Regional Disparities and Investment Aid: Evaluating Economic Development in Slovakia's Less Developed Regions

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Abstract: Each national economy can be characterized by regional differences, with varying economic outcomes across different areas. These regional disparities are typically addressed through various tools aimed at achieving sustainable regional development. The governments of the Slovak Republic have implemented, and continue to implement, various forms of aid designed to elevate less developed regions to the level of more prosperous ones. One such tool is the provision of regional investment aid to investors entering these underdeveloped regions. The primary objective of this paper is to analyse the situation in the less developed regions of Slovakia, assess their level of development compared to more developed regions, and evaluate the regional investment aid provided to investors in these areas over last years. The paper uses available secondary data from the Statistical Office of the Slovak Republic to identify regional disparities, as well as data from the Ministry of Economy of the Slovak Republic on the aid provided to businesses during the selected period.

Keywords: regions, disparities, investment aid, Slovakia, development, support.
JEL Classification: P25, R11, P45

1Introduction

Regional development is influenced not only by external investments or economic aid but also by internal factors such as local entrepreneurship, innovation, institutional quality, and social capital (Rodríguez-Pose, 2018). Regions with robust local networks and high levels of social capital tend to demonstrate greater resilience and achieve sustainable development, even when starting from lower levels of economic activity or technological advancement (Storper, 2019). Modern theories of regional development highlight the critical role of endogenous resources and factors, offering a broader perspective on regional disparities beyond traditional economic indicators. These theories, particularly those linked to divergence and growth models, propose that regional disparities can serve as sources of innovation and development opportunities. Divergence theories also suggest that economic disparities are shaped by historical development trajectories and the endogenous capacities of regions, which can either amplify or reduce these disparities (Martin & Sunley, 2020). This perspective challenges the conventional reliance on economic indicators such as GDP per capita or industrial output, emphasizing the importance of considering a broader socio-economic context. Key elements such as education systems, healthcare services, and local governance are vital to shaping regional development outcomes. Incorporating these modern theories into the analysis of regional disparities would provide a more holistic understanding of the drivers of regional development and reveal the limitations of relying exclusively on traditional indicators (Iammarino et al., 2019).

In Slovakia, the issue of regional disparities came to the forefront in the 1990s. During this period of dramatic transformation, there was a significant territorial redistribution of the economy and a moderate concentration of jobs, though the population distribution (housing) remained unchanged (disparities were primarily influenced by demographic factors and led to a slight decline in concentration levels) (Hampl, Müller, 2011). Economic transformation increased the dynamics of regional development, and differentiation trends emerged as a consequence of competing mechanisms (Matlovič, Matlovičová, 2011).

The state has a broad range of tools at its disposal to reduce regional disparities, one of which is state aid in the form of investment support. According to Piovarčiová and Martincová (2012), effective state support for investments can, on one hand, lead to stability in public functions by increasing tax revenues and reducing unemployment benefit expenses, provided that the investments create new jobs. On the other hand, when the inflow of investments is driven by state support through investment aid, it imposes costs on the economy in the form of the aid itself, as well as the expenses

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related to supplementary measures and administrative costs. When considering the provision of certain types of investment aid, it is important to bear in mind that offering significant advantages to foreign investors can have negative impacts on the national economy. There is a risk of corruption and clientelism, and favouring foreign investors may put domestic entrepreneurs at a significant disadvantage, which does not benefit the local economy.

State aid consists of measures that meet cumulative criteria, including the advantage granted or provided from public funds and attributable to the state, an economic benefit to the recipient, an impact on market competition, and an effect on internal trade within the European Union (Ferencz et al., 2019). Wishlade (2003) shares a similar view, noting that state aid is provided from state resources and can take any form. However, for the aid to be applied, it must distort economic competition by favouring certain enterprises. Investment aid is one form of state aid. According to Ferencz and Jaššová (2009), investment aid involves investment in newly created jobs generated by these investments. This support is granted to registered businesses in Slovakia. The amount of aid depends on where the company is established or expanding its activities, with regional investment aid aimed at supporting both domestic and foreign investors to reduce regional inequalities (Act on Regional Investment Aid). As such, the support is intended to be directed toward less advantaged regions of Slovakia. Slovakia offers a variety of forms of support to both incoming investors and established businesses. Regional investment aid can benefit small and large, new and expanding enterprises—both domestic and foreign—that invest in new production capacities within industrial production programs (SARIO, 2022). According to the OECD (2022), regional investment aid is the main tool of the Slovak government to support investments that enhance the economy's competitiveness and productivity.

2 Methods

In line with the objective of this paper, secondary data from two institutions were utilized. The first set of data comes from the Statistical Office of the Slovak Republic, accessed through the DATAcube database. We focused on analysing three key indicators in greater detail: gross domestic product (GDP) per capita, the unemployment rate, and nominal labour productivity per employed person. We will add the values of additional indicators to the ones mentioned – the average nominal wage per employee and the number of enterprises. This set of five indicators will be used to identify the less developed regions in Slovakia. The period under study varied depending on the available data – for each indicator, we chose the last five years to work with the most recent data possible.

In the next part of the research, we will use data from a database of business entities that have received regional investment aid since 2002, when the aid program was initiated. This database, compiled by the Ministry of Economy of the Slovak Republic, provides a comprehensive overview of the support granted. It includes information on the volume and type of aid, the country of the applicant, and other relevant details.

3 Research results

The following text presents the results of the analysis, which can be divided into two main areas: the identification of the least developed regions of the Slovak Republic based on available secondary data, and the evaluation of the level of support provided to businesses located in these regions through (regional) investment assistance.

3.1 Identification of the less developed regions of the Slovak Republic

The theory presents a wide range of different indicators that can be used to assess the level of economic activity in specific regions. In this paper, we focus in more detail on three selected indicators: regional gross domestic product per capita, the registered unemployment rate, and labour productivity per employee. Table 1 provides information on the development of regional gross domestic product per capita (in current prices) during the period from 2018 to 2022.

Table 1 Regional Gross Domestic Product per Capita (at Current Prices) in EUR

	2022	2021	2020	2019	2018
Bratislava region	41,139.37	38,956.59	39,339.25	39,975.75	39,206.73
Trnava region	21,209.16	20,103.75	18,873.78	19,596.65	17,843.00
Trenčín region	17,377.76	15,449.53	14,047.99	13,945.07	13,684.27
Nitra region	16,589.25	15,474.48	14,797.21	14,844.87	13,465.84
Žilina region	17,841.60	16,275.82	14,855.26	15,475.56	14,199.95
Banská Bystrica region	15,877.32	14,215.95	12,286.99	12,528.34	12,083.03
Prešov region	12,304.68	11,250.94	10,415.62	10,578.51	10,473.55
Košice region	16,876.05	15,687.48	14,114.30	13,855.42	13,384.81
Slovak Republic	19,975.86	18,427.12	17,112.71	17,316.25	16,502.85

Source: Statistical Office of the Slovak Republic

Regarding the situation at the national level in Slovakia, we can confirm an overall positive trend. GDP per capita increased from approximately €16,503 in 2018 to nearly €19,976 in 2022, representing a relative growth of 21%. In the first two years of the observed period, the worst results were recorded in the Prešov, Banská Bystrica, and Košice regions. However, in the final year, the Nitra region replaced Košice as one of the regions with the lowest GDP per capita. As a result, the Nitra, Prešov, and Banská Bystrica regions are considered as less developed regions in terms of this indicator.

In addition to the value of gross domestic product, we will also consider information on the unemployment rate in the analysed regions. The following table summarizes the values of this indicator based on available data over the last five years, from 2019 to 2023.

Table 2 Registered unemployment rate (in %)

	2023	2022	2021	2020	2019
Bratislava region	2.94	3.24	4.38	4.71	2.83
Trnava region	3.45	3.60	4.16	5.18	2.63
Trenčín region	3.61	3.69	4.28	5.39	3.20
Nitra region	3.62	3.85	4.80	5.50	2.93
Žilina region	3.99	4.63	5.32	6.53	3.96
Banská Bystrica region	7.01	8.48	9.01	9.83	6.69
Prešov region	8.36	9.98	10.75	11.39	8.19
Košice region	7.06	8.69	9.98	10.55	7.57
Slovak Republic	5.08	5.90	6.76	7.57	4.92

Source: Statistical Office of the Slovak Republic

The registered unemployment rate in Slovakia showed a generally positive trend throughout the observed period, except for a decline in 2020 compared to 2019, when the indicator worsened. However, comparing the first and last years of the analysed period, we can observe an overall deterioration, with the rate increasing from 4.92% to 5.08% (a rise of 3.25%). When identifying less developed regions, we see a consistent pattern throughout the entire period, with the Banskobystrický, Košický, and Prešovský regions consistently reporting the highest unemployment rates.

The following table identifies the development of labour productivity per employee in the period from 2017 to 2021 across the regions of the Slovak Republic.

Table 3 Nominal labour productivity per employed person (in EUR)

	2021	2020	2019	2018	2017
Bratislava region	47,493	45,618	45,608	44,048	42,421
Trnava region	37,772	35,809	36,668	34,173	32,932
Trenčín region	29,411	26,858	26,115	25,423	24,119
Nitra region	30,228	28,479	28,233	26,214	25,776
Žilina region	28,829	26,860	27,217	25,788	25,093
Banská Bystrica region	28,667	26,202	26,644	26,077	25,229
Prešov region	26,421	24,925	25,179	25,478	23,249
Košice region	34,355	31,034	30,089	30,168	29,775
Slovak Republic	33,938	31,788	31,742	30,712	29,584

Source: Statistical Office of the Slovak Republic

According to the available data, we can confirm a positive trend in the development of productivity at the national level of the Slovak Republic. It increased from €29,584 in 2017 to €33,938 in 2021, which represents a growth of over 14%. In 2017, the regions with the lowest labour productivity were Prešov, Trenčín, and Žilina. However, by 2021, the situation changed. The Prešov region still showed the lowest value of this indicator, but the other two regions with the lowest labour productivity were Banská Bystrica and Žilina. Therefore, we will consider these two regions to be less developed in terms of this indicator.

In the following table, we summarize the findings for individual indicators, identifying the three regions that achieved the worst results for each indicator. We also include two additional indicators: the average nominal monthly salary per employee expressed in EUR and the number of businesses in the respective region. For both indicators, we identified the three regions with the lowest salary values and the smallest number of businesses.

Table 4 Regional Gross Domestic Product per Capita (at Current Prices) in EUR

Indicator	Less developed regions		
Regional Gross Domestic Product per Capita (at Current Prices) in EUR	Prešov region	Banská Bystrica region	Nitra region
Registered unemployment rate (in %)	Prešov region	Košice region	Banská Bystrica region
Nominal labour productivity per employed person (in EUR)	Prešov region	Banská Bystrica region	Žilina region
Average nominal monthly wage of an employee (EUR)	Prešov region	Banská Bystrica region	Nitra region
Economic subjects	Trenčín region	Banská Bystrica region	Trnava region

Source: own processing according to data from the Statistical Office of the Slovak Republic

Based on the conducted analysis, we can confirm that there are varying situations in identifying less developed regions of Slovakia depending on different indicators. On the other hand, we can identify that the regions that most frequently repeated and achieved poorer values for selected indicators compared to other regions were the Prešov and Banská Bystrica regions. The Prešov region is more focused on traditional industries, such as agriculture and manufacturing, while the Banská Bystrica region has a mixed economy with an emphasis on forestry, mining, and manufacturing. However, these regions lack a strong presence in high-tech industries, unlike the Trnava region. Weaker connections to high-tech and innovative sectors are also evident in the region's educational institutions. In contrast, the Bratislava region benefits from closer ties with business entities in this area of the economy. Innovation indicators, such as patents and research and development (R&D) activity, also show lower performance in these regions. Both regions face population decline due to migration—either to more developed regions of Slovakia or abroad—in search of better job opportunities. Additionally, both regions are characterized by less developed transportation networks, limiting their ability to attract investors and integrate into broader economic markets. Conversely, highways and rail connections in the Bratislava and Trnava regions are much more extensive, enabling better economic integration with Europe. For this reason, we will devote greater attention to these regions in the next part of the contribution.

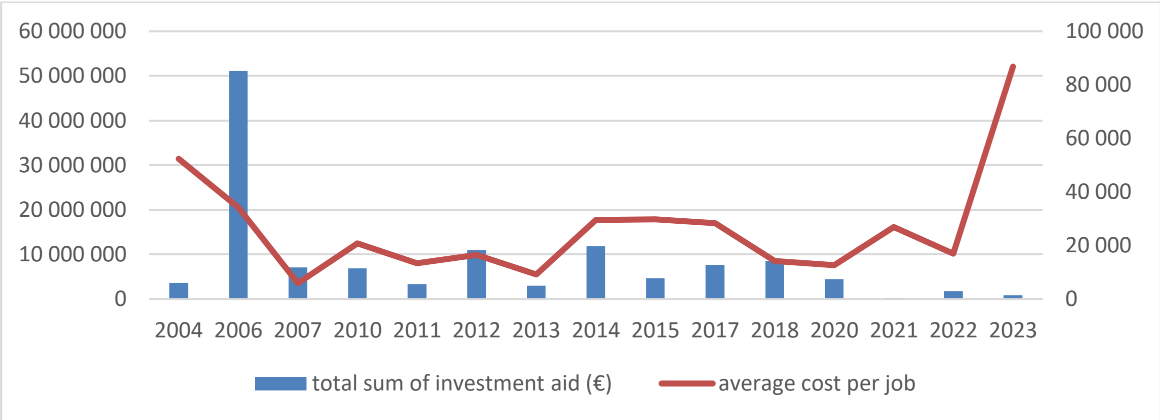
3.2 Regional investment aid in less developed regions of Slovakia

To give less developed regions a better chance to receive more support for their growth and subsequently improve their economic position, it is essential to assist both the businesses that are already established there and those that are relocating to these areas. One of the supportive tools for this purpose is (regional) investment aid, which has been available since 2002. The focus on regionality—specifically, stronger support for less developed regions—has been emphasized more significantly since the legislative change in 2018.

In the Banská Bystrica region, a total of 32 investment projects have been supported since 2002, representing nearly 14% of all projects in Slovakia. In absolute terms, the region received support amounting to €126,028,997. These projects also promised to create 6,245 new jobs. An analysis of the structure of the supported businesses confirms that both Slovak and foreign entities received aid. Of the 32 total projects, 7 were Slovak companies, 6 were from Germany, and companies from Austria, Spain, Italy, Belgium, and other countries were also represented. The most common form of support was tax relief, with businesses receiving over €84 million (67.12% of total aid). The second most frequent form of support was a contribution towards the creation of jobs, with the state providing €20,226,258 (16.16%). As part of the aid analysis, it is important to examine the portfolio of activities of the supported business entities. In the Banská Bystrica region, these activities span ten categories based on the SK NACE sectoral classification of economic activities. Although the structure is relatively diverse, the most prominent category is Group 29 – Manufacture of motor vehicles, trailers, and semi-trailers, which accounts for over 43% of the total value of support. The second largest category is Group 25 – Manufacture of fabricated metal products (except machinery and equipment), representing nearly 21%. Following this, Group 24 – Manufacture and processing of metals ranks third, with a share of 10.07%. All other categories contribute less than 10%.

The following figure shows the development of financial support obtained from 2002 to 2023, along with a calculation of the cost of investment aid per job created.

Figure 1 Investment aid and average cost per job in Banská Bystrica region



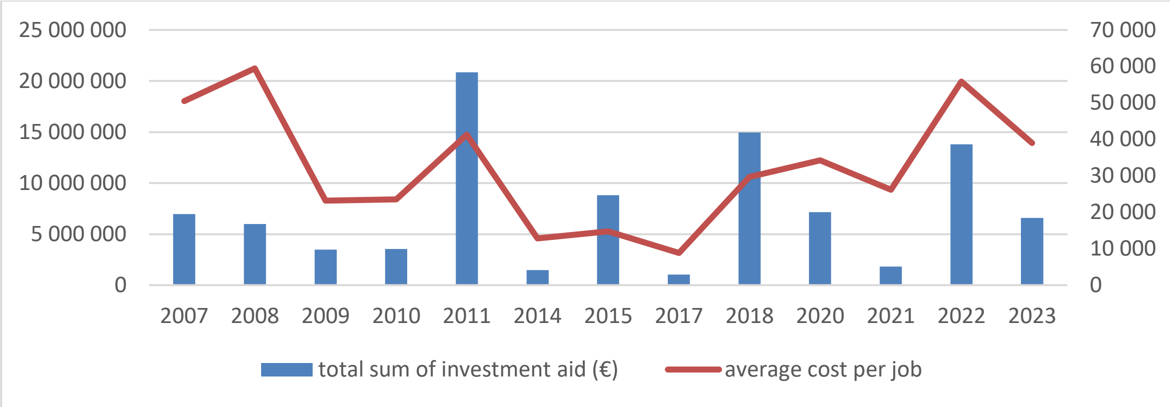
Source: own processing according to the database of the Ministry of Economy of the Slovak Republic

In terms of support over time, the years with the highest inflow of aid into the region were primarily 2006 (6 projects received support exceeding €51 million), 2014 (1 project received €11,800,000), and 2012 (3 projects received nearly €11 million in state aid). During the observed period, the costs per job created also varied significantly, ranging from €5,923.92 in 2007 to €86,800 in 2023.

In the Prešov region, 26 projects have received support since 2002, accounting for 11.35% of all projects in Slovakia. In terms of the total amount of aid that flowed into this region, it reached €96,451,645. These projects promised the creation of 3,073 jobs. Regarding the structure of investors who received support, the majority were foreign investors (only 2 Slovak businesses were supported). The most common investor countries were Germany (7 projects), followed by Austria, the USA, Italy, and the Czech Republic. Businesses most frequently received tax relief (€45,681,625) and grants for asset acquisition (€27,928,467). In the case of categorizing projects based on the SK NACE economic activity classifications, it can be confirmed that eight categories were represented in the Prešov Region. Like the Banská Bystrica region, this can be evaluated as a relatively diverse portfolio of supported projects. However, in terms of the percentage share of the total financial resources provided, Group 29 – Manufacture of motor vehicles, trailers, and semi-trailers, had the most significant representation, accounting for 46.32%. Group 25 – Manufacture of fabricated metal products (except machinery and equipment), had a much smaller share at 19.16%. All other groups represented less than 10%.

The following graph presents the development of the total volume of investment aid received during the monitored period, along with a calculation of the cost of investment aid per job created.

Figure 2 Investment aid and average cost per job in Prešov region



Source: own processing according to the database of the Ministry of Economy of the Slovak Republic

In terms of support over time, the years with the highest inflow of aid into the region were primarily 2011 (2 projects received nearly €20.9 million), 2018 (1 project received nearly €15 million), and 2022 (4 projects received state aid amounting to nearly €14 million). During the observed period, the costs per job created also varied significantly, ranging from €8,823.53 in 2017 to €59,453.27 in 2008.

4 Conclusions

Every country experiences differences in the level of economic development across its regions. The causes of regional disparities are varied, and the economy of Slovakia is no exception, with some regions achieving better results and others facing lower levels of economic development. Various indicators can be used to determine these differences. Through the analysis of selected indicators, we identified that the least developed regions of Slovakia are the Prešov and Banská Bystrica regions.

The government can address regional disparities and improve the economic situation in less developed regions through various tools. One possibility is to encourage a stronger inflow of investors who can stimulate economic activity in these areas. For this reason, we focused on analysing the support for Slovak and foreign investors through the provision of (regional) investment aid. We found that since 2002, more projects have been supported in the Banská Bystrica region compared to the Prešov region, resulting in a larger amount of financial resources being obtained. However, considering that stronger support for less developed regions has been more emphasized since 2018, the situation in the Prešov region has improved. It received €44,287,008 through the support of 13 projects. The Banská Bystrica region, on the other hand, has recorded support for 10 projects since 2018, comparable to Prešov, but these projects received only €15,903,904 in total.

In recent years, less developed regions of Slovakia have received stronger support through regional investment aid aimed at reducing regional disparities and promoting economic activity in these areas. This support included subsidies for creating new jobs, tax relief, and other forms of incentives designed to attract investors and stimulate the growth of local businesses. An example of such measures is the significant increase in investments in regions such as Banská Bystrica and Prešov, where projects in industrial production, technology, and infrastructure were supported. This aid aimed not only to boost employment but also to enhance the competitiveness of local economies and improve the overall quality of life for residents.

In the coming years, it will be crucial to monitor several factors to objectively evaluate the effectiveness of this aid. One of the main indicators will be the number of jobs maintained and the reduction in unemployment rates. It will also be important to assess whether average wages have increased and whether regional economies have succeeded in diversifying their production and reducing dependence on a single sector. In addition to quantitative indicators, such as economic and social statistics, it will be essential to analyze qualitative aspects of development. These include the regions' ability to retain young people, improve the quality of education and healthcare, foster innovation, and leverage local resources. If these factors are not strengthened, regional aid may be perceived merely as a temporary stimulus with no lasting effect.

Evaluating the impact of this support will provide the government and regional authorities with valuable insights into how to better target future measures. If the aid proves effective, it could lead to its expansion into other less developed areas, thus contributing to more balanced regional development in Slovakia. However, if weaknesses are identified, it will be necessary to adjust the strategy to ensure that regional investment aid becomes more sustainable and focused on long-term growth.

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