## TATUL MKRTCHYAN

Dean of Marketing and Business Organization
Department at ASUE,
Doctor of Economics, Associate Professor

# NAREK KARAPETYAN

MA Student at the Chair of Macroeconomics at ASUE

# IMPACT OF FISCAL DECENTRALIZATION ON THE SOCIO- ECONOMIC DEVELOPMENT OF THE REPUBLIC OF ARMENIA<sup>1</sup>

The paper discusses the efficiency of fiscal decentralization policies within the scope of ongoing local self-government system reforms in Armenia. The aim of the research is to gather empirical evidence on linkages of fiscal decentralization and socioeconomic development of the Republic of Armenia, and inform policy makers on local self-government reforms and fiscal decentralization policies. To achieve the objective, econometric method was applied in the form of fixed effects panel regression models. As a result of the research, we found out that fiscal decentralization has significant and positive effects on public social services, but nonsignificant effects on poverty, unemployment and economic activity. The paper revealed that institutional design of decentralization policies is crucial, and for future research the channels by which local governments influence these measures should be investigated. The research also revealed that efficiency of fiscal decentralization varies by administrative divisions of Armenia which can be explained by the economy of scale effect and quality of administrative management.

<sup>&</sup>lt;sup>1</sup> This paper also presents the basic results of the study conducted within CRRC-Armenia's Research Fellowship on Civic Engagement in Local Governance by N. Karapetyan.

Key words: Local government budget, central government budget, fiscal federalism, degree of fiscal decentralization, principal component

analysis, fixed effects panel regression.

JEL: 023, E62

## INTRODUCTION

Fiscal decentralization is devolution of fiscal power from the national government to the subnational ones (Davoodi and Zou, 1997). The issue of fiscal decentralization and the theories that were attempting to ground it emerged after the 1950-1960s, when a large-scale government involvement in the economy brought forward concerns over public sector efficiency and its ability to sustain permanent economic growth rates. This brought the issue of optimal allocation of fiscal authority between different government layers to the academic and policy debates and raised the tradeoff between the benefits and the costs from making decisions at different federal levels (Asatryan and Feld, 2014). A range of empirical studies have followed theoretical discussions since the 1970s, estimating the links of fiscal decentralization and socio-economic development, where fiscal decentralization was measured by local government spending to public spending, local government revenues to public revenues, or local government spending/revenues to GDP ratios. These studies yielded diverse results which were shaped by different samples and methodologies used.

Tumanyan (2004) differentiates three stages for fiscal decentralization in Armenia, which has begun since 1995, with structural and institutional reforms in the public sector. At the first stage of fiscal decentralization in Armenia (1995-1996) local self-governance system was formed. At the second stage (1997-2001), the legislative base was expanded and local self-governance system was developed, and at the third stage (after 2002) new legislation for local selfgovernance system was established, which led to a further expansion of the power of local self-governance bodies. After 2002, the degree of fiscal decentralization slightly changed from 5.7%, measured by local government spending to public spending ratio, to 6% in 2008, and 8.5% in 2010<sup>2</sup>. In 2011, the RA Government stated that local self-government system was not ready for a further decentralization at that stage of development, and amalgamation of municipalities is needed for the process (the RA Government, 2011). Amalgamation of municipalities started in 2015, and had three stages till 2017, and, as a result, around half of municipalities in the Republic of Armenia were amalgamated (CFOA, 2017)<sup>3</sup>. From 2010 to 2017, local government spending to public spending ratio decreased - in 2017 reaching 8.1%, and this level is now very far from that of the developed countries<sup>4</sup>.

<sup>2</sup> Data source: the authors' calculations on the data from RA Statistical Service and RA Ministry of Territorial Administration and Development.

<sup>&</sup>lt;sup>3</sup> 465 municipalities from 915 were amalgamated from 2015 to 2017, from which 325 were amalgamated during 2017.

<sup>&</sup>lt;sup>4</sup> Municipal budget spending to GDP ratio was 2.2% in Armenia in 2017, whereas in EU it was more than 10%.

The current phase of local self-government reforms in Armenia arises an important question for academic research: what impact does fiscal decentralization have on social and economic development? This issue has never been studied from the empirical point of view for Armenia, and evidence-based research could inform the government about further reforms and policy decisions, in the perspective of the fourth stage of fiscal decentralization.

In this paper, our objective is to assess the impact of fiscal decentralization on social and economic development of the Republic of Armenia, and contribute not only to professional discussion on fiscal decentralization and local self-governance reforms in Armenia, but also to understanding of the empirical link of fiscal decentralization and socio-economic development.

The paper is organized as follows. The first section contains the insights from the existing theoretical and empirical studies. Second section sets the research question, describes the data and methodological strategy used in the study. The third discusses the empirical results. The fourth section gives the summary and conclusion.

### 1. THEORETICAL DISCUSSION

The discussions in favor of fiscal decentralization were supported by the theory of fiscal federalism, which is based on two complementary assumptions – better positioning to consumers of public services and competition among local governments, which will improve the quality of public services (Tiebout (1956), Oates (1972)). Developing this theory to the empirical dimension and using panel regressions for groups of countries, several researchers (Piriou-Sall (1998), Thiessen (2003), Limi (2005), etc.) found positive linkage between the degree of fiscal decentralization and economic growth. Martinez-Vazquez and Mcnab (2006) also claim that decentralization may positively influence price stability in developed countries.

At the same time, a number of researchers criticize the theory of fiscal federalism, and outline different pitfalls of decentralization. Era Dabla-Norris (2006) argued that the effectiveness of fiscal decentralization is influenced by the institutional design and capacities of the government layers. Following the theoretical model of Bardhan and Mookherjee (2000), fiscal decentralization transfers public resources from national to local elites, thus increasing opportunities for corruption. The criticism is based on empirical evidence and it states that fiscal decentralization can have a negative effect on economic development, if arising risks are not managed properly. Davoodi and Zou (1997) mentioned that in the advanced countries fiscal decentralization usually had a positive effect on economic development, but the opposite is true in the developing countries. Rodriguez-Pose and Ezcurra (2010) control fiscal decentralization effects on economic growth in 21 OECD countries with political and administrative decentralization (data span is 1990 to 2005). They found out that fiscal decentralization has a significant negative impact on economic growth, which is explained by high levels of fiscal decentralization in the given countries.

However, recent research also stated that the estimated robust empirical links (negative or positive) could vanish depending on methodology. Applying Bayesian model averaging technique, Asatryan and Feld (2014) found no

statistically significant relationship between economic growth and fiscal decentralization for the sample of 23 OECD countries.

Ganaie et al. (2018) apply methodological strategy different from papers discussed above to estimate fiscal decentralization effects on economic growth for India. They built a panel for 14 Indian states with data span of 1981-2014, and estimated effects of revenue and expenditure decentralization effects on state domestic product. They found that there is a significant positive relationship between expenditure decentralization and state domestic product, and significant negative relationship between revenue decentralization and state domestic product.

The effects of fiscal decentralization have been studied for separate countries also by the method of estimating linkages of local government budget expenditures and social-economic indicators of the municipalities (mainly using services provided by municipalities: road building, schooling, cultural facilities, etc.). These studies mostly point to a negative association if local government expenditures are financed by subsidies from central government, and to positive linkage, if they are financed by self-generated revenues (De Borger and Kerstense (1996), Kalb (2010), Štastna and Gregor (2011)).

## 2. RESEARCH QUESTION, DATA AND THE MODEL

As the last section demonstrates, the question of impact of fiscal decentralization on economic development is conflicting. At the same time, although the political and fiscal decentralization occurred in Armenia after institutional reforms of the 1990s, empirical evidence on linkages between fiscal decentralization and socio-economic development is missing. Taking into account the current phase of local self-government system reforms and the degree of fiscal decentralization in Armenia, the need of filling this gap is critical for policy making.

Our aim is to fill this gap by answering the question: how does fiscal decentralization affect social and economic development in the Republic of Armenia?

To achieve this objective, we estimate a fixed effects panel regression model for Yerevan and ten provinces on the sample of 2008-2016. We regress social and economic indicators of administrative divisions on ratio of per capita local government budget spending to central government one, which is the fiscal decentralization variable <sup>5</sup> (the data that is behind this estimation is presented in Table 1). In the general methodological context, we follow Ganaie et al. (2018), who estimated fiscal decentralization effects for states of India. The main difference is that they apply also revenue measure for fiscal decentralization, but use only state domestic product as a dependent variable.

Considering a big number of potential dependent variables in the models, we combine them into two variables for groups of "social services" and "economic activity", applying principal component analysis technique<sup>6</sup>.

If the fiscal decentralization variable increases, it means that per capita budget spending of local government grows faster than per capita budget spending of central government.

<sup>&</sup>lt;sup>6</sup> Principal component analysis (PCA) is a mathematical procedure that transforms a number of possibly correlated variables into a smaller number of uncorrelated variables called principal components.

Table 1
The indicators used in the models and their statistical properties in the data panel (provinces and Yerevan, annual data)

1. Government per capita spending, thousands AMD 23,5 12,6 73,0 RA Ministry of Finance, RA 2. Local governments per capita 23,5 25,0 26,0 27,0 27,0 27,0 27,0 27,0 27,0 27,0 27		
	viii iiSti y	
spending thousands AMD 359,1 250,3 485,3 of Territorial	of Territorial Administration and Development, the authors' calculations	
3. Local governments' per capita  Spending/control government  6.5.  4.4.  16.6.  Development		
Housholds Poverty rate, % 31,8 10,4 48,3 RA Statistica		
Labour Unemployment rate, % 14,0 3,3 30,2 Committee (Households	Committee (Households surveys)	
Number of attendances to the institutions providing primary 3,4 2,3 6,3 health care services per capita		
2. Share of pre-school children in population of province, % 1,9 0,7 3,1	RA Statistical	
Social water per capita, cubic meter		
sevices 4 Volume of wastewater	Committee and the authors' calculations	
5. Share of improved area of streets, passages and squares 73,3 34,1 95,0 of urban settlements in total area, %		
1. Volume of industrial output per 1000 people, mln AMD 330,6 38,6 1488,3		
2. Volume of agricultural output per 1000 people, mln AMD 360,3 4,4 770,4	RA Statistical Committee and the	
3. Volume of construction per 101,5 3,7 773,0 Committee a		
4. Volume of services per 1000 people, mln AMD 135,4 27,7 950,5	authors calculations	
5. Volume of trade per 1000 people, mln AMD 190,2 43,3 1140,2		

Source: Authors' calculations

This technique is applied in the literature of analysis on fiscal decentralization effects for a country – regressing principal component (PC) of socio-economic development indicators of the municipalities to budget spending of local governments (as is described in the study of Štastna and Gregor (2011)). We build one PC from indicators of social services, and one from indicators of economic activity. Each principal component accounts about 60% of all variability (information) of groups of these indicators.

To estimate the effects of fiscal decentralization, we build fixed effect panel regression models. In fixed effects regression the intercept differs across individuals (here - the administrative divisions), but each individual's intercept does not vary over time (Gujarati, 2012). This gives us also a tool to analyze fiscal decentralization effects on socio-economic development for different administrative divisions.

These models are expressed as follows:

$$C_{it} = B_{1i} + B_2 X_{it} + \varepsilon_{it}$$

where C denotes dependent variables,  $B_1$  – intercept,  $B_2$  – fiscal decentralization measure, i = 1, 2, ..., 11 (administrative divisions of Armenia), t = 1, 2, ..., 9 (2008-2016),  $\epsilon_{it}$ - error term of the regression model.

### 3. RESULTS AND DISCUSSION

We estimate the models with OLS, and show estimation results in *Table 2* – regression coefficients, their significances and determination coefficients of the models.

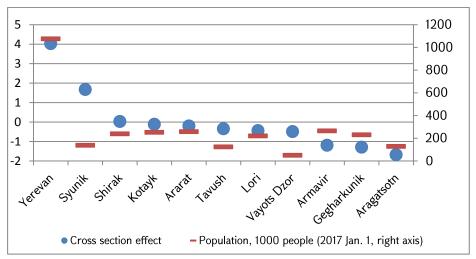
Table 2
Estimation results of the models

	The model	Dependent variable	Regression coefficient	Significance (prob. < 0.05)	Goodness of fit of the model (R-sq.)
1	Fiscal decentralization - poverty	Poverty rate (%)	0,03	0,94	0,73
2	Fiscal decentralization - unemployment	Unemployment rate (%)	0,10	0,13	0,73
3	Fiscal decentralization - social services	Prinicipal component of social services	0,08	0,03	0,93
4	Fiscal decentralization - economic activity	Prinicipal component of economic avtivity	-0,01	0,53	0,97

Source: Authors' calculations

Following the results of estimation, regression coefficients of the first, second and fourth models are not significantly different from zero. We imply that fiscal decentralization has no (positive) effect on poverty, unemployment and economic activity, but there is a significantly (in 5% level) positive effect of fiscal decentralization on social services.

Fixed effect regression gives us cross section effects in our models as well which we analyze for the model "Fiscal decentralization - social services". Such analysis is important for assessing comparative efficiency of fiscal decentralization policies across administrative divisions of Armenia: the higher is the cross section effect, the higher is the estimated efficiency of service. In Chart 1 we show cross section intercepts for administrative division, which is the highest for Yerevan, the capital of Armenia, and the lowest for Aragatsotn province. The analysis of this effects shows, that this is positively correlated with population which likely shows the economy from scale effect.



Source: RA Statistical Committee and the authors' calculations

Chart 1. Cross-section effects of "Fiscal decentralization - social services" model for administrative divisions, and population of RA

Our findings state that fiscal decentralization improves social services for public. This is in line with predictions of fiscal decentralization theory which states that transferring resources to local governments increases the efficiency in provision and production of public goods.

Yet, fiscal decentralization impact on the economy varies depending on the indicators that we consider for overall social-economic development. Fiscal decentralization has no significant impact on unemployment and poverty and also on economic activity. We believe that these linkages are more complex and should be studied by channels by which local governments have an influence on these measures. From policy perspective, these findings suggest also that a proper institutional design is very important to benefit from the fiscal decentralization. These implications are in line with the conclusions made by Asatryan and Feld (2014) and Era Dabla-Norris (2006).

Our research also implies that fiscal decentralization effects on socialeconomic development is different in administrative divisions of Armenia, which can be explained through economies of scale effect on the one hand, and dissimilarities in the quality of administrative management on the other.

# SUMMARY AND CONCLUSION

In this research, we discussed fiscal decentralization effects of social and economic development in the Republic of Armenia with empirical evidence. The research is noteworthy in the context of ongoing local self-government reforms in Armenia, and it aimed at filling the gap of empirical evidence in professional discussion to inform policy makers on fiscal decentralization policies. The paper also aimed at adding on the theory to understand the fiscal decentralization effects on economic development which is conflicting in terms of the trade-off-how costs and benefits related to decentralization outweigh each other. The starting point in this debate is fiscal federalism theory, originating from the 1960s, which states that devolution of fiscal power to local governments from

central one could increase efficiency thanks to better positioning towards consumers of public goods and competition of municipalities with each other. The critics of the fiscal decentralization theory emphasize growing instability and corruption risks from resource reallocation. Recent literature mentions that impact of fiscal decentralization on the economy depends on institutional design and capacity of central and local governments (Era Dabla-Norris 2006, Asatryan and Feld 2014).

To bring this academic and policy debate to empirical dimension for the Republic of Armenia, we estimated fixed effects panel regression models - regressing social-economic indicators of administrative divisions of the Republic of Armenia on ratio of per capita local government budget spending to the central government one. As social-economic measures we applied poverty rate, unemployment rate, social services measure and economic activity measure (principal components from bunches of indicators). As a result of estimation, we revealed that fiscal decentralization has no significant effect on poverty, unemployment and economic activity, but has a robust positive effect on social services measure. Analyzing the fixed effects from the regression model of social services we also demonstrated that fiscal decentralization efficiency varies in administrative divisions of Armenia, which we explain by economy of scale effect and quality of administrative management.

This evidence that fiscal decentralization improves social services for public came to prove the fiscal federalism theory statement that decentralization improves quality of delivering public goods to society. On the other hand, nonsignificant relationship of fiscal decentralization and poverty, unemployment and economic activity measure revealed that institutional design of decentralization policies is critical, and for future research the channels by which local governments influence these indicators should be investigated.

### References

- 1. Համայնքների խոշորացման և միջիամայնքային միավորումների ձևավորման հայեցակարգ, Հավելված ՀՀ Կառավարության 2011 թ. նոյեմբերի 10-ի նիստի N44 արձանագրային որոշման, https://www.egov.am/u\_files/file/decrees/arc\_voroshum/11/qax44-18\_1.pdf:
- 2. Դ. Թումանյան (2004), Ապակենտրոնացումը և տեղական ինքնակառավարման համակարգի հեռանկարները Հայաստանում, Տեղական ինքնակառավարման բարեփոխումները Հայաստանում. քաղաքականության տարբերակներ և ուղիներ, Ազգային կոնֆերանսի նյութերի ժողովածու, Համայնքների ֆինանսիստների միավորում, Երևան, http://cfoa.am/archives/4019:
- 3. Համայնքների ֆինանսիստների միավորում (2017), Տեղական ինքնակառավարումը Հայաստանում, Գիրք 10, Վահրամ Շահբազյանի խմբագրմամբ, Երևան, http://cfoa.am/en/archives/20327:
- Ganaie A.A., Bhat S.A., Kamaiah B., Khan N.A. (2018), Fiscal Decentralization and Economic Growth: Evidence from Indian States. South Asian Journal of Macroeconomics and Public Finance 7(1) 1–26. https://doi.org/10.1177/2277978718760071.
- Kalb A. (2010), The Impact of Intergovernmental Grants on Cost Efficiency: Theory and Evidence from German Municipalities. Economic Analysis and Policy, Volume 40, Issue 1, March, Retrived from - http://ftp.zew.de/pub/zew-docs/dp/dp08051.pdf.

- Rodriguez-Pose A. and Ezcurra R. (2010), Is fiscal decentralization harmful for economic growth? Evidence from the OECD countries. Journal of Economic Geography 11, https://doi.org/10.1093/jeg/lbq025.
- Asatryan Z. & Feld L.P. (2015). Revisiting the link between growth and federalism: A Bayesian model averaging approach. Journal of Comparative Economics, 43(3). https://doi.org/10.1016/j.jce. 2014.04.005.
- 8. Borger B. and Kerstens K. (1996), Cost efficiency of Belgian local governments: A comparative analysis of FDH, DEA and econometric approaches. Retrived from: https://doi.org/10.1016/0166-0462(95) 02127-2.
- 9. Tiebout Ch. M. (1956), A Pure Theory of Local Expenditures. Journal of Political Economy. Vol. 64, No. 5 (Oct.), Retrived from: http://lib.cufe.edu.cn/upload\_files/other/4\_20140526100628\_48\_Tiebo ut%20A%20Pure%20Theory%20of%20Local%20Expenditure.pdf.
- 10. Dabla-Norris E. (2006), The Challenge of Fiscal Decentralisation in Transition Countries. doi:10.1057/palgrave.ces.8100063.
- 11. Gujarati D. (2012), Econometrics by example. Macmillan International Higher Education.
- 12. Davoodi H. and Zou H. (1997), Fiscal Decentralization and Economic Growth: A Cross-Country Study, Retrived from: https://core.ac.uk/download/pdf/6777576.pdf, https://doi.org/10.2307/1959998.
- 13. limi A. (2005), Decentralization and economic growth revisited: an empirical note. Journal of Urban Economics, 57, https://doi.org/10.1016/j.jue.2004.12.007.
- 14. Martinez-Vazquez J. & McNab R.M. (2003), Fiscal decentralization and economic growth. World development, 31(9), https://doi.org/10.1016/S0305-750X(03)00109-8.
- 15. Martinez-Vazquez J. and McNab R.M., Fiscal Decentralization, Macrostability and Growth, Hacienda POblica Espanola/Revista de Economia Publica 179 (2006): Retrived from: https://scholarworks.gsu.edu/cgi /viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article =1035&context=econ\_facpub
- 16. Oates W. (1972), Fiscal Federalism. New York: Harcourt Brace Jovanovich.
- 17. Piriou-Sall (1998), Decentralization and Rural Development: A Review of Evidence. Washington, DC. World Bank Publications.
- 18. Bardhan P. K., Mookherjee D. (2000), Capture and Governance at Local and National Levels. American Economic Review. American Economic Association. vol. 90(2). May. Retrived from: http://people.bu.edu/dilipm/ec722/papers/BardhanMookherjee2000%2 0AER.pdf.
- Stastna L. & Gregor M. (2011), Local government efficiency: evidence from the Czech municipalities. (May 30). IES Working Paper No. 14/2011. http://dx.doi.org/10.2139/ssrn.1978730.
- 20. Thiessen U. (2003), Fiscal Decentralisation and Economic Growth in High Income OECD Countries. Fiscal studies, 24(3). Retrived from: https://www.ifs.org.uk/publications/2100.

### **คนค**กห บนกรวงนบ

< ՊՏՀ մարքեթինգի և բիզնեսի կազմակերպման ֆակուլտետի դեկան, տնտեսագիտության դոկտոր, դոցենտ

## ՆԱՐԵԿ ԿԱՐԱՊԵՏՅԱՆ

ՀՊՏՀ մակրոէկոնոմիկայի ամբիոնի մագիստրանտ

Ֆիսկալ ապակենտրոնացման ազդեցությունները Հայաստանի Հանրապետության սոցիալ-տնտեսական զարգացման *վրա.*– Հոդվածում քննարկվում է ֆիսկալ ապակենտրոնացման քաղաքականության արդյունավետության հիմնահարցը՝ Հայաստանում ընթացող տեղական ինքնակառավարման համակարգի բարեփոխումների շրջանակում։ Հոդվածի նպատակը ֆիսկալ ապակենտրոնացման և Հայաստանի սոցիալտնտեսական զարգացման էմպիրիկ կապերի բացահայտումն է և դրա մեկնաբանումը ապակենտրոնացման քաղաքականության մշակման տեսանկյունից։ Այս նպատակներին հասնելու համար կիրառվել են էկոնոմետրիկ մոդելներ, մասնավորապես` ֆիքսված էֆեկտներով պանելային ռեգրեսիաներ։ Մոդելների գնահատման արդյունքում պարզվել է, որ ֆիսկալ ապակենտրոնացումը նշանակալի դրական ազդեցություն ունի սոցիալական ծառայությունների մատուցման վրա, բայց կապը աղքատության, գործազրկության մակարդակների և տնտեսական ակտիվության հետ ոչ նշանակալի է։ Արդյունքները վկայում են, որ ֆիսկալ ապակենտրոնացման քաղաքականության իրականացման ինստիտուցիոնալ ասպեկտը խիստ կարևոր է, իսկ այս փոփոխականների վրա ֆիսկալ ապակենտրոնացման ազդեցության ուղիներ բացահայտելու համար հետագա ուսումնասիրություններ են անհրաժեշտ։ Հետացոտությունը նաև բացահայտեց, որ ֆիսկալ ապակենտրոնացման ազդեցությունը տարբեր է ըստ վարչատարածքային միավորների (մարզեր և Երևան), ինչը բացատրվում է մասշտաբից տնտեսման էֆեկտով և համայնքային մակարդակում կառավարման առանձնահատկություններով:

<իմնաբառեր. համայնքների բյուջե, պետական բյուջե, ֆիսկալ ֆեդերալիզմ, ֆիսկալ ապակենտրոնացման աստիձան, գլխավոր բաղադրիչների վերլուծություն, ֆիքսված էֆեկտներով պանելային ռեգրեսիա

JEL: O23, E62

### ТАТУЛ МКРТЧЯН

Декан факультета маркетинга и организации бизнеса АГЭУ, доктор экономических наук, доцент

#### НАРЕК КАРАПЕТЯН

Магистрант кафедры макроэкономики АГЭУ

Влияние фискальной децентрализации на социально-экономическое развитие Республики Арме**ния.** В статье рассматривается эффективность политики фискальной децентрализации в рамках проводимых реформ системы местного самоуправления в Армении. Целью статьи является выявление эмпирических связей между фискальной децентрализацией и социально-экономическим развитием Армении и ее интерпретация с точки зрения разработки политики децентрализации. Для достижения этой цели был применен эконометрический метод в виде регрессионных моделей с фиксированными эффектами. В результате исследования мы обнаружили, что фискальная децентрализация оказывает существенное и положительное влияние на государственные социальные услуги, но незначительное влияние – на бедность, безработицу и экономическую активность. Этот результат свидетельствует о том, что институциональный аспект политики децентрализации имеет решающее значение, а способы, по которым местные органы власти влияют на эти меры, необходимо изучить в будущих исследованиях. Исследование также выявило, что эффективность фискальной децентрализации меняется в зависимости от административно-территориальных единиц Армении, что можно объяснить экономией эффекта масштаба и особенностями административного управления.

Ключевые слова: муниципальный бюджет, государственный бюджет, фискальный федерализм, степень фискальной децентрализации, анализ главных компонентов, панельная регрессия с фиксированными эффектами.

JEL: O23, E62