Artículo de investigación

Tools for Assessing the Role of Regional Authorities in the Development of Municipalities

Инструменты оценки роли региональных властей в развитии муниципальных образований

Los instrumentos para evaluar el papel de las autoridades regionales en el desarrollo de las municipalidades

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Abstract

The aim of the study is to identify tools to assess the role of regional authorities in the development of municipalities. Methods. The paper analyzes the influence of federal, regional, and municipal levels of the state government hierarchy on the formation of own-made goods shipped, own works and services performed per capita volumes. The assessment of the indicator ‘s variability in the context of hierarchy levels bases on variational analysis. The study was conducted in the context of 344 municipalities (7 regions of two federal district). The analysis showed in most regions a low influence at the level of regional authorities on the variation of municipalities ‘values. Results. In all regions, except for the Republic of Bashkortostan, there is a low influence of the regional governance level on the variation of the values of municipalities. In Bashkortostan, the contribution of the region as a whole is negative and it determines almost a third of the entire variation in the values of the development index of municipalities. In the Perm

Аннотация

Цель статьи состоит в выделении инструментов, позволяющих оценить роль региональной власти в развитии муниципальных образований. Методы. Авторы анализируют влияния отдельных уровней иерархии государственного управления (федеральный, региональный, муниципальный) на формирование объема отгруженных товаров внутреннего производства, выполненных работ и услуг своими силами в расчете на 1 жителя. Оценка изменчивости показателя в разрезе уровней иерархии основывалась на методах вариационного анализа. Исследование проводилось в разрезе 344 муниципальных образований 7 субъектов (регионов) двух федеральных округов России. Результаты. Во всех субъектах, кроме Республики Башкортостан, наблюдается невысокое влияние регионального уровня управления на вариацию значений муниципальных образований. Здесь вклад региона в целом

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Region and Tatarstan, the effect of the region in absolute figures is significant, but given its low share (about 5% of the total variation), the total variation is determined by the municipalities themselves. Conclusions. In the context of municipal districts, there is a high variation in the value of the indicator in question. At the same time, the role of regional authorities is not always positive, which creates the need for a differentiated approach when assessing and developing regional policies. The analysis showed in most regions a low influence at the level of regional authorities on the variation of values of municipalities. Even less influence is rendered by authorities at the level of federal districts.

Keywords: Multi-level governance, regional economy, geographic variance, hierarchy of administration, production output, municipalities

отрицателен и он определяет почти треть всей вариации значений показателя развития муниципальных образований. В Пермском крае и Республике Татарстан эффект, формируемый регионом в абсолютных цифрах, значителен, но учитывая невысокую его долю (около 5% всей вариации муниципальных образований), общая вариация муниципальных образований определяется самими муниципальными образованиями. Выводы. Анализ показал, что в большинстве регионов наблюдается невысокое влияние регионального уровня управления на вариацию значений муниципальных образований. Еще меньшее влияние оказывает управление на уровне федеральных округов.

Ключевые слова: Многоуровневое управление, региональная экономика, географическая вариативность, иерархия управления, объем производства, муниципальная власть.

Resumen

El objetivo es proporcionar los instrumentos que permitan evaluar el papel de la autoridad regional en el desarrollo de las municipalidades.
Se analiza la influencia de los distintos niveles de la jerarquía de la administración pública (federal, regional, municipal) en la formación del volumen de las mercancías enviadas de propia producción, los trabajos realizados y los servicios por cuenta propia por 1 habitante. En relación del término municipal se observa una alta variación del valor estudiado. La evaluación de la variabilidad del valor en relación de niveles de jerarquía se basó en los métodos de análisis de variaciones. El estudio se llevó a cabo en relación de 344 municipalidades de 7 entidades (regiones) pertenecientes a los dos distritos federales de Rusia.
Al mismo tiempo, el papel de la autoridad regional no siempre es positivo, lo que crea la necesidad de aplicar un enfoque diferenciado en la evaluación y formulación de la política regional.
El análisis ha demostrado que en la mayoría de las regiones se observa un bajo influencia de la gestión regional en la variación de los valores de las municipalidades. Aún menos influencia tiene la gestión a nivel de distrito federal.

Palabras clave: Gestión multigradual, económica regional, variaciones geográficas, jerarquía de gestión, volumen de producción, poder municipal.

Introduction

The governance process provides for the allocation of functions and their distribution among the main participants. In such large and complex systems as the state, governance is a hierarchical structure with the formalization of operations and processes on several levels. The number of levels, the scale of the entire governance system, the period of its existence, and many other factors to a great extent determine the effectiveness of the whole mechanism. The more complicated the system, the more important it is to understand the contribution of each particular governance level to achieving the results. This is why so many studies are devoted to the problems of multi-level governance (Stein & Turkewitsch, 2008; Hooghe & Marks, 2002; Howlett, Vince & Río, 2017).

Significant development of such studies was facilitated by the integration of European countries, to a certain extent differing in their level of development and political structure within the European Union. The variety of vectors for the development of these countries is

largely due to various historically established factors that determined the administrative-territorial division and the division of powers among the particular levels of government. Thus, the territorial structure of Germany as a federal republic includes 16 lands with partial state sovereignty, which are subjects of international law and have different administrative structures. In turn, Romania is a unitary state, which includes 41 județs governed by prefects who are appointed by the central government and have the right to challenge acts of local councils. Different administration systems of these countries are manifested in the ability of some level to influence the development of the territories, including through budgetary mechanisms (Geys & Konrad, 2011).

As a result of the emergence of a new step in the hierarchy of governance (the EU leadership), it became necessary to study the role of individual levels of the established system in the development of the territories of individual countries in order to explain the differences in achieving certain results or solving emerging problems (Scholten, 2016). Thus, the study of administration systems in the context of the established levels is relevant both for long-established countries and for relatively recently integrated ones. It is no less important to determine the nature of these interconnections taking into account the existing diversity of countries: developed and developing, large and small, with a federal or unitary structure.

The paper discusses the territory that for many years has been part of a single country, within which there is a gap in the socio-economic development of its individual areas. In Russia, the Constitution (1993) determines that the federal structure bases on the delimitation of the subjects of jurisdiction and authority between the government bodies and the state authorities of the regions of Russia. In addition, local self-government is recognized and guaranteed, independent within its powers. Thus, the existing research on multi-level governance is supplemented by information on the tasks of individual levels of government in a federal state having a long history of development.

Another issue of the current study is the evaluation of the contribution of separate governance levels to the development of specific municipal entities in Russia. It can be assumed that the impact of the federal center and the region on the municipal entity is uniform. These levels, through legislative, normative and budgetary mechanisms, determine the uniform requirements for municipal entities, while other countries can have other priorities in terms of balanced regional development. However, one can assume that this impact can exercise different effects on them, taking into account different levels of development of the municipal entities and regions themselves. Thus, the effects of the regional governance level can be considered both in general throughout the whole analyzed territory and as the influence of individual regions on the group of municipal entities located in them. The authors propose to develop assessment tools in the latter direction.

The *paper* aims to identify tools that enable one to assess the effects of regional authorities in municipalities 'development, based on the method of analysis of variance techniques to examine scale effects in hierarchical geographical data structures described in Moellering & Tobler (1972). In addition, the research solves the task of supplementing the existing data on the effects of individual governance levels on the performance of municipal entities by information about such impact in a developing country with a federal form of government.

The *hypothesis* is that the significance of a region in inter-municipal differentiation can be determined not only in general but also individually for each region, taking into account the development of its constituent municipalities. Among the regions, there can be those in which the ratio of the role of certain levels of governance is different from the others. Existing methods make it possible to give general estimates for the entire analyzed aggregate, which can influence the decisions made on the distribution of powers, reducing the effectiveness of administration in such regions. Therefore, the proposed expansion of evaluation tools will have a positive impact on the validity of regional policies.

In contrast to existing studies, which primarily provide for a generalized hierarchical analysis of the effects of all levels of government on indicators reflecting the socio-economic development of territories, the authors focused on expanding instruments for assessing the particular contribution of a regional level of the administration hierarchy. This is necessary to justify the responsibility boundaries of the analyzed level of the administration hierarchy, which can affect the effectiveness of the entire administration system of existing and integrating countries and unions.

Research Background

All large countries, one way or another, have several levels of governance in their territories: federal (national), regional (usually large territorial parts of the country) and local (districts, cities, villages, villages) (Uskova & Voroshilov, 2015). Thus, one can distinguish three levels of the hierarchy of governance: federal, regional, and municipal. This vertical governance is not chaotically organized. The classics of the theory of public administration believed that public administration is a regulated hierarchical organization of a linear-functional type with a specific definition of the function of each position category (Shashina & Khodyrev, 2012; Dobrynin, 2010).

The central government, as a rule, determines the general vector of the national development. At a lower level – regional – within the framework of these vectors, decisions are made that enable the most effective use of the available potential of territories. The development of each separate local territory (municipality) depends on how they will communicate to the lower level of administration (municipal, local) the general concept of the federal authorities and link it to the capabilities of the region. Moreover, going down one level, one can see how decisions taken at the local level affect the situation of individual enterprises and households.

The fact that a higher level of power affects the development of individual directions of a given territory is indicated by various empirical studies. Thus, Gibson, Williams & Ostrom (2005) deduce "what factors associated with successful resource administration at the local level are necessary as contrasted to simply being important factors ". Smith (2007) explains "the emergence of a regional dimension to the multi-level governance of renewable energy ". Moellering & Tobler (1972), to explain the influence of each level of the governance hierarchy, used "analysis of variance techniques to examine scale effects in hierarchical geographical data structures ", based on statistical data on the population and their employment in the Dutch agriculture.

At the same time, there is the ambiguity of the role of both municipal and national level in the development of individual territories. The hierarchical subordination of programs for the development of municipalities to higher-level government bodies (regional and federal) should ideally ensure sustainable socio-economic development. On the other hand, higher level policies can be possibly interpreted into a locally differentiated version upon local government 's discretion and objectives and hence be implemented differently.

The contribution of a region to the development of municipal entities can be understood in different ways. It can be influenced by various factors including the size, level of development, and structure of the analyzed countries. Currently, there are not many studies on the influence of individual hierarchy levels. However, some studies already note that regions have more explanatory power in respect of the results for emerging economies than for developed economies (Chan, Makino & Isobe, 2010). Thus, by providing a study on the influence of the regional level on the development of municipal entities in Russia, it is possible to create conditions for the subsequent comparison of results for other countries.

Materials and Methods

In order to identify the role of particular governance levels in the development of Russia's regions, 344 municipalities of 7 regions of two federal districts (Figure 1) were analyzed.

Level 0
Russian Federation

Level 1
8 federal districts
(2 of them included in observation)

Level 2
85 regions
(7 of them included in observation)

Level 3
1,778 municipal districts and 563 urban districts
(227 municipal and 117 city districts included in observation)

Figure 1. Map of the administrative hierarchy for Russia in 2016 (sample)

(**a**) Level 1 – 8 federal districts (2 of them included in observation); (**b**) Level 2 – 85 regions (7 of them included in observation n); (**c**) Level 3 – 1,778 municipal districts and 563 urban districts (227 municipal and 117 city districts included in observation).

The considered regions of Russia are on the conditional border between the European and Asian parts of the country. Their total area is 819.6 thousand km^2. The territory of these 7 regions is home to 21.9 million people, which is almost 14.9% of the total population of the country (Figure 2).

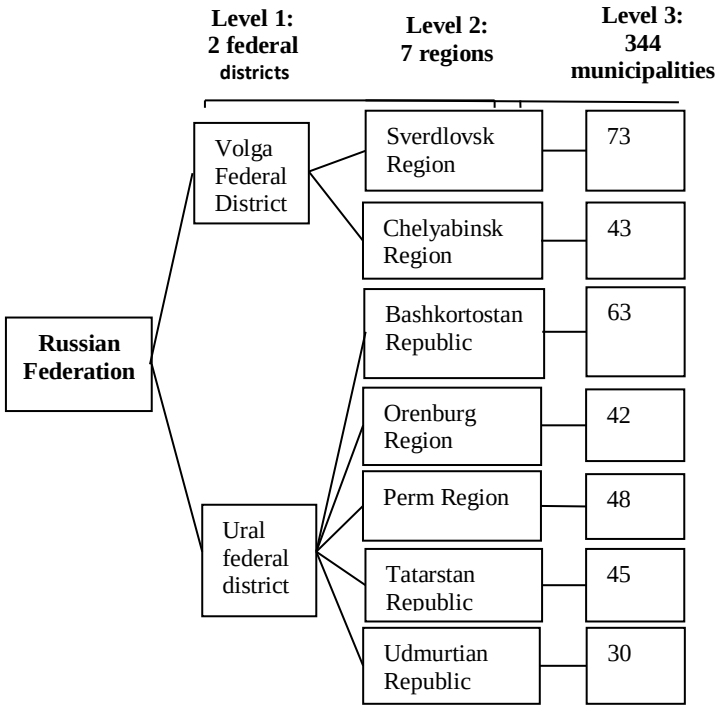


Figure 2. Dendogram of the studied part of Russian municioalities hierarchy

Note: Sverdlovsk Region: 4.3 million people, GRP = $ 7,532.5 / person.
Chelyabinsk Region: 3.5 million people, GRP = $ 5.935 / person.
Bashkortostan Republic: 4.1 million people, GRP = $ 5,447/person.
Orenburg Region: 1.97 million people, GRP = $ 6,390 / person.
Perm Region: 2.6 million people, GRP = $ 6,831.8/ person.
Tatarstan Republic: 3.9 million people, GRP = $ 8,239.8 / person.
Udmurtian Republic: 1.5 million people, GRP = $ 5,869.1 / person.
Source: authors' elaboration based on data from Rosstat (2017).

Three of the seven analyzed regions in the ratings often fall into the top ten regions of Russia. The main source of statistical information was the data provided by Rosstat (2017; 2018). The values of the indicator were recalculated into dollars at the rate according to the Central Bank of Russia as of December 31, 2016 (CBR, 2016). The study was conducted in three stages.

The first stage is the analysis of data on the minimum, maximum and average achieved values in the context of the allocated groups at each level of the governance hierarchy (2 federal districts, 7 regions). The presence of intergroup differentiation was identified, i.e. the difference between districts and regions in the achieved values of the indicator of municipalities located in their territories.

At the second stage, the indices of variation in the context of governance levels are calculated to identify to what extent each level of the hierarchy influences municipalitiesg 'socio-economic development using the approach of Moellering & Tobler (1972). In their work, they put that "the geographical hierarchy thus orders the levels by areal size, and this can be taken as a surrogate for scale or resolution. Analyzing the data at different levels of the hierarchy is thus equivalent to analyzing the data at different geographical scales "(Moellering & Tobler, 1972). According to Wei, Blaschke, Kazakopoulos, Taubenböck & Tiede (2017), "the geographic variance procedure allows the relative spatial variability to be measured, as well as the independent contribution of spatial variability made by each grid size (i.e., the spatial resolution) to a nested hierarchy ". Meantime, the model is applied "only for continuously measured, ratio-scale data "(Jones, Johnston, Manley, Owen & Charlton, 2015). Applying this approach, one should also take into account that the results obtained on the

influence of each level should be interpreted with caution because of the heterogeneity of data of the embedded structure. In addition, there are clear requirements for the analyzed hierarchy. First, the hierarchy must be fully embedded (that is, the municipality can belong to only one region). Second, for each municipality, the branches in the hierarchy should be of the same length. Third, "local inversions" in the hierarchical tree are not allowed.

The basis for further calculations is the hypothesis that the value of the indicator is determined by the effects at 3 levels:

$$X_{ijk} = \bar{X} + a_i + b_j + c_k, \quad (1)$$

where X_{ijk} is the value of the indicator in the k-th municipality (where k = 1..n), included in Russia's region j, belonging to the federal district i;

$\bar{X}$ is the mean value of the whole analyzed population, where $\bar{X} = \frac{\sum_i \sum_j \sum_k X_{ijk}}{n}$;

a_i is the effect determined by the federal district i (i=1..m), where $a_i = \bar{X}_\iota - \bar{X}$;

b_j is the effect determined by the region j (j=1..p) located in the federal district i, where $b_j = \bar{X}_J - \bar{X}_\iota$;

c_k is the effect determined by the municipality k located in the region j, where $c_k = X_{ijk} - \bar{X}_J$.

Mean values can be found for each level separately. As a result of the transformations (1), the deviation of the actual values from the means for each object of each hierarchy level can be analyzed using the following formula:

$$X_{ijk} - \bar{X} = (\bar{X}_\iota - \bar{X}) + (\bar{X}_J - \bar{X}_\iota) + (X_{ijk} - \bar{X}_J), \quad (2)$$

Thus, the deviation from the mean can be considered in the context of three levels of governance. Further analysis involves the calculation within these three levels of statistical indicators such as: standard deviation and variation. In this case, the contribution of individual levels to the observed deviation (G) can be estimated as follows:

$$\sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(X_{ijk} - \bar{X})^2 = \sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(\bar{X}_\iota - \bar{X})^2 + \sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(\bar{X}_J - \bar{X}_\iota)^2 + \sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(X_{ijk} - \bar{X}_J)^2 \quad (3)$$

$$G_i = \frac{\sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(\bar{X}_\iota - \bar{X})^2}{\sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(X_{ijk} - \bar{X})^2} * 100, \quad (4)$$

$$G_j = \frac{\sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(\bar{X}_J - \bar{X}_\iota)^2}{\sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(X_{ijk} - \bar{X})^2} * 100, \quad (5)$$

$$G_k = \frac{\sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(X_{ijk} - \bar{X}_J)^2}{\sum_{i=1}^{m}\sum_{j=1}^{p}\sum_{k=1}^{n}(X_{ijk} - \bar{X})^2} * 100, \quad (6)$$

$$100\% = G_i + G_j + G_k. \quad (7)$$

The presented formulas allow estimating either the contribution of each level of the hierarchy to the development of a particular municipality or a variation within each level of governance. However, for governance purposes, it is often necessary to compare regions, including their ranking by contribution to municipalities' development. As a result of such comparisons, a region significantly different from the whole population can be identified.

To solve this problem at the third stage, the authors proposed the following indicators:

1. The effect, formed by the region by identifying the deviation of the mean for the region from the mean for the federal district;

2. The contribution of regional authorities to the variation of the values of municipalities, found by comparing the sum of squares of deviations at the level of the region with the deviation of the municipalities from the mean for the entire population under consideration:

$$p_j^* = \frac{n(\bar{X}_J - \bar{X}_\iota)^2}{\sum_{k=1}^{n}(X_{ijk} - \bar{X})^2}, \quad (8)$$

3. The ratio of the contribution of regional and municipal authorities to the variation of municipalities:

$$p_j^{**} = \frac{n(\bar{X}_J - \bar{X}_\iota)^2}{\sum_{k=1}^{n}(X_{jk} - \bar{X}_J)^2}. \quad (9)$$

In the second and third variants, taking into account the fact that squares of deviations are compared, care should be taken to conclusions about the manageability of territories. A high value of the calculated index can be the result of ineffective administration, which entails a strong differentiation in municipalities' development located in the territory of the region, as well as

the consequence of strong fluctuations in the natural, climatic and other conditions of the development of municipalities within the region. However, the higher the value of the indicator, the more the variation is determined by the level of regional administration. The equality of the indicator to the one in (9) will correspond to a situation in which the variation of the value of a municipality with respect to the mean over the entire territory under consideration will equally depend on both the regional and the municipal authorities.

As an indicator reflecting the socio-economic development of a territory, the volume of own-made goods shipped and own works and services performed (without small business entities) per capita were used. This indicator is officially registered by state statistics according to data provided by enterprises of the mining and manufacturing industries, including those engaged in the production and distribution of electricity, gas, and water (Rosstat, 2017). It allows making conclusions on the formation of GRP at the regional level and GDP at the national economy level. Due to the lack of accurate data on the activities of small businesses, there is a certain error in the assessments. However, it is not high, since the share of small businesses in the mining and manufacturing industries of Russia is small.

Results

The analysis of the volume of own goods shipped (VGS) and own works and services performed per capita in the territory was carried out in the context of three levels of the hierarchy. On average, in the context of municipalities, it is $4,791 per capita. At the same time, the average value in the Urals Federal District was above the Russian average, and the variation of the indicator is lower than in the Volga Federal District (Table 1).

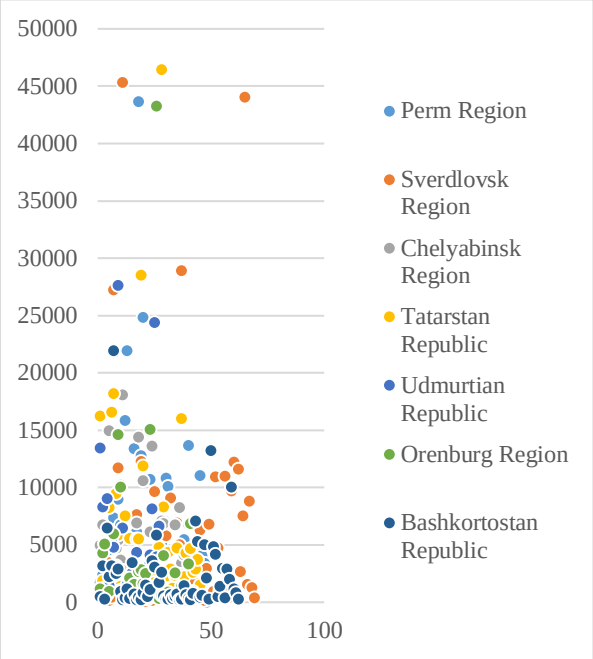
Table 1. Volume of own-made goods shipped and own works and services performed per capita in municipalities in 2016, thousand $.

	Urals Federal District			**Volga Federal District**			
Hierarchy level	**Chelyabinsk Region**	**Sverdlovsk Region**	**Bashkortostan**	**Perm Region**	**Orenburg Region**	**Tatarstan**	**Udmurtia**
			mean, $				
Total, population	4,791.1						
Federal district	5,294.5		4,550.6				
Region	4,586.5	56,94.6	2,342.7	6,249.1	3,666.8	6,386.0	5,048.1
			variation, %				
Total, population	148,2						
Federal district	141		151,8				
Region	96.4	152.8	150.2	126.7	192.9	129.2	126.9
Percentage of municipalities having a value of the indicator lower than the mean for Russia's region, %	63.2	61.8	66	78	68.9	75	72.4

Source: authors' elaboration based on data from Rosstat 2017.

In general, there is a fairly high variation in the indicator among the municipalities of the territory under consideration. The median in all 7 regions is below the arithmetic average, which indicates the predominance of municipalities ith low values of the analyzed indicator (Figure 3)

Figure 3. Box plot for the volume of own-made goods shipped and own works and services performed per capita in municipalities for 7 regions of Russia in 2016, $



Source: authors' elaboration based on data from Rosstat (2017).

High values of the indicator in comparison with the analyzed population are achieved in municipalities of 4 Russia's regions: Sverdlovsk Region (Verkh-Neyvinsky City District $45,320.2/person); Perm Region (Usolsky District $43,681.1/person); Orenburg Region (Buzuluk City District $43,269.7/person); Tatarstan (Almetyevsky District $46,453.1/person). The lowest value was achieved in one of the municipal districts of the Sverdlovsk Region ($77.4/person per year). (508.6-4,791.1)=(4,550.6-4,791.1)+(2,342.7-4,550.6)+(508.6-2,342.7).

Focusing on the average values of indicators, one can see that when moving to a lower hierarchy level, there is an increase in the gap between municipalities. In Bashkortostan, the average value of the indicator under consideration among municipal entities is only $2,342.7, while in the Perm Region – $6,249.1, in Tatarstan – $6,686. Based on this, it can be assumed that in Bashkortostan, not only the municipal level of government is weak, but also the regional government.

Consider a case study of individual municipalities' contribution to the development of individual levels of the governance hierarchy:

1. Iglinsky District, Bashkortostan. The value of VGS was $508.6 in 2016. Substituting the values from Table 1 into Equation 2, one can get:

(508.6-4,791.1) = (4,550.6-4,791.1) + (2,342.7-4,550.6) + (508.6-2,342.7)

The effect of level 1 was: -$240.5; level 2: -$2,207.85; level 3: -$1,834.7.

2. Sterlitamak city, Bashkortostan. The value of VGS was $6,468.3 in 2016 which is $1,677.2 higher than the average for all seven regions under consideration. The effect of level 1 was: -$240.5; level 2: -$2,207.8; level 3: +$4,125.6.

3. Spassky District, Tatarstan. The value of VGS was $592.8 in 2016. The effect of level 1 was: -$240.5; level 2: +$1,835.4; level 3: -$5,793.15.

4. Almetyevsky District, Tatarstan. The value of VGS was $46,452.7 in 2016. The effect of level 1 was: -$240.5; level 2: +$1,835.4; level 3: +$40,066.7.

Thus, with some caution, one can say that the largest contribution to the development of the first of the municipalities in question was provided by the regional level. It also had a positive impact within Tatarstan on the development of the third municipality.

Standard deviation and variance calculations for the volume of own-made goods shipped and own works and services performed per capita of municipalities are given in Table 1 (above) and Table 2.

Table 2. Standard deviation for the volume of own-made goods shipped and own works and services performed per capita in 2016

Scale level	Unit	Sums of squares of deviations from mean	Percent Sums of squares	Standard deviation
0	Country	$1,0*10^9$	100%	$3.1*10^6$
1	Federal district	$2,5*10^6$	0,2%	$7.4*10^3$
2	Region	$3,9*10^7$	3,9%	$1.2*10^5$
3	Municipalities	$9,8*10^8$	95,9%	$2.9*10^6$

Source: Own calculations based on data from Rosstat (2017).

As may be seen, the bulk of the variation, or "action", takes place at level 3, at the municipalities area level, with little scale variation at other levels. While all municipalities within the Volga Federal District vary on average by 148.2% of the mean, in some regions (for example, in the Orenburg Region) the deviation may reach 192.9%.

A strong variation at the level of municipalities requires from the regional authorities more efforts to achieve a certain level of social and economic development for all residents of the region. In such regions, the proposed activities should also be differentiated in the context of the districts, taking into account the individual characteristics of the development of each particular territory, in terms of developing strategic and tactical solutions.

In order to identify which regions and how influenced the development of their municipalities in general, the means for the regions with the mean for the federal district were compared, as well as the sums of the squares of deviations at the regional level and at the municipality level (Table 3).

Table 3. Assessment of region's role in development of municipalities located in its territory in 2016

Name	Chelyabinsk Region	Sverdlovsk Region	Bashkortostan	Perm Region	Orenburg Region	Tatarstan	Udmurtia
Effect, formed by region, $	-708.0	400.2	-2207.9	1698.6	-883.8	1835.4	497.5
Rank	5	3	7	1	6	2	4
Contribution of regional authorities to the variation in the values of municipalities, coefficient	0.025	0.002	0.261	0.044	0.015	0.047	0.006
Ratio of the contribution of regional and municipal authorities to the variation of municipalities, coefficient	0.025	0.002	0.388	0.045	0.015	0.048	0.006

Source: authors' elaboration based on data from Rosstat (2017).

As can be seen from the data in Table 3, almost all regions, have low effects of regional governance on the variation of municipalities 'values.

Discussion

Geys & Konrad (2011) investigated the optimal distribution of rights and duties in a vertically built state governance system. By distributing powers and, moreover, allocating funds for solving a problem, it is necessary to clearly understand which level of the governance hierarchy is the most significant. The more inconsistencies in the actions of national, regional and local authorities, the more side effects and vertical and horizontal conflicts.

Despite the importance of the issue raised, it should be noted that there are not many studies linking state governance with regional development. They have intensified only in the last 20 years and often do not have sufficient analytical data (Rodríguez-Pose & Garcilazo, 2015). Speaking of Russia, during the period of directive governance in the USSR, as well as during the crisis transition to a market economy at the end of the last century, such studies were perceived as not relevant. As a result, at present, there is poor knowledge of the influence of the current system of multi-level governance on the economic development of local territories.

Preferably, assessment of the influence of the governance hierarchy on the process is carried out by means of variational analysis. Based on the variation of the value in the context of individual groups, life expectancy in the United States (Kim & Subramanian, 2016), poverty distribution in India (Kim, Mohanty & Subramanian, 2016), population statistics for England and Wales (Lloyd, 2015), well-being measure in the United Kingdom (Ballas & Tranmer, 2012), social payments and taxable cash income, volume of own-made goods shipped in Russia and the performance of foreign affiliates in US and China (Chan et al., 2010), employment in the agriculture of the Netherlands

(Moellering & Tobler, 1972) were studied. These data show that, in the context of indicators and different countries, the role of individual hierarchy levels can be different. Consequently, further research may be aimed at identifying groups of indicators with the predominant influence of regional authorities and the predominant influence of the local level of government, as well as cross-country comparison.

In this paper, the authors analyzed the volume of own goods shipped and own works and services performed per capita. The choice of the indicator was determined by the desire to study the influence of the regional level of governance on the economic development of a local territory. It is known that the volume of production forms GRP, which in turn characterizes the economic development of the territory and is often used in assessing the quality of government (Rodríguez-Pose & Garcilazo, 2015; Rodríguez-Pose & Maslauskaite, 2012). It is necessary to further expand the list of indicators considered in the framework of multi-level models. It creates the basis for a more substantiated approach to the distribution of powers to manage certain processes in the state governance system.

To further compare the results with other countries, it can be noted that Russia is not an example of a federal state in its pure form. The vertical of power is rather strongly pronounced here. According to Osipov (2016), in Russia, "the role of government agencies is evident in the direction of a mechanistic organization of a linear-functional type. This type of organization is characterized by designing on the basis of formal rules, instructions, procedures, as well as centralized decision-making, strict hierarchy, and subordination ".At the same time, the Constitution of Russia "does not state the exclusive competence of the constituent entities of the Federation, it is determined on the basis of a residual principle and providing the regions of the Federation with certain independence in resolving these issues "(Andrichenko, 2013). At the same time, "at the regional level, there is an increase in the number of state powers transferred to local self-government bodies. Often the list of delegated powers is so broad that it practically covers all powers in a certain sphere "(Andrichenko, 2013). Andrichenko associates this situation with the ineffective primary division of powers between different levels of public authority.

As the authors noted at the beginning of this paper, despite the interest in studying the contribution of individual governance levels to the results of the development of territories, its evaluation began relatively recently. Two directions can be distinguished. The method of geographical dispersion (Moellering & Tobler, 1972) allows measuring the relative spatial variability, as well as the independent contribution of spatial variability created at each level of the governance system. At the same time, the embedded data structure allows applying the hierarchical linear modeling (HLM) method to estimate the contribution of each level of the governance hierarchy to the final result (Garson, 2013; Goldstein, 2010). The interregional and intraregional (intermunicipal) variance determined during the modelling makes it possible to calculate the intraclass correlation coefficient. It shows how much of the total variance can be explained by variation of the mean in groups. This method will also give only a general assessment of the contribution of a particular level of governance to the change in indicators. In contrast, the proposed indicators are calculated for each region separately, allowing one to identify those of them in which there is a situation different from the general trend. The calculations performed by the authors confirmed the hypothesis that it is possible to determine the significance of a region in the inter-municipal differentiation not only in general but also individually for each region taking into account the development of its constituent municipalities. However, the resulting estimates should be interpreted with great caution. The values may indicate both ineffective governances, entailing a strong differentiation in the development of municipalities located in the territory of the region, and strong differences in the conditions and factors of the development of municipalities within the region.

In addition, further research can be continued in the direction of analyzing the data in dynamics and including in the assessment of the spatial component that takes into account the development of neighboring territories.
Further expansion of the evaluation tools will provide an opportunity to take into account more nuances in the governance of individual territories and, as a result, to develop effective regional development programs.

Conclusion

We assessed of the role of individual governance levels in the values of the volume of own-made goods shipped and own works and services performed per capita, reached by municipalities.

The findings showed that, despite the long history of the development of municipalities within the territorial units represented, there is a serious gap in the values of the indicator achieved by them. The overall assessment of the interregional variation points to the significant contribution of the municipal level. For regions with the largest and smallest values, this contribution can be interpreted in different ways. Therefore, the presented assessment of the influence of the regional and municipal levels of government on the development of a municipality was considered not only with the help of generalized values but also by assessing the individual contribution of each level in each specific case.

The paper proposed an improved version of existing methods by including in the analysis the indicators that make it possible to isolate the role of a particular level of governance (regional) in the general variation. The application of the proposed formulas has made it possible to single out a region in which the contribution of regional authorities to the value of the analyzed indicator is much more significant than in other regions.

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