

## DETERMINANTS OF INTERREGIONAL DIFFERENTIATION IN RUSSIA

**Veronika Yu. Maslikhina**

*Volga State University of Technology, Yoshkar-Ola, Russia*

**Summary:** *The main factors of spatial disparity in Russia have been generalized and systematized, the correlation analysis-based evaluation of their impact on the territorial disparities between the regions of Russia having been conducted.*

**Keywords:** *interregional differentiation, spatial disparity, factors of spatial disparity, spatial development theories.*

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## 1 INTRODUCTION

The economic development of countries and regions features different rates of economic growth. Uneven economic growth is the source of inter-country and interregional disparity. A certain level of interregional disparity can be viewed to be quite admissible as long as it does not hamper the country's economic growth as a whole. We observe an unprecedented level of interregional disparities in average gross regional product (GRP) in Russia: this level for the developed countries is exceeded 1.5-2 times and the one for China 1.2 times [1, 2]. Such interregional disparity is becoming a hindrance for sustainable economic growth and a severe challenge for Russia. The Concept of Long-Term Socio-Economic Development of the Russian Federation for the period till 2020 says that the solution to the interregional disparity problem is a strategic priority of the state regional policy [3]. Investigation of the factors and causes of spatial inequality and its interrelation with economic growth is an essential element of the main courses of spatial development of Russia.

The aim of the study is to analyse, identify and summarise the factors governing the spatial disparities in Russia and to evaluate their course impact and effect on interregional disparity.

## 2 DATA AND RESEARCH METHODS

Inequality in Russia is assessed with the statistical data on 83 subjects of the Russian Federation (except the Republic of Crimea and the city of Sevastopol). The total interregional disparity was calculated using the first Theil index, assumed according to per capita gross regional product. The component of Theil index is the characteristic of disparity for each region separately, the contribution of each region in the overall disparity being highlighted (1, 2).

$$I_T = \sum_{i=1}^N \frac{y_i}{y} \ln \left( \frac{y_i/y}{\bar{p}_i/p} \right) = \sum_{i=1}^N R_i, \quad (1)$$

$$R_i = \frac{y_i}{y} \ln \left( \frac{y_i/y}{p_i/p} \right), \quad (2)$$

where  $I_T$  is the first Theil index;  $R_i$  is a component of Theil index for the  $i^{\text{st}}$  region;  $N$  is the number of regions;  $y_i$  is Gross Regional Product of the  $i^{\text{st}}$  region;  $y$  is the country's GDP;  $p_i$  is the population size of the  $i^{\text{st}}$  region;  $p$  is the population size of the country.

### 3 RESEARCH RESULTS INTERPRETATION AND ITS ANALYSIS

The analysis of the factors of spatial development is paid much attention to in the regional researches. Those factors accelerate or slow down the economic growth in the certain local areas, thereby initiating the process of convergence or divergence of regional economies.

The neoclassical growth theory accentuates the role of labour, capital and technological progress. The cumulative growth theories address the process of growth centers formation, the rise of agglomerations and central places, the phenomenon of innovations diffusion, the center-periphery development and their impact on the regional development. Myrdal's concepts, Perroux's, Boudeville's concept of growth poles, Friedman's center-periphery theory, Richardson's urban agglomeration theory, Hägerstrand's model of diffusion of innovations should be noted among the cumulative growth theories.

Krugman - the founder of the new economic geography [4] - distinguishes two groups of factors. Factors of the first nature are a geographical position and availability of natural resources. Factors of the second nature are human capital, institutions, the level of infrastructure development.

The report of the World Bank of 2009 dedicated to the new view of economic geography, emphasises the 3D Theory: Density, Distance, Division [5]. The factors of the spatial development are density of economic activity, reduction in the distance between economic agents and markets and differentiation between countries and within countries due to natural, cultural and political barriers. All these factors are considerably influenced by the market forces: agglomeration, migration, specialisation and trade.

Fujita, Krugman and Venables note that globalisation and trade can speed up or slow down the spatial development [6]. The impact of globalisation on the spatial development is similar to the influence of domestic trade. Some regions may receive more revenue from foreign trade, therefore, international trade can accelerate spatial development. Foreign trade stimulates spatial development. Regions and cities rich in natural resources for export or natural advantages due to the vicinity to rivers, coastal areas and transportation networks benefit from foreign trade while the remote regions do not derive any benefit.

Rodrik divides the factors of spatial development into the 'direct' and 'deep' ones [7]. The factors of production (physical and human capital) and productivity are referred to the 'direct' factors. The 'deep' factors include foreign trade, institutions and geography.

Institutions affect the economic growth. Regional differences in the quality of institutions can also significantly affect the economic development of the region within the country. Economic institutions establishing the rules in a society influence the level of transaction costs, which economic activities are related to, determine the degree of risk and uncertainty. In addition, the political institutions that determine the distribution of power and financial resources between the federal, regional and local authorities can play an important role in the regulation of spatial disparity [6].

Spatial development is affected by the political institutions in developing countries. Property rights are easier to establish and protect in the cities, where the courts and the legal system are accessible. In addition, political corruption and instability may impede the urban development, when taking bribes for providing access to resources, information and communications the city

authorities, cannot stop the crime. The benefits of the political status will be higher under dictatorship rather than under democracy. Federalism or political power balance between the federal, regional and local authorities is also of importance for spatial development. A nation in the United States was formed with a weak federal government and significant political power was exercised by the states and local authorities till the second half of the 20<sup>th</sup> century. As a result, the American style of federalism accelerated the spatial development [8]. On the other hand, many Latin American countries were established having a strong federal government but weak local authorities. The Latin American style of federalism has exerted considerable influence on spatial development.

The Russian scientists - the participants of The Consortium for Economic Policy Research and Advice - have identified the following determinants of spatial development [9]: the climate of the region, the presence of seaports in the region, the agglomeration effect, population migration, raw materials specialisation of the region, human capital, transportation and communications infrastructure.

The analysis of the approaches to type the spatial disparity determinants helped to systematise the factors combining them into four groups given in Table 1.

**Table 1 - The grouping of the factors influencing the spatial disparity**

<b>Geographical factors</b>	Location Climatic conditions Natural resources
<b>Economic factors</b>	Economic activity concentration Urbanization Industry specialisation Investments Innovations Trade Labour mobility Physical infrastructure Current level of economic development
<b>Social and cultural factors</b>	Human capital Standards of living Demographics Ethnic factors Religious factors
<b>Political and administrative factors</b>	Governance model Institutional environment factors Foreign-policy factors

The factors under examination include:

- The initial level of regional development measured by per capita GRP attained in the previous period by the year 2000.
- The level of urbanisation in the region determined by the proportion of urban population in the region's one.
- The size of the cities which is taken into account when the region possesses the cities with the population over 500 thousand people or does not have such cities. The factorial characteristic is a dummy variable (equal to 1 if a large city (or cities) is/are found in the region; the factorial characteristic is equal to 0 if there are no large cities there).

- The population density determined by the number of people per 1 km<sup>2</sup> on the territory of the region.
- Regional specialisation of the economy, represented by the three parameters: the volume of mineral production per capita, the volume of manufacturing activities per capita, the volume of agricultural output per capita.
- Trade measured by three indicators: the regional retail trade turnover per capita, the volume of exports per capita in the region, the volume of imports per capita of the region's population.
- Economic infrastructure, represented by the integral indicator developed by L.V. Dorofeeva<sup>1</sup> [10, p. 65-72, 185-187] and taking into account 20 indicators of four types of infrastructure: transportation, communications, trade, innovations.
- The mobility of the population measured by an increase (decrease) in the population of the region in the period of 2000-2014.
- Investments represented by the investments in fixed capital per capita of the population in the region.
- Human capital measured by the Human Development Index.
- Institutional environment evaluated by the indicator of management efficiency in Russia's regions. The indicator is calculated by the Agency for Political and Economic Communications (APEC) and the Laboratory of Regional Political Studies of National Research University Higher School of Economics for 2014 [11].

The results of correlation analysis of influence of the factors under consideration on the spatial disparity for 2014 are given in Table 2.

**Table 2 - Influence of factors on spatial disparity in Russia**

<b>Factors</b>	<b>Indicators</b>	<b>Correlation coefficients between the regional disparity component and the indicator</b>
Initial level of regional development	GRP per capita in 2000, thous. rubles	0.7
Urbanisation	Share of urban population in the region's population, %	0.3
City size	Presence or absence of cities in the region with population over 500 thous. people	0.15*
Population density	Population size of the region per 1 km <sup>2</sup> of its territory	0.71
Specialisation of the regional economy	Volume of mineral production per capita, rubles	0.29
	Volume of manufacturing activities per capita, rubles	0.27
	Volume of agricultural production per capita, rubles	-0.22

Trade	Retail trade turnover per capita, rubles	0.58
	Volume of exports per capita, dollars	0.51
	Volume of imports per capita, dollars	0.40
Infrastructure	Integral indicator having regard to the development of the four types of infrastructure: transportation, communications, trade and innovation	0.51
Mobility of population	Increase (decrease) in the population of the region for 2000-2014, thous. people	0.81
Investments	Investments in fixed capital per capita, rubles	0.41
Human capital	Human Development Index of the region	0.52
Institutions	Regional management efficiency indicator	0.27

\* the factor is statistically insignificant under 5% significance point

Such factors as population mobility, population density and the initial level of regional development (correlation coefficient being 0.7) have the highest positive correlation with spatial disparity value. Trade, human capital, economic infrastructure and investments (correlation coefficient being 0.4-0.58) have moderate positive correlation with spatial disparity. The influence of urbanisation and institutions on the interregional inequality is less pronounced (the correlation coefficient being below 0.3). Spatial disparity is affected by the specialisation of the regional economy: specialisation in mineral production or manufacturing industries adds to disparity and developed agriculture, on the contrary, restrains inequality (the correlation coefficient is negative between the volume of agricultural production per capita and evaluation of interregional disparity).

#### 4 CONCLUSION

In general, higher levels of the factors under consideration, except for the volumes of agricultural products per capita, will conduce deepening of interregional disparity. In the future, the ongoing economic crisis will cause reduction in the level of some factors such as investments or turnover due to the falling consumer demand. This will entail a reduction of regional disparity. Continued growth in agriculture will also level out the interregional gap.

Currently, Russia is at that stage of economic development, when rapid economic growth simultaneously causes the growth of spatial disparity and the factors which have traditionally been viewed as growth drivers (high population mobility, high intellectual capital, advanced institutions, high level of urbanisation, etc.) enhance spatial disparities.

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