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European Regional Disparities and Application of EU Cohesion Policy - The Case of Slovakia

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Regional disparities describe disparities in the socio-economic development of regions within a given country or between countries. Despite decades of economic integration, regional inequalities within the European Union (EU) persist. The support of less developed regions is one of the objectives of the EU cohesion policy, where the main instruments are the Structural Funds. This paper explores the European regional disparities and evaluates the application of EU Cohesion Policy with a specific focus on Slovakia. The aim of our research is to identify the reasons why Slovakia is undergoing a process of convergence with the developed countries of the EU, but with persistent regional disparities. Out findings underline the importance of targeted regional policies and better alignment between national and EU initiatives to ensure long-term sustainable development across all EU regions.

Keywords: *Regional disparities, GDP, Social Progress Index, European Union, Cohesion policy*

Introduction

Currently, some EU regions represent a prosperous economy with high wages and plenty of jobs, while other regions may struggle with poverty, unemployment and a lack of basic infrastructure. What is the definition of the term region? What are the regional disparities?

Region can be defined as "territorial unit defined according to the classification of statistical territorial units" (Act No. 539/2008). The EU uses a common nomenclature of territorial units, known by the abbreviation NUTS, which enables the collection, compilation and evaluation of regional statistics (Eurostat). For comparison, the methodology of the Organization for Economic Co-operation and Development (OECD) distinguishes two levels of regions, namely large and small regions. Small regions are further classified into metropolitan and non-metropolitan regions.

Regional disparities are understood as differences in the socio-economic development of regions that are the result of some inequalities (Matlovič et al. 2008). Gross domestic product (GDP) per capita is most commonly used to capture the economic level of regions. We can define this indicator as the market value of all final goods and services produced and provided in a given territory for a certain period. Other traditional indicators can also be applied: unemployment rate; employment rate; the level of the nominal wage or the rate of economic activity according to tax revenues.

The paper is divided into three parts, together with an introduction and conclusion.

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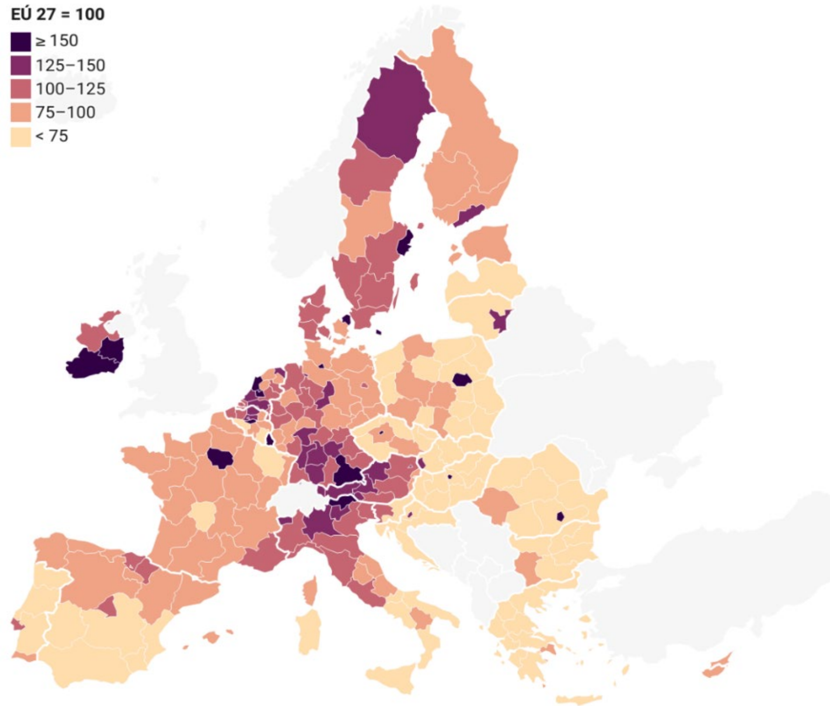
The second section clarifies current regional inequalities in the EU (level NUTS2); the third one presents an alternative way of measuring disparity with the EU-SPI index; the last section describes the application of EU Cohesion Policy in the case of the V4 countries, focusing on Slovakia.

European Regional Disparities

The standard of living in the EU regions is diverse. Inequalities are primarily related to the distribution of income and wealth, which depends on the economic and social structure of the region. Although regional disparities are a natural phenomenon, their widening can have a negative impact on the future development of the economy.

The catch-up of living standards is based on a comparison of regional levels of GDP per capita compared to the EU average. It is the level of GDP per capita that is considered the main indicator for the EU financial allocation (Reg. 2021/1060 of the European Parliament and of the Council). Figure 1 shows the regional disparities in EU member countries for the year 2022 at the NUTS2 level. Specifically, individual regions are compared with the EU27 average, which has a value of 100.

Figure 1. *Regional Disparities EU27 (GDP per Capita in PPP, NUTS2, 2022)*



Source: Eurostat, 2022.

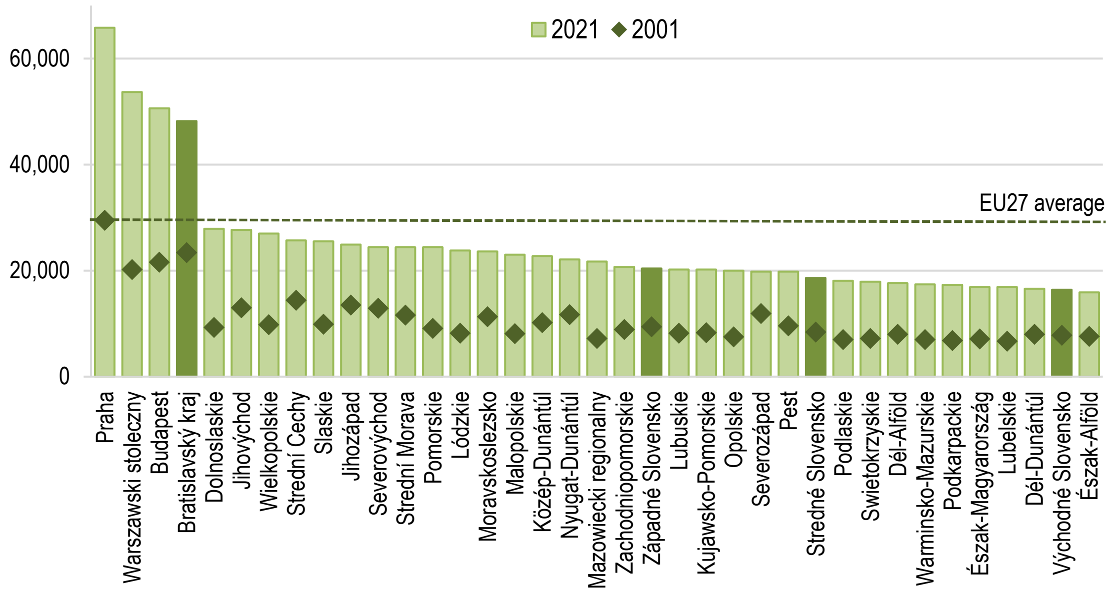
In 2022, 148 of the monitored 242 regions achieved a level of GDP per capita below the EU27 average. In other words, more than 2/3 of EU regions at the NUTS2 level (61.6%) have a significantly lower standard of living than the European average. The least developed areas are located in Southern Europe, as well as in

Central and Eastern Europe. These are mainly regions of the new member states that are characterized by slow economic growth or a low level of GDP per capita.

Our analysis further reveals that 94 regions (38.4%) report a standard of living equal to or higher than the EU27 average. The most developed regions of the EU are located in the area from northern Italy, through Austria to Germany. We also include several regions in the Benelux countries, southern Ireland and Scandinavia. According to data from 2022, the overall leader is the Irish region Southern, where the standard of living is up to 186 percent above the EU27 average. Metropolitan regions (regions of European capitals) also occupied high positions in the current ranking.

In the next part, we will focus on clarifying regional disparities in the countries of the Visegrad Group (V4 countries).[1] We can conclude that there are significant regional disparities in the V4 countries, despite the fact, that these countries are catching up with the standard of living of the developed EU countries. This trajectory of economic development is typical for the countries of Central Europe and is related to their joining into the European Union (European Commission). Figure 2 compares thirty-seven regions of the V4 countries at the NUTS2 level, which are ranked consistent with the value of GDP per capita from the most to the least developed region.

Figure 2. *GDP per Capita in V4 Regions (in PPP, NUTS2 level)*



Source: Eurostat, 2022.
Note: To reference countries' regions: https://ec.europa.eu/eurostat/web/nuts.

[1]The Visegrad Group was founded in 1991 in the city Visegrad and represents an informal grouping of four Central European countries: Czechia, Hungary, Poland and Slovakia.

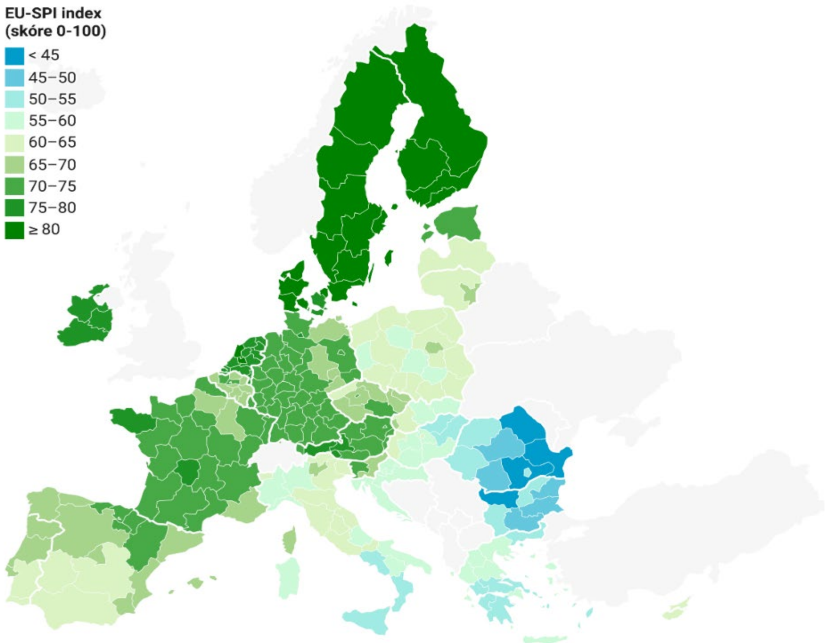
The most developed are four metropolitan regions: Prague, Warszawski stoleczny, Budapest and Bratislava. In 2021, the capital city of Prague reached a GDP per capita of EUR 65,800. Compared to 2001, the value of this indicator more than doubled. In contrast, Bratislava represents a region that did not maintain its position from 2001 (the second most developed metropolitan region V4) and fell in the ranking to fourth place.

In the other 28 observed regions, GDP per capita was below the EU27 average. Moreover, in the case of Hungary and Slovakia, all NUTS2 regions are concerned, except for the dynamically developing metropolitan areas. As we can see, the least economically developed area is the Hungarian region Észak-Alföld, whose GDP per capita is 15,900 EUR. The second-last place belongs to the Eastern Slovakia (16,400 EUR). From the achieved results, we conclude that the mentioned non-metropolitan V4 regions exhibit untapped potential in their economic performance.

Social Progress in the EU (EU-SPI Index)

Another possibility for measuring regional inequalities in Europe could be the Social Progress Index (SPI) created in 2013 by Social Progress Imperative. This indicator captures the social progress of countries and includes three dimensions of progress: basic human needs, well-being and opportunities. SPI is composed using environmental and social indicators, the absence of economic indicators. In 2016, SPI was taken over by the European Commission under the abbreviation EU-SPI.

Figure 3. *EU-SPI Index Score (NUTS2, 2020)*



Source: European Commission, 2020.

Figure 3 shows the score of the EU-SPI index for European regions at the NUTS2 level in 2020. The value ranges from 0-100, with 0 representing the worst performance and 100 being the best performance of the given region. It can be concluded that social differences exist in regions of the EU. The average score of EU-SPI index in 2020 was at the level of 66.8 points.

According to the European Commission, the regions of Sweden, Finland and Denmark are making remarkable social progress. Particularly, Swedish region Övre Norrland (index score of 85.1) is considered the EU region with the highest social progress. It was similar in 2016, when the EU-SPI index was published for the first time. In second place is the Finnish region Helsinki-Uusimaa with the index score of 83.8. The third position was again occupied by the Swedish region Mellersta Norrland (score of 83.3).

The last places in the current ranking belong to the regions of Bulgaria and Romania. These new EU member countries are significantly below the EU average. The lowest index score of 43.3 was reported in the Bulgarian region Severozapaden, followed by the two Romanian regions Sud-Est (index score of 43.6) and Sud-Muntenia (index score of 43.7).

In the case of Slovakia, its four NUTS2 regions have an insufficient level of social development in all three monitored dimensions: basic human needs, well-being and opportunities. It is primarily an area of opportunity, where indicators such as personal rights, level of freedom and inclusion are reported. Bratislava region with the index score of 67.9 achieved the highest social progress in Slovakia. Western Slovakia (except Bratislava region) had the index score of 60.3, followed by Central Slovakia with the score of 57.9 and finally Eastern Slovakia (index score of 56.1).

Application of EU Cohesion Policy - The Case of Slovakia

Cohesion Policy plays a key role in reducing regional disparities, helping less developed EU regions to catch up with the more developed ones, and overall promoting economic, social, and territorial convergence (European Commission). To achieve these goals, 404 billion EUR were allocated during the programming period 2014-2020 (Cohesion Open Data Platform).

Our further analysis primarily clarifies the application of EU cohesion policy in the case of the V4 countries, with a special focusing on Slovakia. Based on the Cohesion Platform, the amount of EU financial resources for the Visegrad Group was 160.75 billion EUR. The most EU resources were allocated to Poland (91.27 bil. EUR), followed by Hungary (27.16 bil. EUR) and Czechia (25.78 bil. EUR). As shown in Table 1, the value of EU funds in the mentioned V3 countries is higher than the EU average (19.29 bil. EUR). Slovakia had the fewest EU financial resources during the programming period 2014-2020, allocation in the amount of 16.57 bil. EUR.

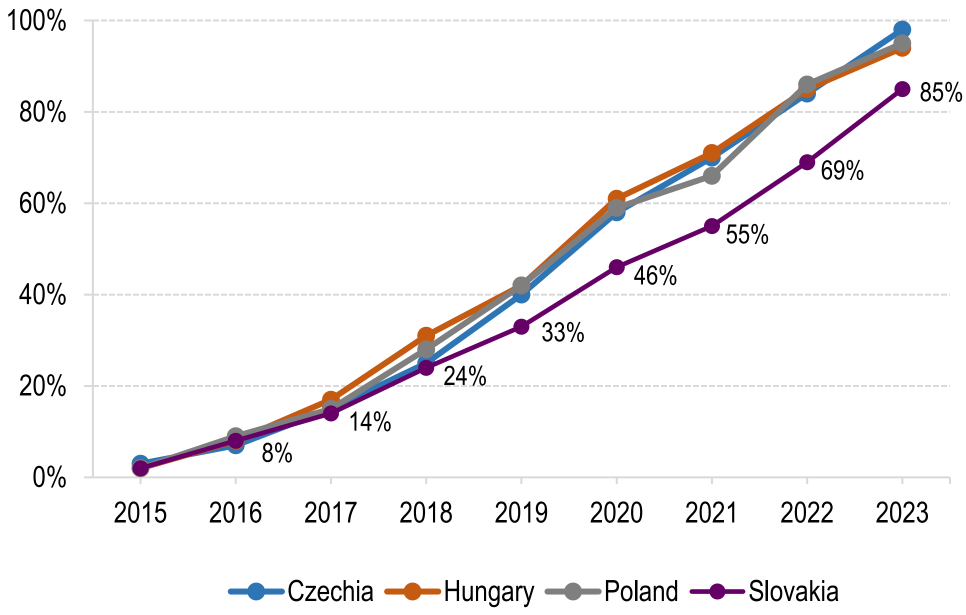
Table 1. *Allocation of Resources in V4 Countries, Period 2014-2020*

Country	Total allocation	EU resources		Country's Resources	
Slovakia	20.52 bil. €	16.57 bil. €	*80.7 %*	3.95 bil. €	*19.3 %*
Hungary	32.09 bil. €	27.16 bil. €	*84.6 %*	4.93 bil. €	*15.4 %*
Czechia	34.90 bil. €	25.78 bil. €	*73.9 %*	9.12 bil. €	*26.1 %*
Poland	111.44 bil. €	91.27 bil. €	*81.9 %*	20.17 bil. €	*18.1 %*
V4 average	49.74 bil. €	40.20 bil. €	*80.8 %*	9.54 bil. €	*19.2 %*
EU27 average	**25.91 bil. €**	**19.29 bil. €**	***74.4 %***	**6.62 bil. €**	***25.6 %***

Source: Cohesion Open Data Platform, Author's calculations.

Figure 4 demonstrates cumulative EU payments (to the end of each year) in the V4 countries during the period 2015-2023. It should be noted that the displayed values represent the values approved by the European Commission without taking into account eventual delays with the bank transfer (Cohesion Open Data Platform). The percentage consumption of the total available EU funds is different. In 2015, all V4 countries started with approximately the same rate of EU resource utilization, which was around 2 percent. However, the situation has changed to the disadvantage of Slovakia, where we observe gradual lagging behind. After 2018, the imaginary scissors affected by effective allocation and implementation began to open.

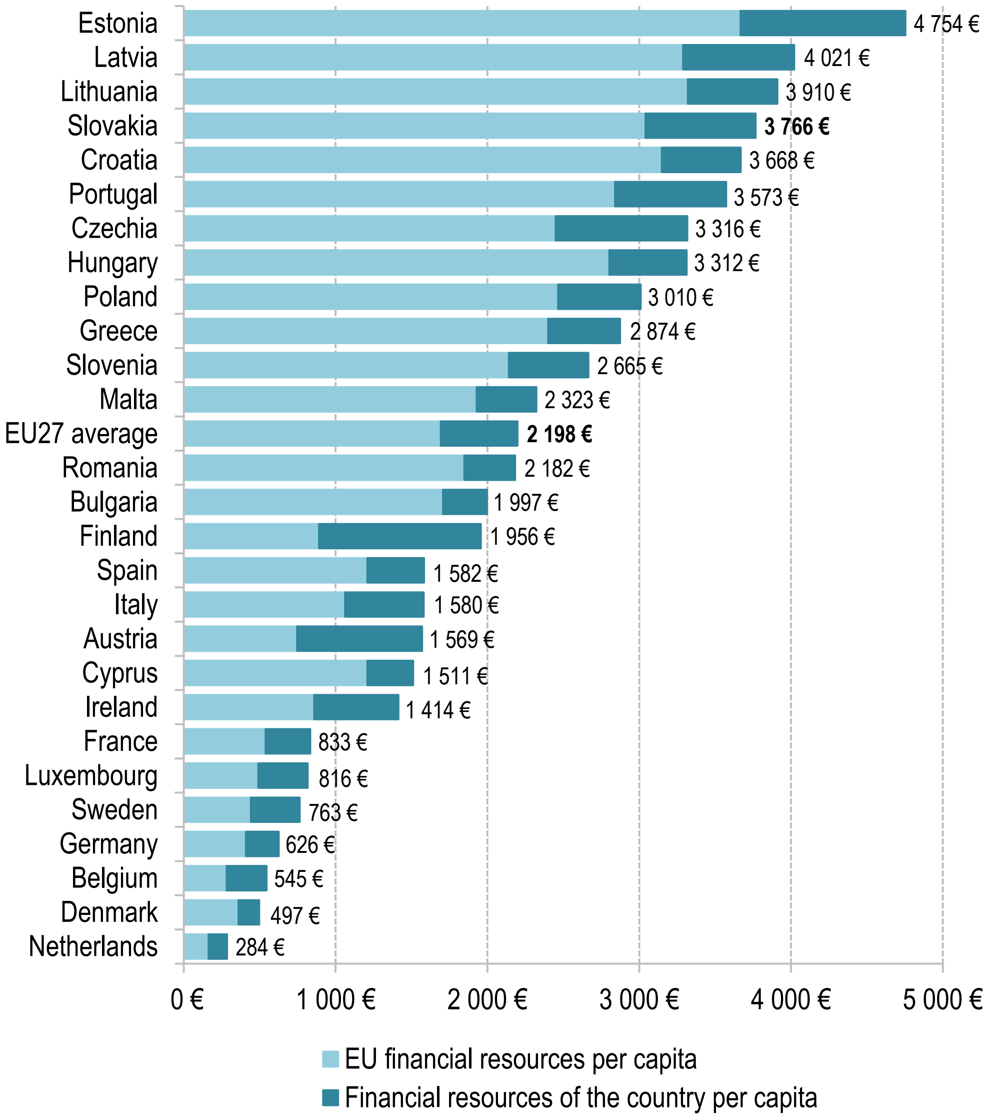
Figure 4. *Cohesion Policy EU Payments in the V4 Countries, 2015 - 2023*



Source: Cohesion Open Data Platform, Author's calculations.

As shown in Figure 4, Slovakia has a long-term problem with drawing allocated EU financial resources. At the end of 2020, Slovakia drew 46% from EU funds for the 2014-2020 programming period (16.57 billion EUR). In the last examined period, the drawdown increased to the level of 85%, which is significantly lower than in the other V4 countries (Cohesion Open Data Platform). This Central European country is not able to make sufficient use of the opportunities arising from its membership in the EU. (Slovakia joined the EU in 2004.) Due to the influence of a poorly set implementation system, Slovakia permanently lost some resources. The programming period was, for example, marked by questionable redistribution of funding to science and research. In Slovakia, drawing was partially suspended, and part of the allocation was reduced through the so-called decommitment. Suspension of payments by the EU, as a reaction to irregularities in fulfilling some priorities was not an isolated event. Finally, such interventions resulted in lagging behind other V4 countries. In addition, various measures during the pandemic limited the possibility of problem-free drawing of EU funds.

Figure 5. *Allocation of Financial Resources per capita for the Period 2014-2020*



Source: Eurostat, Cohesion Open Data Platform, Author's calculations.

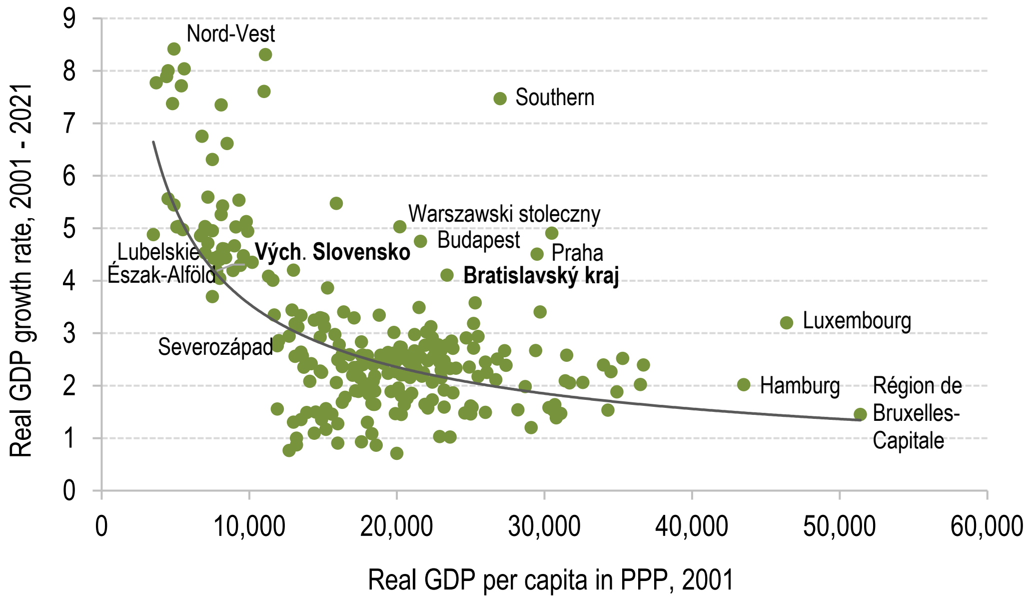
Figure 5 shows recalculated financial resources per inhabitant for the entire period of 2014-2020. It is needed to distinguish between EU financial resources and the country's own resources. EU resources typically account for 80% of all financial resources in each country. From the figure, we can conclude that the EU27 average allocation is at the level 2,198 EUR. Estonia has the highest allocation of resources per capita (4,754 EUR). On the other hand, the Netherlands shows the lowest allocation of resources per capita, only 284 EUR. The difference between these countries is up to 4,470 EUR.

Let's look at the V4 countries individually. Slovakia has the highest total allocation per capita among the V4 countries. With a value of 3,766 EUR, Slovakia took fourth place in our overall ranking. The second place from Visegrad Group belongs to the Czechia with a value of 3,316 EUR, followed by Hungary (3,312 EUR) and Poland with the lowest level 3,010 EUR. An interesting fact is that Poland and Hungary are efficient in the implementation of EU resources. Slovakia has gaps in this and should improve its processes.

In the following part, we will focus on empirical findings regarding the ongoing convergence of the V4 countries. Convergence refers the process of bringing the country's economic level closer to that of a developed country, or a group of developed countries within an integration group. According to the European Central Bank, convergence is a long-term process that brings about a sustained increase in real GDP per capita in lower-income countries towards the levels shown by higher-income countries (ECB, 2022).

The process of convergence of selected EU regions over the last twenty years can be seen on the figure below. Figure 6 shows the development of real GDP per capita in 242 EU regions at the NUTS2 level in relation to the average GDP growth rate during the period 2001 to 2021.

Figure 6. *Ongoing Convergence Process (GDP per capita in PPP, NUTS2)*



Source: Eurostat, Author's calculations.
Note: To reference countries' regions: https://ec.europa.eu/eurostat/web/nuts.

In the period 2001-2021, the real GDP per capita for 242 EU regions was at the level of 18,462 EUR and the economic growth rate was 2.99%. It can be stated that the economic development of European regions is uneven. There are also differences in living standards between developed and less developed regions. The most developed EU regions include: Luxembourg (in 2021 GDP level per capita 87,100 EUR), Région de Bruxelles-Capitale (66,200 EUR), as well as the Hamburg (61,900 EUR). The mentioned regions are located on the right of the figure, their growth rate was 2.22%, which is lower than the EU27 average for the given period.

In the long-term, we can identify the process of convergence of less developed regions. European regions with a low initial level of GDP per capita are characterized by significant economic development. This fact is confirmed, for example, by the Romanian region Nord-Vest, which increased its standard of living from 4,900 to 22,600 EUR, with the highest average growth of 8.42%. The regions of the new EU member countries had higher rates of economic growth than the regions of the founding EU countries.

Our empirical findings refer to neoclassical growth theories, specifically the application of the Solow growth model. The conclusions of this model show that the higher growth rate is mainly due to the catch-up effect, since the newly joined EU countries started from a lower level of real GDP per capita. Convergence in the long run occurs when countries with lower income levels grow faster than countries with higher income levels (Mankiw, 2022). In this case, we are talking about the absolute convergence, which describes the dependence of economic growth and the value of GDP per capita.

In the observed period, the Visegrad Group as a whole reached a level of GDP per capita of 10,819 EUR and an average growth rate of 4.48%. Within the individual V4 regions, we can see the process of catching up with the standard of living of developed countries in Western Europe. Despite the existing convergence, disparities persist not only between V4 countries, but also within each country. The highest rate of economic growth (4.96%) was reported by the Polish regions, while their average level of GDP per capita was the lowest among the V4 countries, a value of only 8,788 EUR. The remaining countries are below the average growth rate of the Visegrad Group. Hungary had a GDP per capita of EUR 10,475 EUR and a growth rate of 4.35% was the second highest. The following are the regions of Slovakia, which grew by 4.26% over twenty years, while their GDP per capita was 12,250 EUR. The most developed regions were the regions of the Czechia, where the average GDP per capita was 14,763 EUR and the growth rate 3.70%. Nowadays, the Czechia is the only V4 country with 5 transitional regions. In general, transitional regions are regions whose GDP per capita falls between 75 and 90 percent of the EU average.[2]

[2]Reg. 2021/1060 of the European Parliament and of the Council.

Conclusions

The aim of the paper was to point out the current disparities in the socio-economic development of the EU27 regions. We primarily focused on the economic development of the Visegrad Group over the last twenty years.

Our empirical findings confirmed that significant regional disparities persist between EU countries. More than two-thirds of EU regions at the NUTS2 level achieve a lower standard of living than the European average. The least developed areas are located in Southern Europe, Central and Eastern Europe. Our analysis further reveals that 94 regions report a standard of living equal to or higher than the EU27 average. The most developed regions of the EU are located in Austria, Germany, the Benelux countries, southern Ireland and Scandinavia. High positions in the current ranking were also recorded by metropolitan EU regions.

The main hypothesis, that Slovakia has a long-term problem with drawing allocated EU financial resources, was confirmed, but it requires further in-depth analysis.

Specifically, Slovakia is undergoing a process of convergence with the developed countries of the EU, but with persistent regional disparities. In 2022, Bratislava is the most developed Slovak region. The regions of western (except the Bratislava region), central and eastern Slovakia are considered less developed regions of Europe, because their performance does not reach 75% of the European average. According to our analysis, it would be appropriate to reevaluate the implementation of regional development support in Slovakia. Public policies should be aimed at optimizing the allocation of EU financial resources and increasing the efficiency of their use. Our recommendation is an individual approach to the economic development of Slovak regions. Foreign practice further confirms that the involvement of local authorities contributes to better management.

EU Cohesion Policy for the coming years should be based on the territorial principle (place-based approach). Investments in infrastructure, employment and economic growth, together with the implementation of structural reforms, should consider the needs of individual regions. The EU's intention is that all European regions and cities become actors of sustainable development and cohesion. An important element for sustainability will be the green and digital transformation of economies aimed at increasing efficiency and climate neutrality. Current challenges and ambitious goals of the EU should be included in the discussions on establishing the rules for cohesion policy beyond 2027.

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