

DEVELOPMENT OF REGIONAL DIFFERENCES OF SLOVAK HIGHER TERRITORIAL UNITS IN YEARS 2009-2018

Kristína Jánošková¹ 

Barbora Jánošková² 

Dagmar Petrušová³ 

DOI: <https://doi.org/10.31410/EMAN.2021.25>

Abstract: *The establishment of the regional level in Slovakia was one of the conditions for our accession to the European Union. Its real creation took place in the Slovak Republic two years before the accession to the European Community. Despite the efforts of the Cohesion Policy of the European Union to reduce regional disparities across the member states of the EU, at the regional level of the Slovak Republic, it is possible to constantly monitor differences in the development of the regions. Their elimination is the main objective of Slovak regional policy. The representatives of the national level use the European Union's support policy to gradually reduce or eliminate the regional disparities. This policy offers the possibility of drawing financial resources from several funds. The indicator of differences in regional development is the regional gross domestic product per capita. By monitoring and analysing its evolution over several years, it is possible to see whether disparities at the regional level are being reduced or, on the contrary, are deepening.*

In the following article, to determine the current state of regional differences, we present the development of regional disparities of Slovak higher territorial units in 2009-2018 through monitored data on regional gross domestic product per capita at current prices.

Keywords: *Regional differences, Regional development, Regional level, Regional gross domestic product.*

1. INTRODUCTION

The efforts of the Central and Eastern European countries to catch up with the economic standards of the original members of the community on the European continent have become a relatively debated topic since they acceded to the European Union. The process of real convergence has become the subject of attention again when some post-communist states had the interest to join the monetary union. The level of GDP per capita at the national level has become an indicator of convergence. In the context of the European Union cohesion policy, the aim is the effort to gradually reduce and close all types of regional disparities between regions in its Member States, from economic, through social, to territorial differences. Third of the EU budget of 27 countries of the European Community goes to the elimination of them.

By closing the gap, the EU is pursuing equal living standards for its approximately 437 million people. The financial instruments of the EU's solidarity regional policy are several funds. The three mains are the European Regional Development Fund, the Cohesion Fund, and the Euro-

¹ University of Economics in Bratislava, Department of Services and Tourism, Faculty of Commerce, Dolnozemska cesta 1, 852 35 Bratislava, Slovakia

² Alexander Dubček University in Trenčín, Department of Political Science, Študentská 1, 91150 Trenčín, Slovakia

³ Alexander Dubček University in Trenčín, Faculty of Social and Economic Relations, Študentská 1, 91150 Trenčín, Slovakia

pean Social Fund. Besides, it is possible to draw money from the European Agricultural Fund for Rural Development and the European Community initiatives Interreg, Urban, Leader, and Equal. The European Community's regional policy⁴, as it's the most important investment policy, seeks to improve the quality of life and promote the competitiveness of the regions through the new jobs creation or regional economic growth.

In the case of Slovakia, the first years, after the transformation of the political and economic system, were not characterized by significant interregional differences due to the absence of a regional level. In the Constitution of the Slovak Republic from 1992, the creation of a regional level was planned. Its real establishment did not occur until the 1st of January 2002. In Slovakia, eight higher territorial units were established, characterized by regional differences from the very beginning. The first group consisted of regions with a predominantly urban structure. Other were regions with a higher share of the population in rural settlements. The second group was also associated with other negative characteristics, including higher unemployment, a lower level of the population's educational level, or unsatisfactory and missing transport infrastructure.

In her recent study, Júlia Karasová analysed the division of regions into two groups, in terms of the time evolution of regional disparities, dividing Slovakia into two subregions by an imaginary line. The dividing line of the southwest-northeast direction included the Bratislava, Trnava, Trenčín, and Žilina regions in the first group of higher territorial units, calling them dynamically developing regions. It specified them as the regions using foreign investment or structural funds, as regions with potential in the infrastructure, with a favourable age and educational structure of human resources, below-average unemployment rate, efficient regional economy, and advanced tourism. The author placed the remaining four self-governing regions in the second group, equally arithmetically represented. Within the mentioned second subregion, it is divided into two subgroups. According to Júlia Karasová, the first of them consists of the regions of the stagnant Prešov and partially developing Košice region. These regions are characterized by a firm core area with a regional city, also developing economic entities, higher unemployment rates, and a concentration of marginalized Roma communities. At the same time, these are regions characterized by an above-average level of risk of poverty, in which there is also a lack of adequate transport infrastructure. The second subgroup of moderately developed regions includes the Banská Bystrica and Nitra regions, which, according to it, are characterized by relatively low performance of the regional economy, weak connection to the multimodal transport network, and, as in the case of the Prešov and Košice regions, the concentration of marginal population groups. (Bardovič et al., 2018) We also work with the above study dividing the higher territorial units into two groups in our paper. We will take a closer look at the truthfulness of this regional division into two equally large groups. The look is based on the regional GDP of self-governing regions and their division according to the statistical method of average value into two groups.

Inequalities between Slovak regions are among the largest in terms of regional disparities in the Member States of the European Union. Slovakia is the country with the fourth most significant

⁴ The European Union's regional policy focuses on five key areas. The first is, above all, the investing in people by promoting access to employment, education, and social inclusion opportunities. The second area is the support for small and medium-sized enterprises, on which the European Community places emphasis. In the third area of support, the EU seeks to make a difference in strengthening the research and innovation through investment and job creation in science and research. Improving the environment through the large investment projects is one of the four main areas of regional policy. The last one is the modernization of transport and energy production, with the accent on innovative transport infrastructure and energy production from renewable sources. (https://europa.eu/european-union/topics/regional-policy_sk)

regional differences in GDP per capita among the Organization for Economic Co-operation and Development members (OECD)⁵. The elimination of regional disparities of The Slovak self-governing regions is, therefore, the target point and starting point of every Slovak government. The governments want to contribute to the reduction of regional differences through the effective use of EU funds. Differences between regions have various causes and tend to have many consequences, social or economic ones. Disparities also have a significant impact on regional development, through which the overall development of Slovakia is determined. Attention, therefore, focuses on finding a suitable model and tools. These tools would contribute to the gradual elimination of disparities. In addition to the national level, the regions themselves are also interested in reducing interregional differences as much as possible. For the needs of regional development, the general strategic documents are adopted. They have the form of economic and social development plans. These strategies coordinate the activities, which support regional development. They also serve as the tool and the condition for drawing financial resources from various funds, European and non-European.

In the Slovak Republic, the higher territorial units represent the regions and characterize the degree between municipal and city self-governments and the central level. By the Nomenclature of NUTS Statistical Territorial Units, the European Union created a strategic framework to assert its regional policy in the member countries. The Slovak self-governing regions represent the NUTS III level in this nomenclature.

2. DESCRIPTION OF RESEARCH AND METHODOLOGY

The paper aims to present the development of regional differences in Slovak higher territorial units. This development is monitored after the adaption of the common European currency until the year 2018. The paper has the ambition to analyse the evolution of regional disparities over ten years. Regional differences can be expressed and quantified through different methods, and various indicators are used to represent them. In general, the regional policy follows up the differences in regional development. The mentioned policy, as a set of tools and measures, seeks ways to eliminate them.

We use the mean value and the Gini coefficient to compare the differences between higher territorial units in the paper. We determined the regions achieving regional gross domestic product per capita above and below the median value. We applied the Lorenz curve and the Gini coefficient to determine the differences in the regional gross domestic product. The obtained data, in tabular and graphical form, are made by the authors.

3. DESCRIPTION OF THE OBTAINED RESULTS

Regarding the use of European Union funds, the regional gross domestic product per capita can be considered as a relevant indicator of the assessment of eligibility or rather unauthorized drawing of European funds. *“Regional gross domestic product per capita is the share of two indicators - regional gross domestic product and the average number of permanent residents*

⁵ The strategic document entitled Vision and Strategy of Slovakia's Development until 2030 was prepared by the Ministry of Investment, Regional Development, and Informatization of the Slovak Republic. This strategy adverts to the differences in regional development that affect the availability of resources to meet the inhabitants' needs. The document cites the Bratislava Region as an example, with 184 % of the European Union average reaching up to 3.5 times higher GDP per capita than in eastern Slovakia, which has 53 % of the EU average. (Vision and development strategy ..., 2020)

in the region.” (Matlovič - Matlovičová, 2011, p. 56) The mentioned data is often used for the evaluation of regional disparities. Several experts pointed out its weaknesses, in the form of deformation of this indicator due to the labour attendance phenomena from other regions.

In the following part, we processed the development of regional differences of self-governing regions in the observed period 2009-2018 and graphically represented it through the regional GDP of eight higher territorial units in Slovakia. At the same time, we evaluated the data using several methods.

We graphically monitored the increase in the values of regional GDP of individual self-governing regions per capita in current prices from 2009 to 2018, in Figure 1. We calculated the obtained data, and through the arithmetic average, we gained the national average, which created a dividing line between the regions with higher regional GDP and the regions with lower regional GDP per capita.

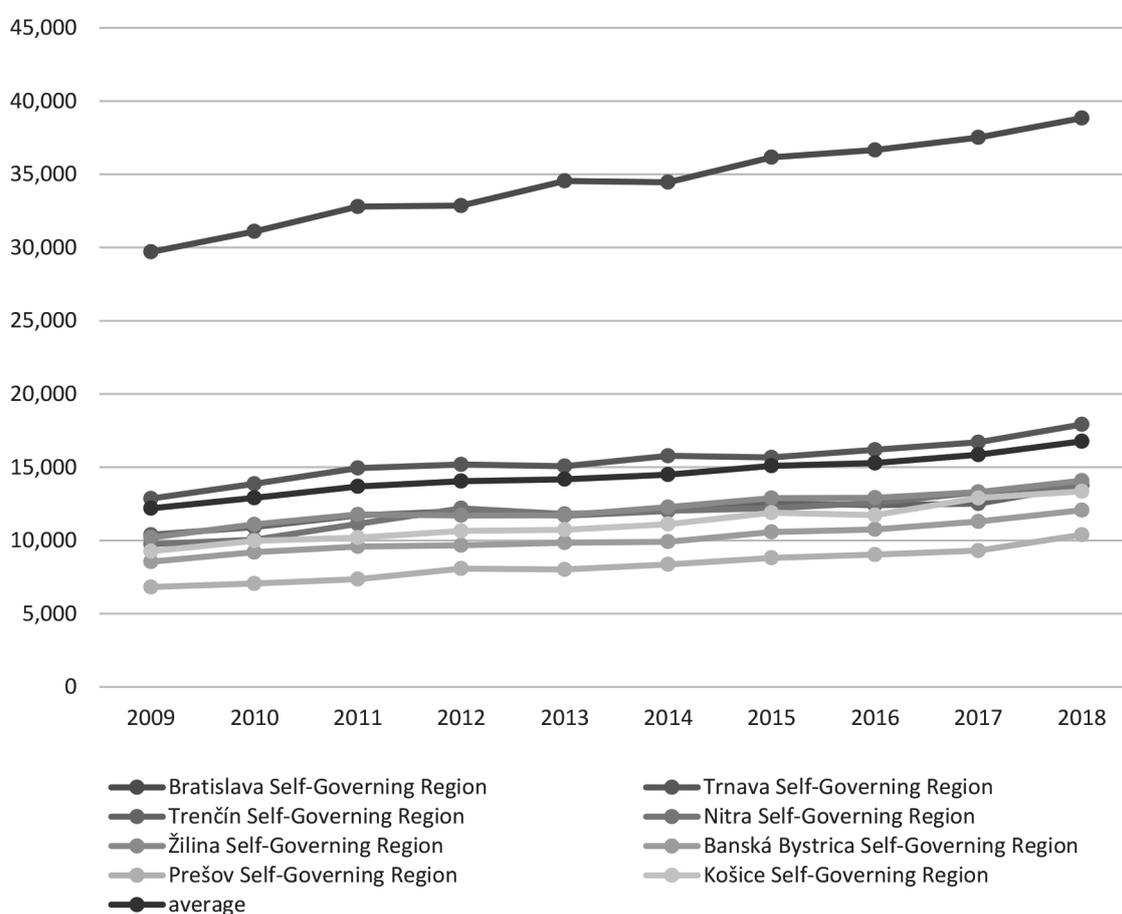


Figure 1. Development of regional GDP per capita at current prices in Slovak higher territorial units during the years 2009-2018

Source: own processing based on data from the Statistical Office of the Slovak Republic.

Based on the processed data, we can state that the Bratislava Self-Governing Region has been above the national average since the beginning of the observed period, followed by the Trnava Self-Governing Region with a larger gap. The remaining six self-governing regions were placed below the national average during the monitored ten years. In the long run, the Prešov Self-Governing Region shows the lowest regional GDP per capita in current prices in the period 2009-2018.

We also compared the obtained data of regional GDP per capita at current prices by using the statistical method of mean value, the median. The median is the mean value that divides the examined statistical set into two equally numerous parts, i.e., in half. One of its advantages is that its determination is relatively simple, and at the same time, the median is insensitive to extreme values.

Using the median, we divided the eight self-governing regions into two equally large groups. The first group includes four counties whose regional GDP is higher than the calculated median of the mean.

Table 1. Distribution of regions according to the median of regional GDP
in the monitored period

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
BSGR	29699	31096	32794	32862	34544	34461	36158	36657	37514	38836
TTSGR	12859	13864	14940	15187	15073	15778	15668	16191	16702	17917
TSGR	10387	10912	11706	12003	11700	12015	12553	12411	12512	13742
NSGR	9749	10052	11135	12189	11805	12029	12200	12572	13293	13769
ŽSGR	10199	11096	11770	11714	11718	12275	12891	12912	13306	14079
BBSGR	8548	9196	9586	9666	9847	9912	10578	10753	11292	12064
PSGR	6820	7058	7360	8076	8017	8360	8807	9036	9308	10389
KSGR	9262	9969	10191	10650	10732	11112	11891	11730	12896	13353
Median	9974	10482	11421	11859	11709	12022	12377	12492	13095	13755

Source: own processing based on data from the Statistical Office of the Slovak Republic.

Legend: BSGR – Bratislava Self-Governing Region
 TTSGR – Trnava Self-Governing Region
 TSGR – Trenčín Self-Governing Region
 NSGR – Nitra Self-Governing Region
 ŽSGR – Žilina Self-Governing Region
 BBSGR – Banská Bystrica Self-Governing Region
 PSGR – Prešov Self-Governing Region
 KSGR – Košice Self-Governing Region
 - The higher territorial units, which regional GDP is above the calculated value of the median, are marked gray.

Table 1 shows that the mentioned group involved the Bratislava, Trnava, Trenčín, and Žilina Region in 2009. The second group implies the Nitra, Banská Bystrica, Prešov, and Košice Region. The division into two groups was the same until 2011. The change occurred in 2012 when the Nitra Region entered the group of better higher territorial units based on the median value instead of the Žilina Region. This first group was formed by the Bratislava, Trnava, Nitra, and Žilina Region from 2013 to 2014. In 2015, the situation changed again. The first group included the Bratislava, Trnava, Trenčín, and Žilina Region. From 2016 to 2018, the Trenčín Region dropped out of the better half. In addition to the Bratislava, Trnava, and Žilina Region, the Nitra Region joined the group. From the above table, we can see that the regional GDP within individual higher territorial units, except for the Bratislava Region, is beginning to match. The share of the regional GDP of the Prešov Region in the regional GDP of the Trnava Region reached 53% in 2009. In 2018 it already got to the share of 58%. On the contrary, the difference between the Bratislava Region and other regions has been increasing during the period. The share of the regional GDP of the Bratislava Region on the value of the Trnava Region GDP during the entire monitored period moved between two to two and a half times.

In Figure 2, we used the variation range method, based on which we monitored the difference between the region with the highest regional GDP and the region with the lowest regional GDP in the period from 2009 to 2018. The variation range represents the difference between the highest and lowest observed values in the statistical series. It is characterized by ease and speed of calculation and is easy to interpret. Its disadvantages include a relatively large variability depending on the extreme values. The case of extreme values can cause a significant change in the range of variation.

We used the variation range method to compare the amount of regional GDP of the Bratislava Self-Governing Region as a higher territorial unit with the highest regional GDP, with the amount of regional GDP of the Prešov Self-Governing Region with the lowest values of regional GDP in the whole monitored period.

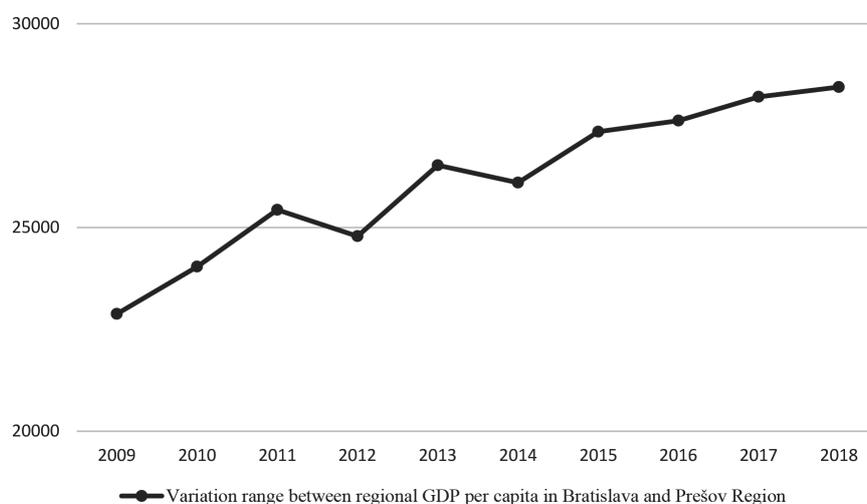


Figure 2. Variation range of regional GDP of higher territorial units in Slovakia in the observed period 2009-2018

Source: own processing based on data from the Statistical Office of the Slovak Republic.

Based on the processing of the variation range of the regional GDP of the Bratislava and Prešov Region, it can be stated that the development of regional differences between the mentioned regions is continually increasing over ten years, with two small exceptions. In absolute terms, the difference in regional GDP per capita increased over the period under review from 22 879 € to 28 447 €.

To compare the regional disparities of higher territorial units, we also looked at the development of differences through the Lorenz curve. To calculate it, we used the values of regional GDP per capita of all regions and the total number of higher territorial units in Slovakia. As part of the processing, we chose 2009 and 2018 for a more evident evaluation of the development of regional disparities.

The representation of regional differences between self-governing regions in Slovakia by the Lorenz curve enabled us to calculate the Gini coefficient. We were able to express the degree of the uniformity of the distribution of regional GDP in the regions, thanks to the mentioned statistics. The advantage of the Gini coefficient is that it considers all data without distinction. Its expression is displayed in the range of values from 0 to 1. The Gini coefficient is regularly used to display and compare regional disparities between the Member States of the European Union, for which regional GDP per capita is used as a fundamental indicator.

A comparison of the Lorenz curve in 2009 and 2018 shows that regional disparities between higher territorial units in Slovakia start to gradually decrease in a very negligible way over a ten-year horizon. The Gini coefficient reached the value of 0.2378 in 2009, at the beginning of the period we monitored. In 2018, it got to the value of 0.2148.

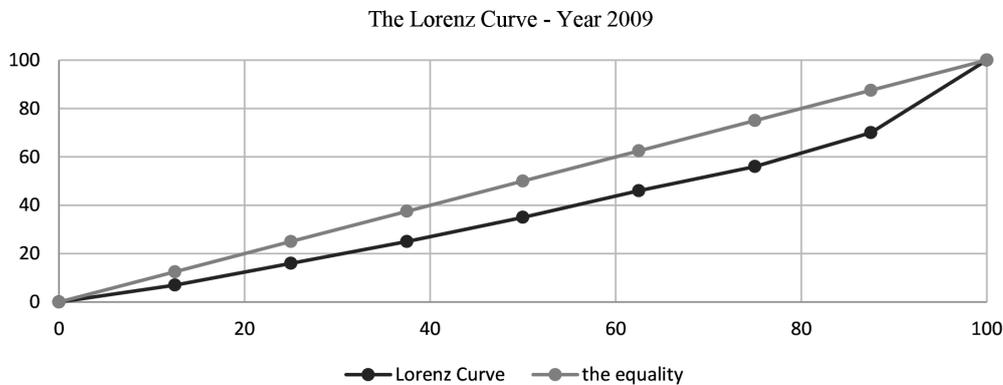


Figure 3. Comparison of regional disparities of self-governing regions through the Lorenz curve

Source: own processing

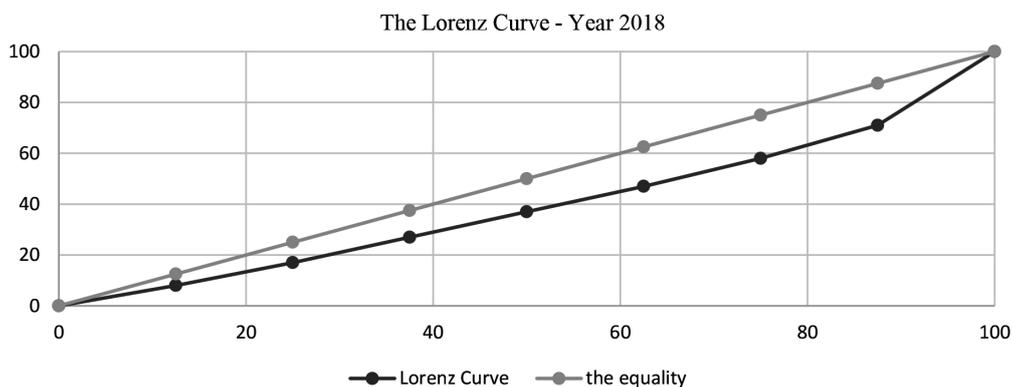


Figure 4. Comparison of regional disparities of self-governing regions through the Lorenz curve

Source: own processing

Given the above data, we can state that the regional disparities at the degree of higher territorial units in Slovakia have deepened in recent years, despite an indifferent reduction. The gradual slight diminution in regional development differences can be seen in seven Slovak self-governing regions, where regional GDP starts to fluctuate at similar levels. The Bratislava Region is the only one of the higher territorial units, which differs significantly from other regions in its regional GDP value. The difference in the amount of regional GDP in 2018 is almost double in the first - Bratislava and the second - Trnava Region, and nearly three times between the Bratislava Region and the last - Prešov Region.

4. CONCLUSION

We compared the regional disparities of higher territorial units during ten years since the adaptation of the common European currency. We used the Gini coefficient and the mean value, based on which we found deepening of regional differences between the Bratislava Region and other regions and the balancing of the disparities between the other seven counties. We dare to

predict that we will witness a deepening of differences between the Bratislava Region and the remaining seven self-governing regions in the coming years. We also assume that the degree of regional GDP per capita from 2020 will most likely be lower in absolute terms than in 2009-2018 due to the COVID-19 pandemic.

The use of the statistical method of average value, based on regional GDP, enabled us to divide the eight Slovak regions into the category of developing higher territorial units and moderately developed units. In addition to the Bratislava and Trnava Self-Governing Region, we included the Žilina and Nitra Region in the first group based on the median. The economies of these higher territorial units are characterized by the presence of the automobile industry. This industry brings not only the growth of regional GDP per capita but also the decrease in unemployment. However, the Trenčín Region is catching up with these four regions with the mentioned values of regional GDP. The region awaits the transformation of the coal region of Upper Nitra into new, more ecological branches of the economic structure in the coming years. The temporary increase in unemployment is expected in the mentioned part of the Trenčín Region, in the condition of the transition to another type of industry and the retraining of thousands of miners.

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