisis unfolded. During the years 2009-2015 national expenditure on environmental protection grew more strongly again, at an annual pace of 3 %.

In the EU-28, national expenditure on environmental protection relative to GDP was 2.1 % in 2015. This ratio did not show strong changes over the period 2006-2015. An increase was observed between 2006 and 2009, spending on environmental protection moving from 2.0 % to 2.2 % of GDP. From 2009 onwards, very small annual changes occurred, the ratio remaining almost unchanged: in other words, the development of national expenditure on environmental protection at current prices was in line with that also observed for GDP.

Figure 11.13: National expenditure on environmental protection, EU-28, 2006-2015



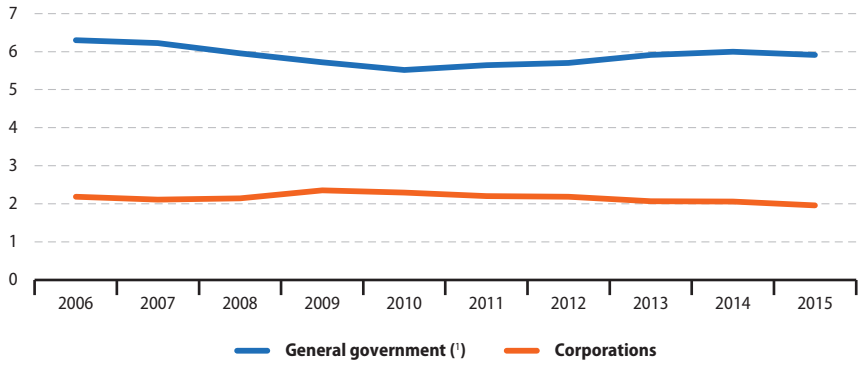
Note: estimates.

Source: Eurostat (online data codes: env_ac_pepsgg, env_ac_pepssp, env_ac_pepsnsp and nama_10_gdp)

In 2015, corporations in the EU-28 invested some EUR 35 billion on environmental protection (about 58 % of the total investment on environmental protection), compared with EUR 25 billion by general government.

The relative importance of environmental protection investment can be analysed with the ratio relating the latter expenditure to the total investment by each sector. In the EU-28, in 2015 this share stood at 2.0 % for corporations, compared with 5.9 % for general government (see Figure 11.14). For both sectors the share of environmental protection investment within their total investment had been higher in 2006 than it was in 2015.

Figure 11.14: Investment for environmental protection, EU-28, 2006-2015
(% of total investment)



Note: estimates. Investment comprises gross fixed capital formation and acquisitions less disposals of non-financial non-produced assets.

(1) Including non-profit institutions serving households (NPISH). Estimates for the total investment of general government and NPISH (used as the denominator for the share in %) do not include the total investment by NPISH.

Source: Eurostat (online data codes: env_ac_pepsgg, env_ac_pepssp, env_ac_pepsnsp and nasa_10_nf_tr)

11.8 Environmental tax statistics

The total government revenue from environmental taxes in the EU-28 in 2015 amounted to EUR 359.3 billion (see Figure 11.15); this figure represents 2.4 % of the EU-28 GDP and 6.3 % of the total government revenues from compulsory levies.

From 2002 to 2015, the total environmental tax revenue in the EU increased by 2.4 % per year (at current prices) on average whereas GDP at market prices rose at an annual average of 2.7 %. In 2015, the level of environmental tax revenues was some EUR 95 billion higher than in 2002. However, the financial and economic crisis caused a severe contraction in economic activity in the EU, leading to lower tax revenue in 2008 and 2009. In 2010, environmental tax revenues returned to an upward path.

Energy taxes (which include taxes on transport fuels) represented by far the highest share of overall environmental tax revenue, accounting for 76.6 % of the EU-28 total in 2015 (see Figure 11.16). Energy taxes were particularly prominent in the Czech Republic, Lithuania, Luxembourg and Romania, where they accounted for more than nine tenths of total environmental tax revenues. By contrast, energy taxes slightly exceeded 50 % of the revenues from environmental taxes in Malta (51.3 %), and accounted only for 55-56 % of the total in Denmark (55.5 %) and the Netherlands (55.9 %).

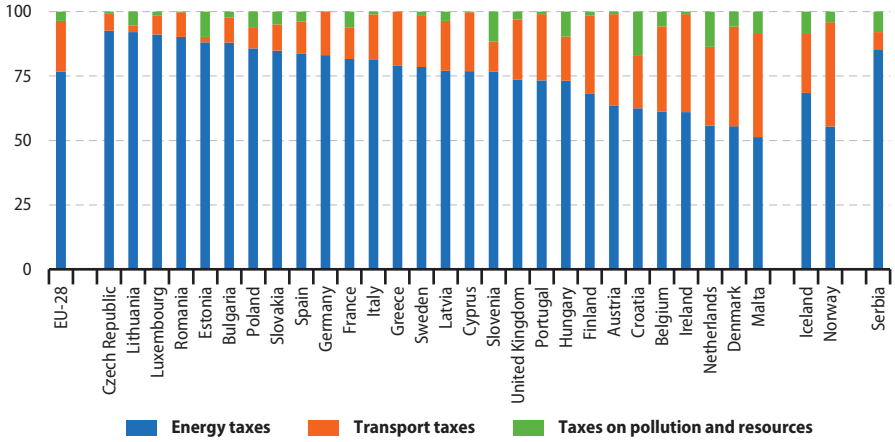
Figure 11.15: Total environmental tax revenue by type of tax, EU-28, 2002-2015
(billion EUR)

Source: Eurostat (online data code: env_ac_tax)

Transport taxes represented the second most important contribution to total environmental tax revenues, with 19.8 % of the EU-28 total in 2015. Their relative significance was considerably higher in Austria (35.5 % of all revenues from environmental taxes), Ireland (38 %) and Denmark (38.7 %) and even more so in Malta (40.3 %). The smallest shares of transport taxes in total revenues from environmental taxes were in Estonia (2.2 %) and in Lithuania (2.5 %).

Pollution and resource taxes represented a relatively small share (3.5 %) of total environmental tax revenues in the EU-28 in 2015. However, a much higher share for pollution and resource taxes was observed in Croatia (16.9 %), and in the Netherlands (13.7 %). By contrast, in Greece no taxes of this category have been levied and in Germany, Cyprus and Romania marginal amounts of the pollution and resource taxes were recorded.

Figure 11.16: Environmental taxes by tax category, 2015
(% of total environmental taxes)



Note: ranked on the share of energy taxes.

Source: Eurostat (online data code: env_ac_tax)

12 Energy

Introduction

A competitive, reliable and sustainable energy sector is essential for all advanced economies. The energy sector has been under the spotlight in recent years due to a number of issues that have pushed energy to the top of national and European Union (EU) political agendas .

The main issues in the energy sector include:

- the volatility of oil and gas prices;
- interruptions to energy supplies from non-member countries;
- blackouts aggravated by inefficient connections between national electricity networks;
- the difficulties of market access for suppliers in relation to gas and electricity markets;
- concerns over the production of nuclear energy;
- increased attention to anthropogenic (human-induced) effects on climate change, in particular, greenhouse gas emissions of fossil fuel combustion.

The use of renewable energy sources is seen as a key element of the EU's energy policy and should help to: reduce dependence on fuel from non-member countries; reduce emissions from carbon-based energy sources, and decouple energy costs from oil prices.

Another key aspect of the EU's energy policy is to constrain consumption by promoting energy efficiency, both within the energy sector itself and among end-users. Indeed, the EU has set out an ambitious energy policy — covering a broad range of energy sources from fossil fuels (oil, gas and coal) to nuclear energy and renewables (solar, wind, biomass, geothermal, hydroelectric and tidal). This policy is designed to bring about a new industrial revolution that will result in a low-energy economy, while making the energy that is consumed more secure, competitive and sustainable, with a goal for the EU to become a world leader in renewable energy and low-carbon technologies.

One of the 10 priorities of the European Commission is a European energy union, designed to ensure that Europe has secure, affordable and climate-friendly energy. It is intended that a European energy union will ensure secure, sustainable, competitive and affordable energy. In February 2015, the European Commission set out its plans in a Communication A framework strategy for a resilient energy union with a forward-looking climate change policy (COM(2015) 80 final). It proposes five dimensions for the strategy:

- energy security, solidarity and trust;
- a fully integrated European energy market;
- energy efficiency contributing to moderation of demand;
- decarbonising the economy; and
- research, innovation and competitiveness.

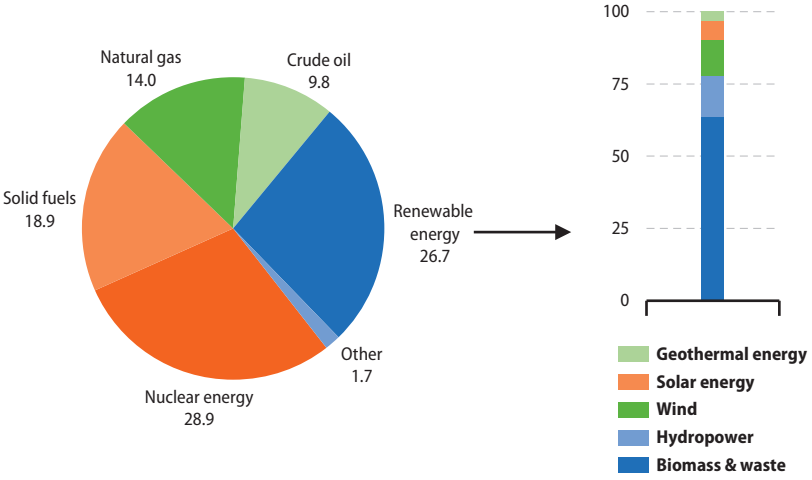
12.1 Energy production and imports

Production of primary energy in the EU-28 totalled 767 million tonnes of oil equivalent (Mtoe) in 2015. This was 0.8 % lower than a year before and continued the generally downward development observed in recent years, with 2010 the main exception as production rebounded following a relatively strong fall in energy production in 2009 that coincided with the global financial and economic crisis. When viewed over a longer period, the production of primary energy in the EU-28 was 15.2 % lower in 2015 than it had been a decade earlier. The general downward development of EU-28 primary energy production may, at least in part, be attributed to supplies of raw materials becoming exhausted and/or producers considering the exploitation of limited resources uneconomical.

Primary energy production in the EU-28 in 2015 was spread across a range of different energy sources, the most important of which in terms of the size of its contribution was nuclear energy (28.9 % of the total).

In 2015, more than one quarter (26.7 %) of the EU-28's total production of primary energy was accounted for by renewable energy sources, while the share for solid fuels (18.9 %, largely coal) was just below one fifth and the share for natural gas was somewhat lower (14.0 %). Crude oil (9.8 %) was the only other major source of primary energy production (see Figure 12.1).

Figure 12.1: Production of primary energy, EU-28, 2015
(% of total, based on tonnes of oil equivalent)



Source: Eurostat (online data codes: nrg_100a and nrg_107a)

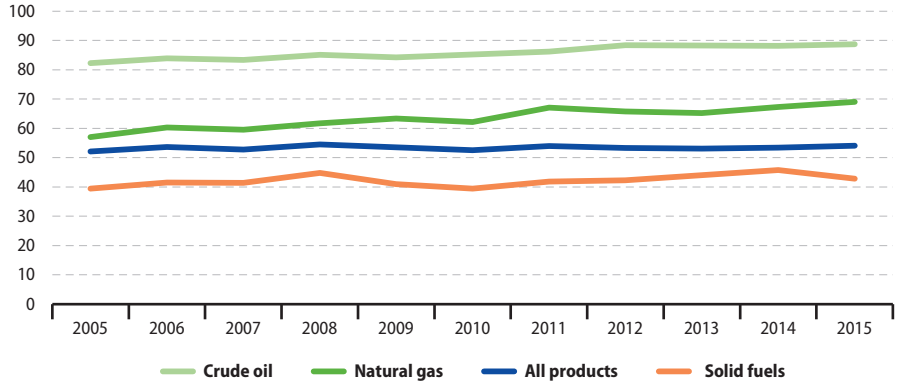
EU-28 dependency on energy imports increased from slightly more than 40 % of gross energy consumption in 1990 to reach 54.0 % by 2015 (see Figure 12.2). Since 2004, the EU-28's net imports of energy have been greater than its primary production; in other words, more than half of the EU-28's gross inland energy consumption was supplied by net imports and the dependency rate exceeded 50.0 %.

The figure for 2015 marked a slight decrease in the dependency rate, which reached a relative peak of 54.5 % in 2008. That said, the EU-28 energy dependency rate rose by 0.9 percentage points (p.p.) between 2013 and 2015. Looking in more detail, the highest rates in 2015 were recorded for crude oil (88.8 %) and for natural gas (69.1 %), while the latest rate available for solid fuels was 42.8 %.

In the last decade (between 2005 and 2015), the EU's dependency on non-member countries for supplies of natural gas grew by 12.0 percentage points, faster than the growth in dependency for crude oil (up 6.4 p.p.) and solid fuels (up 3.4 p.p.).

As it was no longer a net exporter, Denmark's energy dependency rate turned positive in 2013 and remained positive in 2014 and 2015, which was also the case for all of the other EU Member States (see Figure 12.3). The lowest energy dependency rates in 2015 were recorded for Estonia, Denmark, Romania and Poland (the only Member States to report dependency rates below 30.0 %). Cyprus, Malta and Luxembourg were (almost) entirely dependent on primary energy imports, with dependency rates that were over 90.0 %.

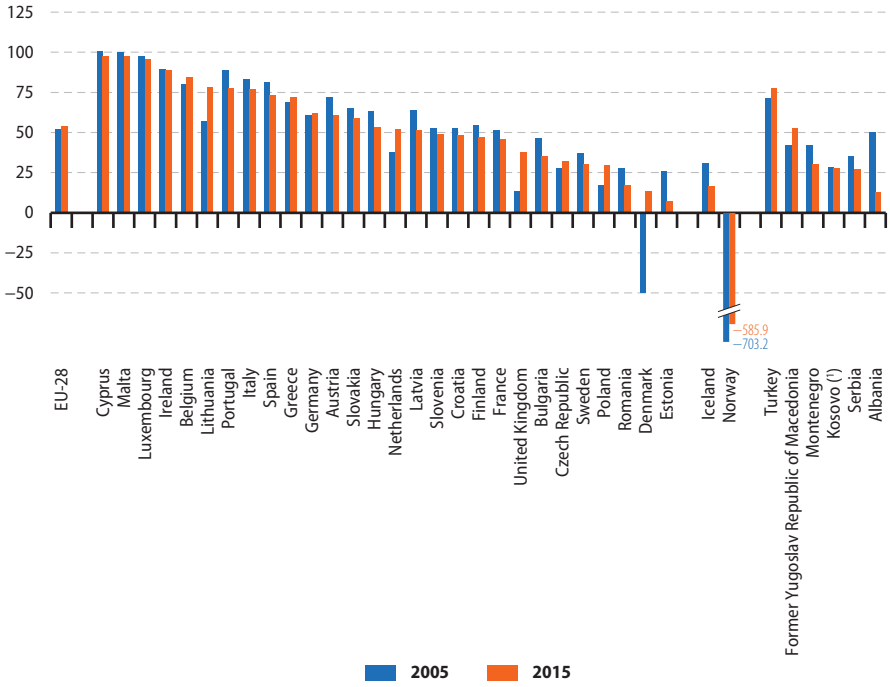
Figure 12.2: Energy dependency rate, EU-28, 2005-2015
(% of net imports in gross inland consumption and bunkers, based on tonnes of oil equivalent)



Source: Eurostat (online data codes: nrg_100a, nrg_102a and nrg_103a)

An analysis of developments between 2005 and 2015 reveals that Denmark, the United Kingdom, Lithuania, the Netherlands and Poland became increasingly dependent upon energy imports to satisfy their gross inland consumption; these patterns can be largely associated with a downturn in primary energy production (linked to the supplies of raw materials becoming exhausted). There was also increasing dependency, although less marked, in Belgium, the Czech Republic, Greece and Germany. All of the remaining EU Member States recorded a fall in their energy dependency rates between 2005 and 2015, the most rapid change being registered in Estonia, where the rate fell from 26.1 % to 7.4 %; rates also fell by more than 10.0 p.p. in Latvia, Bulgaria, Portugal, Austria and Romania, driven by a combination of energy efficiency gains and/or a switch in the energy mix to promote primary production from renewable sources.

Figure 12.3: Energy dependency rate — all products, 2005 and 2015
(% of net imports in gross inland consumption and bunkers, based on tonnes of oil equivalent)



(1) According to UNSCR 1244/99.

Source: Eurostat (online data code: tsdcc310)

12.2 Consumption of energy

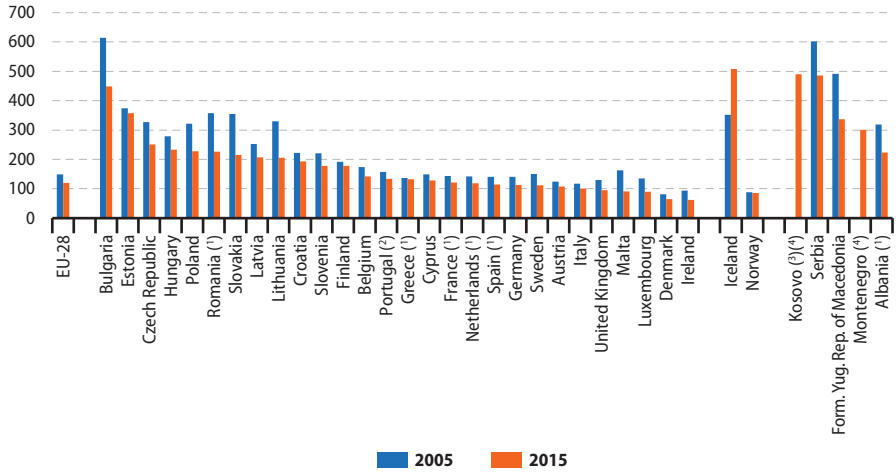
In tandem with supply-side policies, the EU has launched a number of initiatives which aim to increase the efficiency of energy use, reduce energy demand and attempt to decouple it from economic growth. Several instruments and implementing measures exist in this field, including the promotion of co-generation, the energy performance of buildings (whether private or public buildings), and energy labelling for domestic appliances.

Gross inland consumption of energy within the EU-28 in 2015 was 1 627 Mtoe.

As such, the latest information available reveals that the level of energy consumption within the EU was, in 2015, at almost the same level as it had been in 1990; during this same period, the number of inhabitants living in the EU-28 increased by 33.3 million persons. The level of EU-28 energy consumption in 2015 was 11.6 % lower than its previous peak of 1 840 Mtoe recorded in 2006, equivalent to an average reduction of 1.4 % per annum.

Energy intensity is a measure of an economy's energy efficiency. The least energy-intensive economies in the EU in 2015 were Ireland, Denmark, Luxembourg, Malta and the United Kingdom; they used the lowest amount of energy relative to their overall economic size (based on gross domestic product (GDP)). The most energy-intensive EU Member States were Bulgaria and Estonia (see Figure 12.4). It should be noted that the economic structure

Figure 12.4: Energy intensity of the economy, 2005 and 2015
(kg of oil equivalent per 1 000 EUR of GDP)



(1) 2015: provisional.
(2) 2015: estimate.
(3) According to UNSCR 1244/99.
(4) 2005: not available.

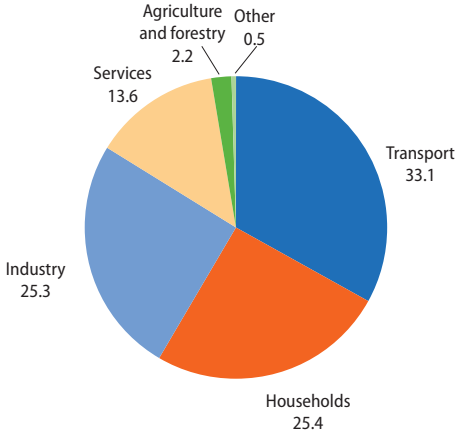
Source: Eurostat (online data code: tsdec360)

of an economy plays an important role in determining energy intensity, as service-based economies will, a priori, display relatively low energy intensities, while economies with heavy industries (such as iron and steel production) may have a considerable proportion of their economic activity within industrial sectors, thus leading to higher energy intensity.

Between 2005 and 2015, energy savings were made in each of the EU Member States, as the energy intensity of each economy fell. The biggest reductions in energy intensity were recorded in Malta (-44.3 %), Slovakia (-39.4 %), Romania (-36.5 %), Luxembourg (-33.9 %) and Ireland (-33.7 %), where the amount of energy required to produce a unit of economic output (as measured by GDP) fell by at least one third between 2005 and 2015. By contrast, the smallest decreases in percentage terms were recorded for Finland (-7.8 %), Estonia (-4.3 %) and Greece (-3.1 %); these were the only Member States where the reduction in energy intensity was below 10.0 %.

An analysis of the final end use of energy in the EU-28 in 2015 shows three dominant categories: transport (33.1 %), households (25.4 %) and industry (25.3 %) — see Figure 12.5.

Figure 12.5: Final energy consumption, EU-28, 2015
(% of total, based on tonnes of oil equivalent)



Note: figures do not sum to 100.0 % due to rounding.

Source: Eurostat (online data code: nrg_100a)

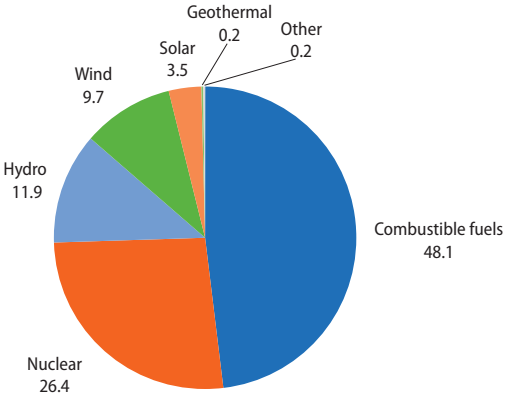
12.3 Electricity production, consumption and market overview

Total net electricity generation in the EU-28 was 3.07 million gigawatt hours (GWh) in 2015 — which was 1.3 % higher than a year before, ending a period of four consecutive reductions in output.

Almost half (48.1 %) of the net electricity generated in the EU-28 in 2015 came from combustible fuels (such as natural gas, coal and oil), while more than one quarter (26.4 %) came from nuclear power stations. Among the renewable energy sources shown in Figure 12.6, the highest share of net electricity generation in 2015 was from hydropower plants (11.9 %), followed by wind turbines (9.7 %) and solar power (3.5 %).

The relative importance of renewable energy sources in relation to EU-28 net electricity generation grew between 2005 and 2015 from 13.3 % to 25.3 %, while there was a relatively large decrease in the importance of combustible fuels from 56.4 % to 48.1 % and also a reduction in the share of electricity generated from nuclear power plants from 30.0 % to 26.4 %. Among the renewable energy sources, the proportion of net electricity generated from solar and wind increased greatly: from less than 0.1 % in 2005 to 3.5 % in 2015 for solar power and from 2.2 % in 2005 to 9.7 % in 2015 for wind turbines.

Figure 12.6: Net electricity generation, EU-28, 2015
(% of total, based on GWh)

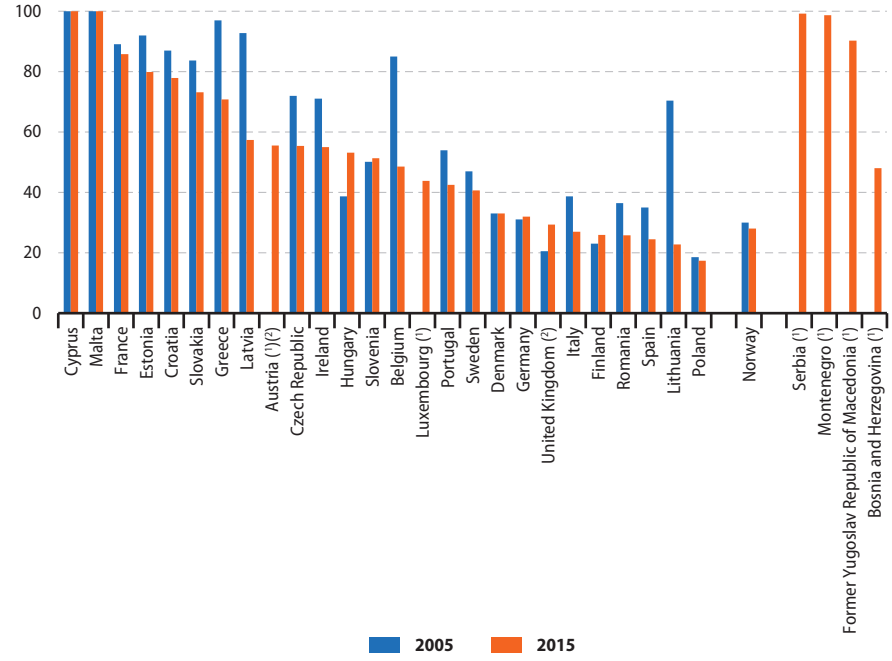


Source: Eurostat (online data code: nrg_105a)

One measure that is used to monitor the extent of electricity market liberalisation is the market share of the largest generator in each country (see Figure 12.7). The small island nations of Cyprus and Malta were both characterised by a complete monopoly in both 2005 and 2015, with 100 % of their electricity being generated by the largest (sole) generator. Five other EU Member States — France, Estonia, Croatia, Slovakia and Greece — reported shares of at least 70 %. In half of the 26 Member States for which data are available (no data for Bulgaria or the Netherlands), the largest electricity generator provided less than 50 % of the market, with the lowest share (17.4 %) being recorded in Poland.

An analysis of developments between 2005 and 2015 reveals that among the 24 EU Member States for which data are available (no data for Bulgaria or the Netherlands; incomplete data for Luxembourg and Austria), the majority (16) saw a reduction in the market share of their leading electricity generator.

Figure 12.7: Market share of the largest generator in the electricity market, 2005 and 2015
(% of total generation)



Note: Bulgaria and the Netherlands, not available.

(1) 2005: not available.
(2) 2013 instead of 2015.

Source: Eurostat (online data code: nrg_ind_331a)

12.4 Renewable energy

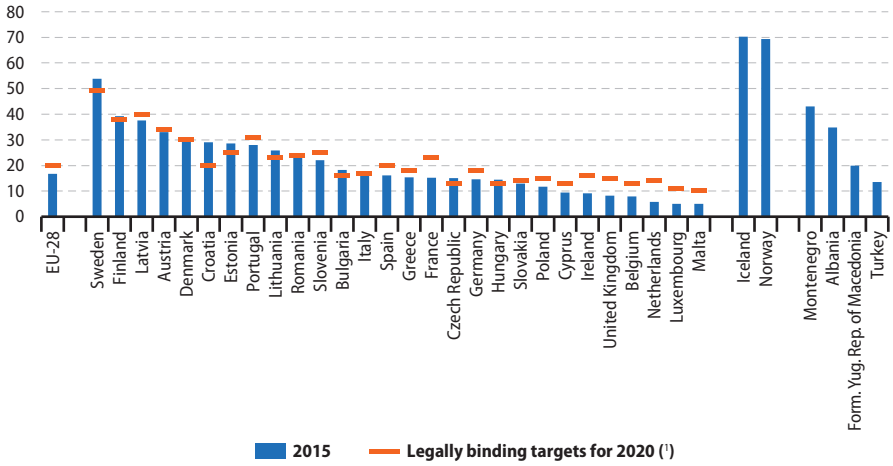
Renewable energy sources include: wind power; solar (thermal — including concentrated — and photovoltaic); hydroelectric power; tidal, wave and ocean power; geothermal energy; biofuels; and renewable waste.

The primary production of renewable energy within the EU-28 in 2015 was 205 Mtoe — a 26.7 % share of total primary energy production from all sources. The quantity of renewable energy produced within the EU-28 increased overall by 71.0 % between 2005 and 2015, equivalent to an average increase of 5.5 % per year.

The EU seeks to have a 20 % share of its gross final energy consumption from renewable sources by 2020; this target is distributed between the EU Member States with national action plans designed to plot a pathway for the development of renewable energies in each of the Member States. Figure 12.8 shows the latest data available for the share of renewable energies in gross final energy consumption and the targets that have been set for each Member State for 2020. The share of renewables in gross final energy consumption stood at 16.7 % in the EU-28 in 2015.

Among the EU Member States, the highest share of renewables in gross final energy consumption in 2015 was recorded in Sweden (53.9 %), while Finland, Latvia, Austria and Denmark each reported that more than 30.0 % of their final energy consumption was energy derived from renewables. Compared with the most recent data available for 2015, the targets for the Netherlands, France, Ireland, the United Kingdom and Luxembourg require each of these Member

Figure 12.8: Share of renewables in gross final energy consumption, 2015 and 2020
(%)



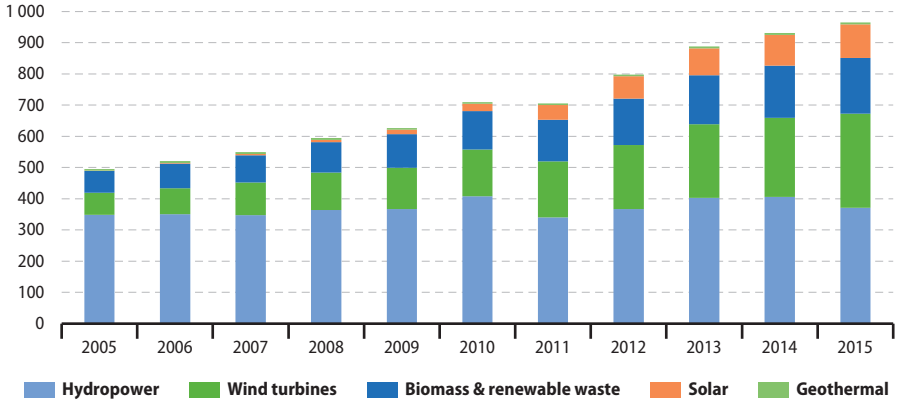
(1) Non-member countries: not applicable.

Source: Eurostat (online data code: nrg_ind_335a)

States to increase their share of renewables in gross final energy consumption by at least 6.0 p.p. By contrast, nine of the Member States had already surpassed their target for 2020; the extent to which the targets have been exceeded was particularly large in Croatia, Sweden and Estonia.

The growth in electricity generated from renewable energy sources during the period 2005 to 2015 (see Figure 12.9) largely reflects an expansion in three renewable energy sources across the EU, principally wind turbines, but also solar power and solid biofuels (including renewable waste). Although hydropower remained the single largest source for renewable electricity generation in the EU-28 in 2015 (38.4 % of the total), the amount of electricity generated in this way was relatively similar to the level recorded a decade earlier, as production rose by 6.5 % overall.

Figure 12.9: Electricity generated from renewable energy sources, EU-28, 2005-2015
(TWh)



Source: Eurostat (online data codes: nrg_105a and nrg_ind_335a)

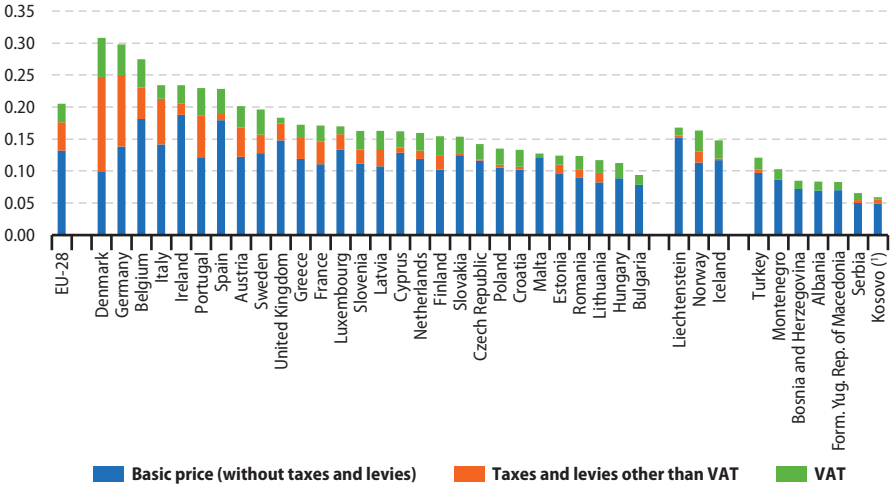
12.5 Electricity price statistics

The price of energy in the EU depends on a range of different supply and demand conditions, including the geopolitical situation, the national energy mix, import diversification, network costs, environmental protection costs, severe weather conditions, or levels of excise and taxation. Note that prices presented in this article include taxes, levies and VAT for household consumers.

For household consumers (defined for the purpose of this article as medium-size consumers with an annual consumption within the range of 2 500 kWh < consumption < 5 000 kWh), electricity prices during the second half of 2016 were highest among the EU Member States in Denmark (EUR 0.308 per kWh), Germany (EUR 0.298 per kWh) and Belgium (EUR 0.275 per kWh); see Figure 12.10. The lowest electricity prices were in Bulgaria (EUR 0.094 per kWh), Hungary (EUR 0.113 per kWh) and Lithuania (EUR 0.117 per kWh). The price of electricity for households in Denmark and in Germany was more than three times as high as the price in Bulgaria.

The relative amount of tax contribution in the second half of 2016 was smallest in Malta (4.8 %) where a low VAT rate is applied to the basic price and no other taxes are charged to household consumers. The highest taxes were charged in Denmark where 67.8% of the final price was made up of taxes and levies.

Figure 12.10: Electricity prices for household consumers, second half 2016
(EUR per kWh)



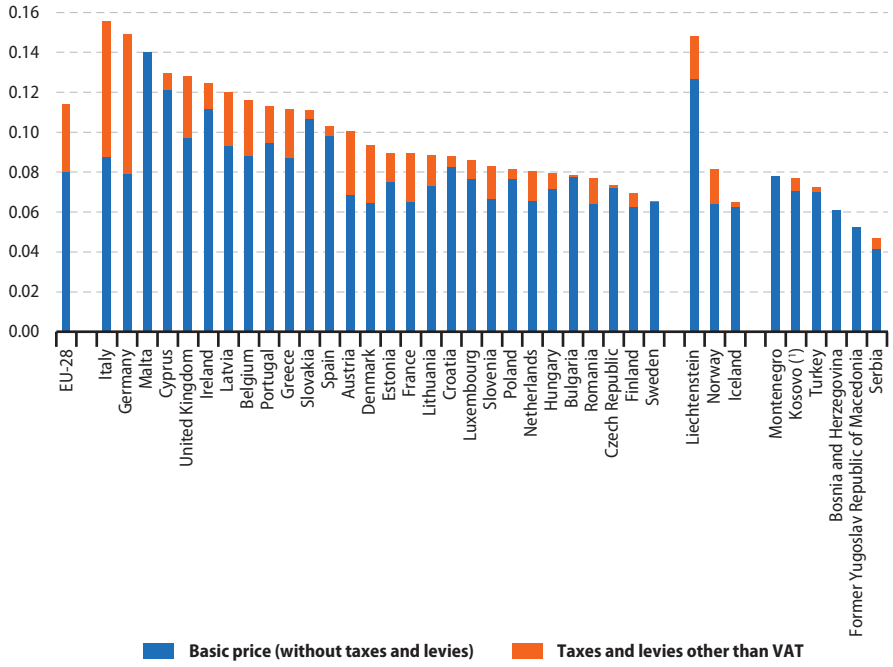
Note: annual consumption: 2 500 kWh < consumption < 5 000 kWh.

(1) According to UNSCR 1244/99.

Source: Eurostat (online data code: nrg_pc_204)

For industrial consumers (defined for the purpose of this subchapter as medium-size consumers with an annual consumption within the range of 500 MWh < consumption < 2 000 MWh), electricity prices during the second half of 2016 were highest among the EU Member States in Italy and Germany (see Figure 12.11). The EU-28 average price — a weighted average using the most recent (2015) national data for the quantity of consumption by industrial consumers — was EUR 0.114 per kWh.

Figure 12.11: Electricity prices for industrial consumers, second half 2016
(EUR per kWh)



Note: annual consumption: 500 MWh < consumption < 2 000 MWh. Excluding VAT.

(1) According to UNSCR 1244/99.

Source: Eurostat (online data code: nrg_pc_205)

12.6 Natural gas price statistics

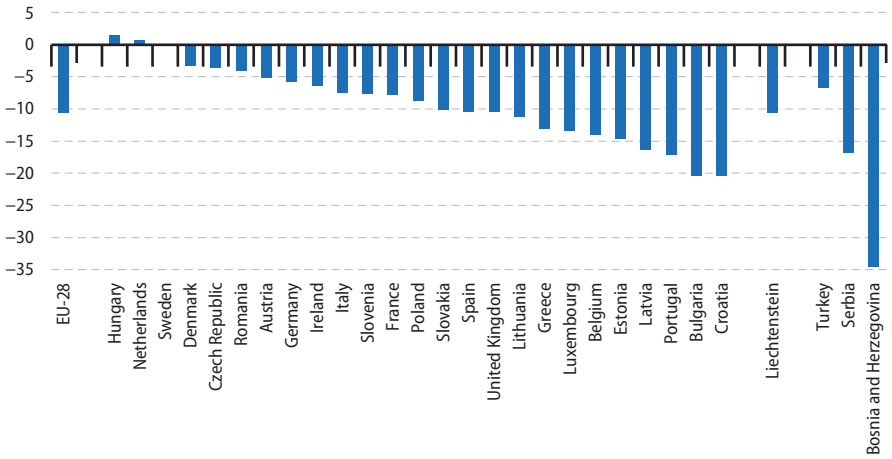
For household consumers (defined for the purpose of this article as medium-sized consumers with an annual consumption within the range of 20 Gigajoules (GJ) < consumption < 200 GJ), natural gas prices during the second half of 2016 were highest among the EU Member States in Sweden, Spain, Italy, Portugal and the Netherlands. The lowest natural gas prices were in Bulgaria, Romania and Estonia. The price of natural gas for households in Sweden (EUR 0.114 per kWh) was more than three times the price that was charged in Bulgaria (EUR 0.031 per kWh).

The average price in the EU-28 — a weighted average using the most recent (2015) data for the quantity of consumption by households — was EUR 0.064 per kWh.

Figure 12.12 shows the change in natural gas prices for household consumers including all taxes, levies and VAT in national currency between the second half of 2015 and the second half of 2016; these prices fell during the period under consideration in 22 of the 25 EU Member States for which data are available — Cyprus, Malta and Finland do not report these prices. In Croatia and Bulgaria, the gas price fell by as much as 20.4 %, while relatively large falls were also recorded in Portugal (-17.0 %) and Latvia (16.3 %). There were only three Member States where natural gas prices for household consumers rose between the second half of 2015 and the second half of 2016 and these were all modest increases: Sweden (0.2 %), the Netherlands (0.6 %) and Hungary (1.5 %).

Figure 12.12: Change in natural gas prices for household consumers compared with 12 months earlier, second half 2016

(%)

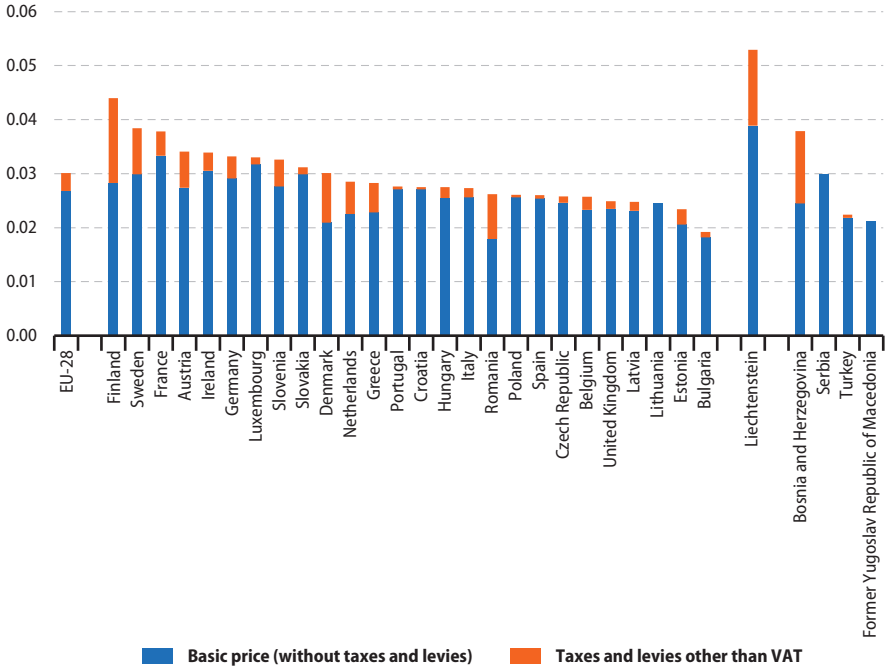


Note: annual consumption: 20 GJ < consumption < 200 GJ. Change is calculated using data in national currencies. Cyprus and Malta: not relevant. Finland: not available.

Source: Eurostat (online data code: nrg_pc_202)

For industrial consumers (defined for the purpose of this article as medium-size consumers with an annual consumption within the range of 10 000 GJ < consumption < 100 000 GJ), natural gas prices during the second half of 2016 were highest among the EU Member States in Finland (EUR 0.044 per kWh), Sweden and France (both EUR 0.038 per kWh); they were lowest in Bulgaria (EUR 0.019 per kWh) — see Figure 12.13. The EU-28 average price — a weighted average using the most recent (2015) national data for the quantity of consumption by industrial consumers — was EUR 0.030 per kWh.

Figure 12.13: Natural gas prices for industrial consumers, second half 2016
(EUR per kWh)



Note: annual consumption: 10 000 GJ < consumption < 100 000 GJ. Excluding VAT. Cyprus and Malta: not relevant.
Source: Eurostat (online data code: nrg_pc_203)

13 Transport

Introduction

In March 2011, the European Commission adopted a white paper Roadmap to a Single European Transport Area — Towards a competitive and resource efficient transport system (COM(2011) 144 final). This strategy contains 40 specific initiatives to build a competitive transport system that aims to increase mobility, remove major barriers, and stimulate growth and employment.

In December 2013, the European Union (EU) Member States and the European Parliament agreed upon a new framework for transport infrastructure, setting guidelines for the development of the trans-European transport network (TEN-T) and the Connecting Europe Facility. The TEN-T guidelines envisage the development of a multimodal and intelligent core transport network by 2030. In addition, a comprehensive network ensuring accessibility of all regions is to be developed by 2050.

Eurostat's statistics in this field describe the most important features of transport, not only in terms of the quantities of freight and numbers of passengers that are moved each year, or the number of vehicles and infrastructure that are used, but also the contribution of transport services to the economy as a whole.

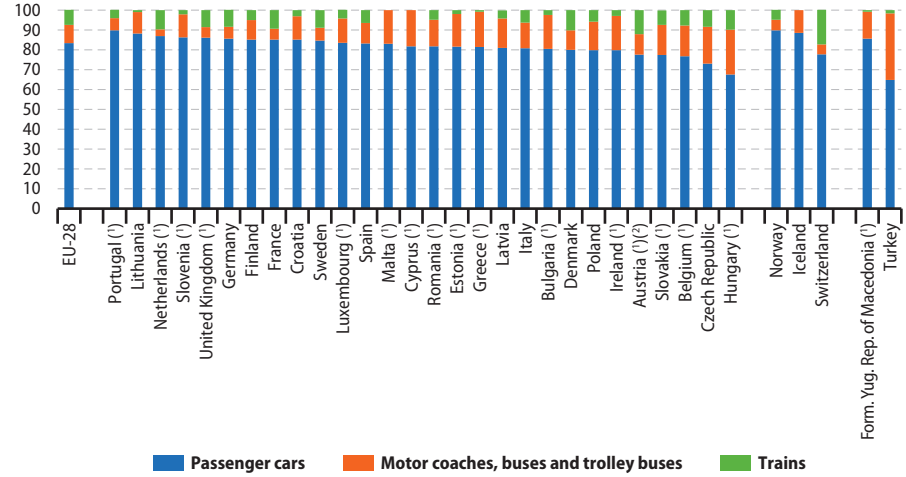
13.1 Passenger transport

Passenger cars accounted for 83.4 % of inland passenger transport in the EU-28 in 2014 (see Figure 13.1), with motor coaches, buses and trolley buses (9.1 %) and trains (7.6 %) both accounting for less than a tenth of all traffic (as measured by the number of inland passenger-kilometres (pkm) travelled by each mode).

London Heathrow was the busiest airport in the EU-28 in terms of passenger numbers in 2015 (75 million), as it has been since the beginning of the time series in 1993. It was followed — at some distance — by Paris' Charles de Gaulle airport (66 million), Frankfurt airport (61 million) and Amsterdam's Schiphol airport (58 million) — see Figure 13.2. The same four airports have been the largest four in the EU since 2011 when Amsterdam Schipol moved from fifth to fourth place.

The overwhelming majority of passengers through the four largest airports in the EU were on international flights; the lowest share was recorded for Frankfurt airport (88.7 %), rising to 100.0 % for Amsterdam Schiphol. By contrast, national (domestic) flights accounted for 28.0 % of the 46 million passengers carried through the EU's fifth busiest passenger airport in 2015, namely Adolfo Suárez Madrid-Barajas. There were also relatively high proportions of passengers on national flights to and from Paris Orly (47.2 %), Roma Fiumicino (29.7 %) and Barcelona airport (27.0 %).

Figure 13.1: Modal split of inland passenger transport, 2014
(% of total inland pkm)

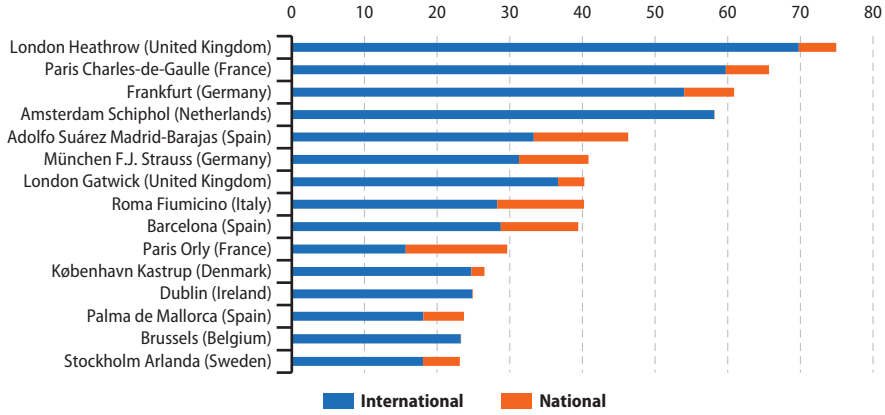


Note: excluding powered two-wheelers. Cyprus, Malta and Iceland: railways not applicable.

(1) Includes estimates or provisional data.
(2) The railway in Liechtenstein is owned and operated by the Austrian ÖBB and included in their statistics.

Source: Eurostat (online data code: tran_hv_psmod)

Figure 13.2: Top 15 airports, passengers carried (embarked and disembarked), EU-28, 2015
(million passengers)



Source: Eurostat (online data code: avia_paoa)

13.2 Freight transport

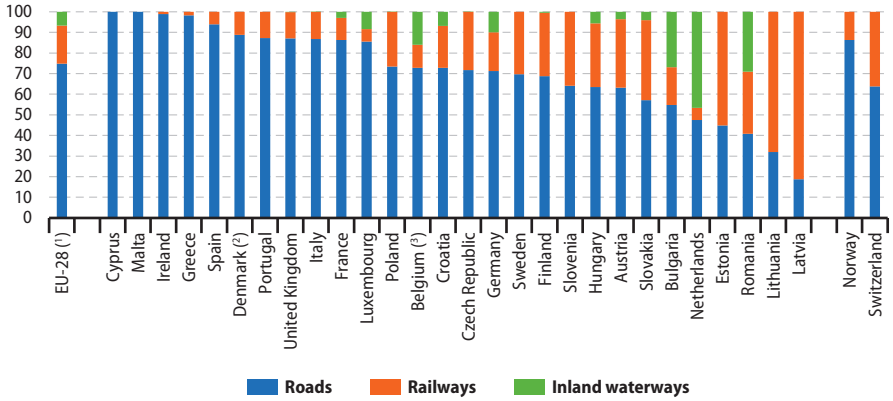
Total inland freight transport in the EU-28 was estimated to be just over 2 200 billion tonne-kilometres (tkm) in 2014; some three quarters of this freight total was transported over roads.

The share of EU-28 inland freight that was transported by road (74.9 %) was more than four times as high as the share transported by rail (18.4 %), while the remainder (6.7 %) of the freight transported in the EU-28 in 2014 was carried along inland waterways (see Figure 13.3). Compared with the modal split in 2009, the share of inland freight carried by roads was 2.2 percentage points (p.p.) lower in 2014, while the share transported by inland waterways had increased by 0.7 p.p. and that transported by rail by 1.5 p.p. It should be noted that this analysis refers only to inland freight transport and that considerable amounts of freight may be transported by maritime freight services and for some product groups by air transport or by pipelines.

About 14.6 million tonnes of air freight (both national and international) was carried through airports within the EU-28 in 2015. The quantity of goods transported by air in the EU-28 was 11.4 % higher in 2015 than it had been five years earlier in 2010.

Airports in Germany dealt with 4.3 million tonnes of air freight in 2015, considerably more than in any other EU Member State; France and the United Kingdom had the second and third highest amounts of air freight, at 2.5 million and 2.4 million tonnes. Some of the smaller EU Member States are relatively specialised in air freight, notably all of the Benelux countries, and in particular, Luxembourg which ranked as the seventh largest air freight transporter among the EU Member States.

Figure 13.3: Modal split of inland freight transport, 2014
(% of total inland tkm)



Note: excluding pipelines. Cyprus and Malta: railways not applicable.

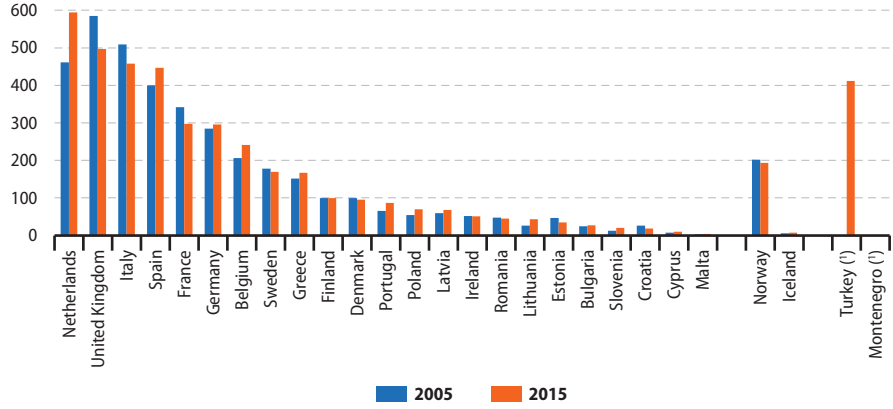
(1) Includes rail transport estimates for Belgium and does not include road freight transport for Malta (which is negligible).
(2) Estimates.
(3) Rail transport is based on quarterly data and may be slightly underestimated.

Source: Eurostat (online data codes: rail_go_typeall, iww_go_atygo, road_go_ta_tott and road_go_ca_c) and Eurostat estimates

Maritime ports in the EU-28 handled 3.8 billion tonnes of seaborne goods in 2015, which marked a slight increase of 1.4 % when compared with 2014, but an increase of 10.8 % compared with the 2009 (when a low point was reached during the global financial and economic crisis).

Sea ports in the Netherlands handled close to 600 million tonnes of goods in 2015, while in the United Kingdom the level was close to 500 million tonnes and in Italy and Spain it was also in excess of 400 million tonnes (see Figure 13.4). These four EU Member States collectively handled more than half (52.0 %) of the EU-28's seaborne freight.

Figure 13.4: Gross weight of seaborne goods handled in ports, 2005 and 2015
(million tonnes)



Note: the Czech Republic, Luxembourg, Hungary, Austria, Slovakia, Liechtenstein and Switzerland, not applicable.

(1) 2005: not available.

Source: Eurostat (online data code: mar_go_aa)

Annexes

Abbreviations and acronyms

Benelux	Belgium, the Netherlands and Luxembourg
BPM6	Balance of Payments and International Investment Position Manual, sixth edition
CAP	common agricultural policy
CFP	common fisheries policy
CH_4	methane
CO_2	carbon dioxide
DMC	domestic material consumption
EA-19	Euro area of 19 Member States
ECHI	European core health indicators
EDP	excessive deficit procedure
EFTA	European Free Trade Association
EPEA	Environmental protection expenditure accounts
ESAW	European statistics on accidents at work
ET 2020	strategic framework for European cooperation in education and training 2020
EU	European Union
EU-27	EU of 27 Member States (before the accession of Croatia in 2013)
EU-28	EU of 28 Member States
EURES	European jobs and mobility portal
FAO	Food and Agriculture Organisation
FDI	foreign direct investment
FTE	full-time equivalents
GDP	gross domestic product
GERD	gross domestic expenditure on R & D
GHG	greenhouse gases
HICP	harmonised index of consumer prices
ICJ	International Court of Justice
ICT	information and communication technologies
ISCED	international standard classification of education
N_2O	nitrous oxide
NACE	statistical classification of economic activities in the European Community

NUTS	classification of territorial units for statistics
OECD	Organisation for Economic Cooperation and Development
R & D	research and development
SGP	Stability and Growth Pact
SME	small and medium-sized enterprises
TEN-T	trans-European transport network
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
VAT	value added tax
WTO	World Trade Organisation

Symbols and units

%	percent
CHF	Swiss franc
CO_2 equivalents	carbon dioxide equivalents
EUR	euro
GJ	gigajoules
GWh	gigawatt hour
JPY	Japanese yen
kg	kilogramme
KW	kilowatts
kWh	kilowatt hour
m^3	cubic metres
Mb	megabyte
Mb/s	megabyte per second
Mtoe	million tonnes of oil equivalent
p.p.	percentage point(s)
pkm	passenger-kilometres
PPS	purchasing power standard
tkm	tonne-kilometres
USD	United States dollar

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