

ENDOGENOUS DETERMINANTS AND REGIONAL POLICY: CHALLENGES IN REDUCING REGIONAL DISPARITIES IN SLOVAKIA

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Abstract: Immediately after the establishment of the Slovak Republic in 1993, differences in economic and social development between its regions began to emerge. Slovakia was swiftly divided into a “more developed west” and a “more backward east”. These disparities began to widen after the first Dzurinda government took office in 1998 and after Slovakia’s accession to the European Union in 2004. Despite the efforts of the government and the self-governing regions, disparities’ growth has not been halted over the past 20 years. This study has two primary objectives. The first is classification of Slovakia’s districts based on selected economic and social indicators in 2001 and 2019. The comparison of the results from selected years aims to reveal fundamental trends in regional structure development since 2001. The principal methods of classification are factor and cluster analysis. Secondly, the endogenous determinants of regions represent important limits to the reduction of regional disparities in Slovakia. Regional policies of the government and the self-governing regions have considerable potential for improvement in reducing regional disparities. Literature review, discussion and conclusion present direct and indirect possibilities for effective regional policies reducing regional disparities.

Keywords: regional structure, regional disparities, regional district classification, endogenous region determinants, regional policy, Slovakia

1 INTRODUCTION

Primary objective of the study is to demonstrate socio-economic regional disparities at Slovak district level from 2001 to 2019. To this end, we have conducted a classification of Slovakia’s districts based on selected socio-economic indicators for the years 2001 and 2019. Factor analysis and cluster analysis was applied to a set of selected indicators. By factor analysis we reduced the set of variables measuring the socio-economic “situation” in individual districts into two factors. By reducing

the factors, we found out that some of the variables have the same content, in statistical terms, they have a very similar relative variability. These factors were then used in the cluster analysis to group districts into clusters with similar socio-economic status. Finally, we used global indicators of variability to verify whether there was socio-economic regional divergence or convergence among Slovak districts between 2001 and 2019.

At the outset, reasons behind analysing two selected time cross-sections should be clarified. First, in 1998 Mečiar government (nationalist) was replaced by the first Dzurinda government (liberal-democratic). Economic and social changes established by this government were reflected in the development of Slovak regional structure with a certain time delay. Reforms adopted by this government came gradually, thus year 2001 can be considered as a starting point for regional structure change. Second, 2001 census provided a solid data basis for the research. This census was also less affected by distortions compared to 2011 and 2021 censuses.

Year 2019 was selected due to following reasons. In 2020, the global COVID-19 pandemic began. This caused significant non-standard changes in global, national, and regional economies, which affected development of regional structures. Second reason was highlighted by Zeihen (2023), who stated that 2019 was the last good year for the global economy. Author discusses the fact that since the end of the Second World War everything had been accelerating and improving in the long term, and now the world has reached a point where the paradigm of the economy will change significantly in the new emerging world (triggers of these changes being the COVID-19 pandemic and the war in Ukraine). The author points out that countries and regions will have to secure essential products (energy, food, daily necessities, information, and others) to a greater extent in their own territory and under their own control. Whether the effects of globalisation will be significantly reduced in the economy is questionable, but some changes are likely to occur, such as the formation of more rigorous geopolitical groupings with intense cooperation.

Period between 2001 and 2019 was consistent in terms of Slovak regional structure development, respecting global and national phenomena, e.g., the global mortgage crisis of 2009, EU debt crisis of 2011, and government changes in Slovakia.

The present paper has two primary objectives. First, as already indicated, is to conduct a classification of Slovak districts based on selected socio-economic indicators for the years 2001 and 2019 employing methods such as factor analysis, cluster analysis and other statistical approaches. By comparison of district classification in selected years, we aim to illustrate general trends in Slovak regional structure. Second, based on the results of district classification and evaluation of selected published studies, is to highlight the fact that endogenous determinants of Slovak regions change minimally over time, and continue to underpin regional disparities. Simultaneously we draw attention to the limits of current regional policy in Slovakia. Within the study, we outline explicit and implicit possibilities for more effective regional policies in reducing regional disparities. Evaluation of published paper results is in the chapters “Literature Review” and “Literature Discussion”.

2 LITERATURE REVIEW

In recent years, notably since the beginning of third millennium, Slovak geographers published numerous studies explicitly focused on development of regional structure and regional disparities in Slovakia (Korec et al., 2005, 2016; Matlovič and Matlovičová, 2005, 2011; Korec and Ondoš, 2006, 2008; Matlovič et al., 2008; Rajčáková, 2008; Hurbánek, 2008; Rajčáková and Švecová, 2009, 2014, 2018, 2019; Klamár, 2011; Matlovičová et al., 2014; Madajová et al., 2014; Michálek and Podolák, 2014; Michálek and Veselovská, 2014; Rusnák et al., 2023a, 2023b, and others). Slovak sociologists also contributed to this field (Pašiak, 2005; Gajdoš, 2005, 2008; Gajdoš and Pašiak, 2006; Falt'an, 2008, and others).

Selected papers assess the development of regional structure and regional disparities using municipalities (NUTS5 units), districts (NUTS4), functional urban regions, regions (NUTS3) or macroregions (NUTS2). Methodologically, authors often assess regional structure and regional disparities based on single indicator, but usually one complex indicator or a larger number of economic, social, demographic, natural and other indicators. These are employed by a range of basic or complex statistical, cartographic, or graphical methods, comparative analysis, or other research methods.

Both Slovak and Czech geographers discuss theoretical questions of regional development (Hampl, 2005; Ira, 2005; Matlovič and Matlovičová, 2011; Blažek, 2012; Rusnák and Korec, 2013; Ženka et al., 2014; Rusnák et al., 2023b and others). Klamár (2011) studies development of regional disparities with focus on less developed regions of eastern Slovakia. Special consideration is given to endogenous and exogenous factors influencing potential development of eastern Slovakia. According to the author, primary potential factors (as discussed in Lukniš, 1985), such as macro-locational attractiveness, settlement nature, demographic structure peculiarities, transport infrastructure (especially absence of motorways), disadvantageous economic specialisation, low level of economic development of adjacent regions in neighbouring states, foreign direct investments, state aid and insufficient drawdown of structural funds, as well as some other factors, have significant impact on the development potential of eastern Slovakia. These facts are directly related to the emergence and increase of regional disparities, as well as underdevelopment of this region (Klamár, 2011). Author clarifies insufficient use of exogenous factors (foreign direct investments, state aid, structural funds, and others), helpful for reducing regional disparities.

Michálek and Podolák (2014) consider the social dimension indicators among the most important ones in regional disparities. Not only these indicators reflect the level of economic development, but also the living conditions, as well as social climate of individual regions. "Social disparities encompass a number of important social aspects and are characterised by a relatively wide range of indicators that identify differentiated social and economic conditions in regions" (Michálek and Podolák, 2014, p. 37). Social indicators group together demographic data, measures of health, education, employment, social pathology, but also economy level and gen-

eral living conditions. Cited authors identify labour market conditions as primary factors of social regional disparities, considering them as key indicators influencing the level and change of disparities. In addition to unemployment and wage levels, demographic indicators, such as family and reproductive behaviour, educational attainment, and migration-related factors, as important in the study of regional disparities.

According to Rajčáková and Švecová (2019, p. 82) development of regional structure in Slovakia after 1993 “was accompanied by low performance of regional economies, environmental degradation and other negative phenomena”, along with “deepening regional disparities even after first Dzurinda government took office in 1998”. However, in the last two decades, qualitative shift in the approach to addressing regional disparities in the institutional, legislative, and programmatic framework has been perceivable. Despite the favourable preconditions of Slovakia for effective regional policy implementation, significant regional disparities – main problem of regional structure – still remains unsolved.

Przybyła and Bačík (2021) explored consequences of COVID-19 pandemic on regional structure of Slovakia. They assert that the “pattern” of Slovakia’s regional structure and “regional pattern” of unemployment have been long-standing, and development gap behind the regions in central-southern, northeastern, and eastern Slovakia did not commence recently. In conclusion they state: “Every educated individual should understand that the underdevelopment of the east has not only geographical (location and natural potential) and historical causes (predominantly economic development after 1867), but also objective political, economic, sociological, and cultural reasons” (p. 68). Unfortunately, even politicians, economists, sociologists, geographers, as well as other experts have not done much in explaining this situation in regions. After all, their knowledge must be effectively used in order to reduce regional disparities.

Numerous works are dedicated to evaluating global trends and regional determinants which contributed to the evolution of regional disparities in post-communist countries of Central and Eastern Europe after 1989 (Hampl, 2005; Korec, 2004; Ira, 2005; Víturka, 2007; Hampl et al., 2008; Blažek, 2012; Gorzelak, 2009a, 2009b; Michálek and Podolák, 2014, and others). Authors emphasize importance of globalization and integration trends, including endogenous regional factors such as location, transportation, settlement hierarchy, or culture in general. In case of Slovakia, certain authors conclude other factors contributing to regional disparities, such as education, social infrastructure, generational poverty, and Roma minority integration difficulties (Mušinka et al., 2014; Rochovská and Rusnáková, 2016; Korec et al., 2022, and others).

Atkinson (2016) highlights individual responsibility of national governments for devising effective policies aimed at mitigating regional disparities, although the supranational institutions affiliated with European Union membership assume a secondary level of responsibility. Hence, Atkinson emphasizes important lesson from approaches of previous governments (including Slovak), which is necessity to engage whole government in policy for combating regional inequalities.

3 METHODOLOGY AND DATA

The primary objective of the study was to produce regional classification of districts in Slovakia according to selected social and economic determinants in 2001 and 2019. According to several authors, the selected years mark the beginning and the end of regional structure development in Slovakia, due to the effects of globalization contributing to this process. Comparison of results from these two years has enabled us to obtain several fundamental insights into the processes, factors, and mechanisms that significantly influence the development of Slovakia's regional structure.

Methodologically, our study is based on factor and cluster analysis. These multivariate statistical methods are important group of quantitative methods, utilized for the classification of observed basic territorial units. In Slovakia, such territorial units are often districts, considering relevant indicators related to the research objective. Multivariate analysis methods were developed some time ago, however their application in geographical research began only after widespread use of computers. In Slovak geography, pioneers in employing these methods were Paulov (e.g., 1972, 1975, 1982, 1985) and Bezák (e.g., 1975, 1987, 1988). Thought-provoking monography by Klapka (2019) shed light on application of these methods in study of spatial inequalities.

Factor and cluster analysis was applied for identification of regional district types. Our working environment was the IBM SPSS program. For the regional classification of districts, we have selected factors which adequately represent their level of socio-economic development. In terms of economic indicators, unemployment rate and average gross nominal monthly wage were selected. In case of social indicators, relative value of benefit recipients in material need, and relative value of pension expenditures. We are aware that selecting only four indicators for factor and cluster analysis is unconventional. To some extent, we aimed to test the use of only four indicators. Multiple authors have pointed out that regional differences in Slovakia are so pronounced that the number and structure of the indicators typically lead to the same results. Ultimately, several studies, such as Káčerová et al. (2024), have similarly employed a small number (seven in this case) of indicators in their research.

From the perspective of the mathematical-statistical procedure of typology, it was necessary first to conduct factor analysis using the Varimax method, which represents orthogonal rotation, where both factor axes are rotated by 90°. In orthogonal rotation, the factors are uncorrelated (Ronco and De Stéfani, 2012). Rabušic (2004) explains that rotation in factor analysis is applied to maximize differences between factors. Rotation allows factor loadings (correlation between variables and factors) to be adjusted in more accurately and easily interpretable way. The aim of factor analysis is to assess the structure of interrelationships among the observed variables. This study utilizes principal component analysis, a statistical method that employs orthogonal transformation to convert a set of correlated variables into a set

of uncorrelated variables. Thus, if “k” is a number of main components and “n” is number of variables, then $k \leq n$ (Rabušic, 2004).

For factor application in analysis, estimates of factor scores were crucial. Factor scores (sometimes referred to as Z-scores) are calculated using factor loadings and factor correlations, with these scores representing the factor values of individual districts. After that, factor score is used as input variable in cluster methods (Rabušic, 2004). The aim of cluster analysis is to create homogeneous groups of districts, in which regions belonging to a given cluster share similar traits in terms of selected original variables (Stankovičová and Vojtková, 2007).

Mareš et al. (2015) recommend using centroid techniques, average linkage, or Ward's method for cluster analysis. Considering our objectives, we selected Ward's hierarchical method, which groups elements (districts) to minimize the within-cluster (statistical) distances and maximize the between-cluster distances. Based on the selected social and economic indicators, the regional typology of Slovakia's districts resulted in four clusters for both the years 2001 and 2019. The results of the cluster analysis included a hierarchical diagram illustrating the progressive merging of districts based on the changing statistical distance, known as a dendrogram. Dendrogram was used to explore the visualization and calculation of the average values of the observed indicators for different numbers of clusters (3, 5, 6). However, considering the spatial distribution and compactness of some clusters, we decided to use the visualization for 4 clusters.

Four variables applied in this analysis were:

- 1) Average gross nominal wage of employee
- 2) Registered unemployment rate.
- 3) Number of benefit recipients in material need per 1,000 inhabitants aged 18–62. Records of payments are kept by the Central Office of Labour, Social Affairs and Family. The Statistical Office of the Slovak Republic collects these data. The 18–62 age definition is a more precise definition of the so-called productive component of the population, which is limited by the completed age of 15 to 64.
- 4) Pension expenditure per person aged 63 and over. This indicator is the income equivalent for persons of senior age.

The input data were processed in the form of tabular, graphical and map annexes. Maps were created in ArcGIS 10.1. using freely available digital files of territorial and administrative boundaries of the Slovak Republic.

4 RESULTS

Korec et al. (2016) clarifies the need for respecting west-east gradient in evaluating regional structure of Slovakia. Socio-economic indicators point out that Bratislava region with districts situated in southwestern vicinity, altogether with districts of western Slovakia were among the most economically developed after the appointment of first Dzurinda government in 1998 and accession into European Union in

2004. On the other hand, districts of central south, northeastern, and eastern Slovakia had significantly lower dynamics of the economy. The economic dynamics of Slovak districts to a considerable extent mirrored the values of social indicators. Higher economic dynamism of the “west” and the lagging economy of the “east” with subsequent reflection in the social sphere, was well demonstrated by the typologies of districts for the two evaluated years.

4.1 Results of principal component analysis method

As previously noted, due to relatively narrow correlations among the selected indicators, direct employment of these indicators in cluster analysis was not feasible. Therefore, in both time periods, we created two artificial independent variables using the principal component analysis method, which accounted for up to 75.8% of the total variability in 2001. Regarding the structure, we observed that the first principal component covered the largest portion of variability (49.5%), primarily characterized by variables representing the level of registered unemployment rate, the number of benefit recipients per 1000 inhabitants aged 18–62, and average nominal monthly wages. Rest of the variability portion (26,3%) belonged to the pension expenditures (Table 1). In 2019, two aforementioned indicators covered 77,1% of the total variability (Table 2). Largest fragment of variability (50,2%) were covered by first principal component (unemployment rate and number of benefit recipients in material need), as in 2001. Average monthly nominal wage also belongs to the first principal component, however its correlation with second principal component was almost equally high. Second principal component covered 26,9% of variability, characterized by pension expenditures. Feasible explanation behind correlation of average monthly wage and pension expenditures is as follows. To some extent, legislature in 2001 concerning retirement age and nominal pension corresponded to the employment rate and average wage from socialist era, with income and wealth disparities levelled out. Year 2019 more accurately reflected evolution of average wages in era after 2000 into volume of pensions paid (Korec and Przybyła, 2019).

Table 1 Principal components matrix – rotated solution; 2001

Input variable	Component/Factor	
	1	2
Average monthly wage of employee	-0,732	0,345
Registered unemployment rate	0,943	-0,048
Number of benefit recipients in material need per 1000 inhabitants aged 18-62	0,746	0,197
Pension expenditures per 1 inhabitant aged 63 and over	-0,007	0,944

Source: ŠUSR, 2024; processed in SPSS

Table 2 Principal components matrix – rotated solution; 2019

Input variable	Component/Factor	
	1	2
Average monthly wage of employee	-0,664	0,638
Registered unemployment rate	0,910	-0,054
Number of benefit recipients in material need per 1000 inhabitants aged 18-62	0,857	0,002
Pension expenditures per 1 inhabitant aged 63 and over	-0,068	0,968

Source: ŠUSR, 2024; processed in SPSS

4.2 Districts of Slovakia classification in 2001

Concluding results from year 2001, clustered districts are divided in two parts, both remarkably different in terms of size. Developed “west” includes 17 districts, belonging to cluster 1 and 2, less developed “east” including 62 districts, belonging to cluster 3 and 4 (Figure 1). Only five urban districts of Bratislava fell into cluster 1, characterized by a significant gap in the average values of the four input indicators compared to all other 74 districts (Table 3). In accordance with findings of other authors, we can consider this situation as expected (Paulov, 1992; Rajčáková and Švecová, 2002; Dostál and Hampl, 2004; Matlovičová and Matlovič, 2005; Korec et al., 2005; Rusnák et al., 2023b, and others). Cluster 2 encompasses 12 districts, all of them (with exception of district Banská Bystrica) located in western half of Slovakia. Districts Malacky, Pezinok and Senec, are in vicinity of Bratislava and belong to Bratislava self-governing region, creating functional urban region of Bratislava (Bezák, 2000, 2014; Halás et al., 2014). Districts Trnava, Trenčín, Žilina, Banská Bystrica benefited from being the centres of self-governing regions. Hlohovec, Piešťany, Nové Mesto nad Váhom, Ilava and Púchov used to be districts of Stredné Považie region, which due to its location and transport situation was already undergoing a relatively successful economic transformation in the first stage after 1993. The average values of the input indicators for these 12 districts are worse than those of the Bratislava districts, but on the other hand clearly better than clusters 3 and 4.

Clusters 3 and 4 covered 62 districts (78,5%) of Slovakia in 2001. This figure already shows significant dominance of the Bratislava region, the regional cities in the west and the Stredné Považie region in 2001. Cluster 3 consists of 26 districts, located in a decisive number in the western and central part of Slovakia. From eastern Slovakia districts (Prešov and Košice self-governing regions), only the districts of Poprad, Prešov and all four urban districts of Košice are included (Figure 1). In Table 3, we observe that the districts of this cluster lag behind the districts of Cluster 2 in terms of average values of all four selected indicators. Finally, there is a cluster comprising 36 districts, forming Cluster 4. The districts of this cluster are primarily concentrated in the southeastern part of western Slovakia, the southern part of cent-

ral Slovakia, and eastern Slovakia. Out of the 24 districts of the Košice and Prešov self-governing regions, only 6 aforementioned districts are not included in this worst cluster. The inclusion of districts from southwestern Slovakia, as well as 2 districts from Orava region (Dolný Kubín and Tvrdošín), in this cluster is somewhat surprising. The assertion that this could have been partly caused by labour migration from these districts to neighbouring countries such as Hungary and Czechia would require further investigation. The average values of the four selected indicators for the districts of this cluster are the lowest, as depicted in Table 3.

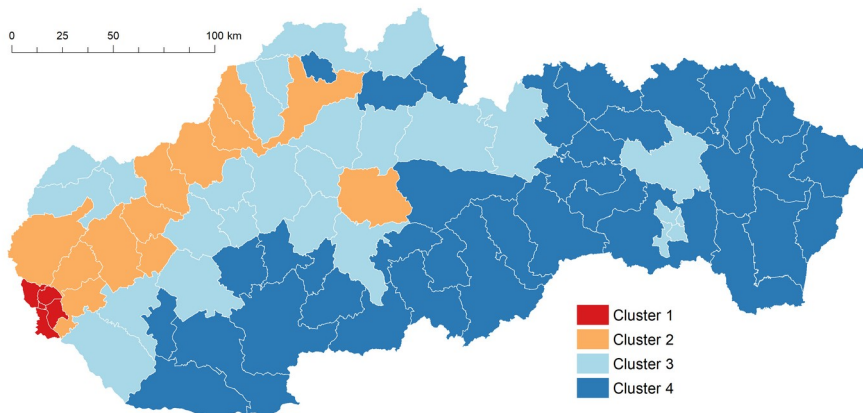


Figure 1 Spatial classification of districts, selected socio-economic indicators; 2001.
Source: ŠUSR, 2024; adapted by authors

Table 3 Average input values for each group of districts (clusters); 2001

Clusters	Average monthly wage	Unemployment rate	Number of benefit recipients in material need per 1000 inhabitants aged 18–62	Pension expenditures per 1 inhabitant aged 63 and over
Cluster 1	515	11,4	9,2	4 154
Cluster 2	384	15,98	29,3	3 537
Cluster 3	375	19,22	46,5	3 594
Cluster 4	372	20,35	89,7	3 607

Source: ŠUSR, 2024; adapted by authors in SPSS

In the final assessment of the district classification in 2001, several observations can be made. Firstly, regional disparities were not yet significant. Apart from the 5 districts of the capital city and 12 “expected” districts, the decisive majority of districts were classified into Clusters 3 and 4 (comprising 78.5% of all districts). Secondly, it was noted that the foundations of the lagging behind of the southern,

northeastern, and eastern regions of Slovakia (historical regions of Gemer, Abov, Spiš, Šariš, and Zemplín) were already laid in 2001, as strongly emphasized in the work of Korec and Ondoš (2006). Already in 2001, the negative impact of certain endogenous determinants of regional development, especially geographical location, historical marginality, and the characteristics of demographic structures, began to manifest. The third expected observation states that the core areas of Slovak regional structure are becoming the Bratislava region, Stredné Považie, and the regions of self-governing centres. Due to its physical conditions and the proximity of the main centers of the former Austro-Hungarian monarchy Vienna and Budapest in the past, the Danubian lowland in the west of Slovakia has been considered a “core area” of economic and settlement development in Slovakia for 200 years.

4.3 Districts of Slovakia classification in 2019

In the second observed year, 2019, we logically delineated 4 clusters based on factor and cluster analysis (Table 4). As well as in 2001, districts are divided into two parts, which are now more balanced in terms of numbers. The more developed “west”, consisting of cluster 1 and cluster 2, includes 26 districts (32.9%), while the less developed “east”, consisting of cluster 3 and cluster 4, includes 53 districts (67.1%) (Figure 2).

Table 4 Average input values for each group of districts (clusters); 2001

Clusters	Average monthly wage	Unemployment rate	Number of benefit recipients in material need per 1000 inhabitants aged 18–62	Pension expenditures per 1 inhabitant aged 63 and over
Cluster 1	1365	2,84	2,8	7 727
Cluster 2	1104	5,17	12,1	6 911
Cluster 3	1099	5,34	19,4	6 889
Cluster 4	1072	6,44	43,2	6 837

Source: ŠUSR, 2024; adapted by authors in SPSS

Cluster 1 with the highest average values in all four indicators encompasses only six districts (Bratislava urban districts and Trnava). District of Trnava benefited from two main facts in the 19 years under review. First, vicinity of Bratislava self-governing region and second, establishment of car plant Peugeot-Citroen in Trnava since 2005.

Cluster 2 consists of 20 districts, characterized by higher unemployment rate, relative number of jobseekers, lower average wage of employee and pension expenditures than cluster 1 (Table 4, Figure 2). This cluster included almost solely districts from the western half of Slovakia. These are the districts west of Banská Bystrica and Zvolen, along with only four urban districts from the eastern Slovakia

metropolis of Košice. To the districts from this cluster in 2001, specifically the three districts of the Bratislava region (Malacky, Pezinok, and Senec), three regional center districts (Trenčín, Žilina, and Banská Bystrica), five districts of Stredné Považie (Hlohovec, Piešťany, Nové Mesto nad Váhom, Ilava, and Púchov), nine “new” districts were added (the four urban districts of Košice, the regional center district of Nitra, and the districts of Skalica, Martin, Bánovce nad Bebravou, and Zvolen). Given their location, the state of major transport infrastructure, economic development history, human potential, and other factors, the inclusion of these “new” districts in cluster 2 was anticipated.

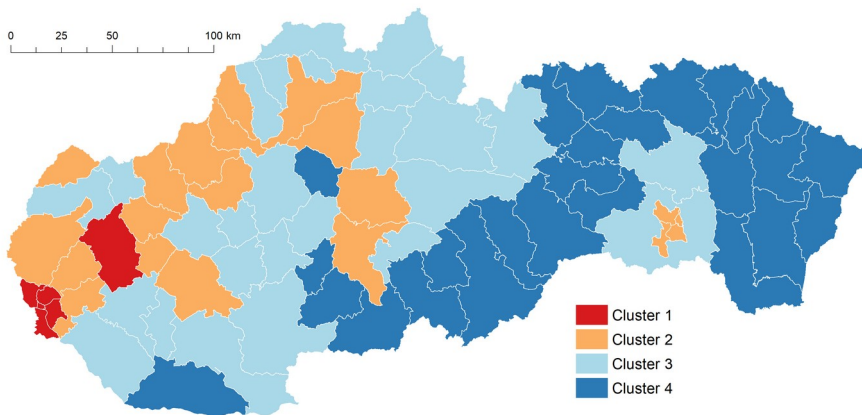


Figure 2 Spatial classification of districts, selected socio-economic indicators; 2019.
Source: ŠUSR, 2024; adapted by authors

The two “less developed” clusters 3 and cluster 4, included the mentioned 53 districts, which were almost equally divided between these two clusters. Cluster 3 included 27 districts, predominantly from the NUTS2 regions of Western and Central Slovakia. From the NUTS2 region of Eastern Slovakia, i.e., the Prešov and Košice regions, only three expected districts fell into this cluster: the regional capital district of Prešov, the central district of the Poprad region, and the district of Košice-okolie, which essentially serves as the hinterland of the eastern Slovak metropolis (Figure 2).

Cluster 4, exhibiting the lowest values for the selected indicators (Table 4), comprises of 26 districts primarily located in the southern part of central Slovakia, Prešov region (11 districts) and Košice region (6 districts). The inclusion of districts of Turčianske Teplice, Banská Štiavnica, and Krupina in this cluster is largely due to Turčianske Teplice being a periphery of Martin and Banská Štiavnica and Krupina having small populations that hinders effective district functioning. Inclusion of Komárno district in this cluster may be a result of “unverified” employment of inhabitants in Hungary.

The answer to whether there was a decrease in socio-economic polarization is provided by the variability values, such as standard deviation and coefficient of variation. Regarding the indicators of registered unemployment rate, the number of benefit recipients per 1,000 inhabitants aged 18–62, and pension expenditures per inhabitant aged 63 and over, we can state that the substantial increase in the coefficient of variation between 2001 and 2019 indicates an increase in regional disparities. Contrarily, the coefficient of variation for average monthly wages showed a slight decrease, indicating a reduction in regional disparities in this aspect (Table 5).

Table 5 Results of statistical analysis of selected socio-economic indicators at the district level, 2001 and 2019

Indicator	Average		Standard deviation		Coefficient of variation	
	2001	2019	2001	2019	2001	2019
Average monthly wage	397	1164	75	197	19%	17%
Unemployment rate	18,73	5,03	7,96	3,20	43%	64%
Number of benefit recipients in material need per 1000 inhabitants aged 18-62	73,2	23,7	18,6	9,6	69%	94%
Pension expenditures per 1 inhabitant aged 63 and over	3580	7030	420	1446	12%	21%

Source: ŠUSR, 2024; adapted by authors in SPSS

5 LITERATURE DISCUSSION

Churski et al. (2017) emphasize that when analysing major societal changes, primarily economic ones, which lead to regional disparities within a state, it is essential to acknowledge that regional development in post-communist countries of Central and Eastern Europe at the national level has been influenced by two significant processes. First, process of transformation and integration, as well as two global megatrends – trend of globalization and post-modernization. We concur with this assertion, as both processes significantly influenced creation of regional disparities in Slovakia, as discussed by more authors (Korec and Ondoš, 2006; Korec and Ondoš, 2008; Matlovič et al., 2008; Rajčáková and Švecová, 2014, 2016; Madajová et al., 2014; Michálek and Veselovská, 2014; Korec et al., 2016, and others).

Attention should be given to the study of Pociūtė-Sereikienė (2019), in which seven endogenous determinants of regional development, influencing long-term regional underdevelopment, were discussed. The author arranged them in the following order according to their significance in contributing to disparities: locational (i), demographic (ii), economic (iii), social (iv), cultural (v), political (vi), and natural (vii). The impact of these determinants is pronounced in Slovakia. As we will demonstrate later, their influence largely explains the regional disparities at the national level.

Immediately after fall of communism in 1989, and transformation to the market economy, every post-communist country of Central and Eastern Europe experienced two effects: rapid economic growth of capital cities and economic underdevelopment of peripheral village regions. This development is in literature described as model “polarization centre – periphery” (Hampl, 2005; Lang, 2015; Gorzelak, 2009b; Korec et al., 2016; Pociūtė-Sereikiene, 2019; Péntzes and Demeter, 2021, and others). Gorzelak (2009b) explained influence of capital cities and other metropolitan regions for the rapid development of their regions. Capital cities and metropolises concentrate economic resources, investment, human capital and infrastructure, enabling them to play a key role in national and global economic networks. Positive externalities associated with the concentration of innovation, education and research are created in metropolises. Capital cities and metropolises often attract foreign investments, multinational corporations and international organizations, and this strengthens their competitiveness in a globalized world. On the other hand, Gorzelak (2009a) also draws attention to the potential negative consequences of the concentration of wealth and opportunities in capital cities or major metropolises. This concentration can lead to regional disparities and social polarization, as peripheral areas can lag behind in development. We agree with the presented facts. In case of Slovakia, the “polarization centre – periphery” is evident, which was also confirmed by the classification of the districts in the paper.

Several authors clarify that growing polarization is a complex phenomenon influencing not only economics and social sphere, but also demographic, cultural, environmental and other phenomena, including politics (Vaishar, 2006; Lang and Görman, 2015; Pociūtė-Sereikienė, 2019; Korec and Przybyla, 2019, and others). Kebza (2018) effectively demonstrates the factors underlying the peripheralization of regions in the northwestern voivodeships of Poland. He identifies their eccentric location and turbulent historical development as the most important factors. Similarly, Korec et al. (2016) consider geographical location and historical development since the mid-19th century as the two key factors contributing to the significant lag of regions in eastern Slovakia.

Comment by Atkinson (2016) is also noteworthy in the discussion. Author points out that government must have a vested interest in addressing significant regional disparities and income inequalities in the state. However, relation between government on the one hand and regional disparities and inequality on the other is very critical. Primary reason for concern is that regional concentration and concentration of assets of certain business groups connected to politicians brings political power and influence. Atkinson (2016, p. 319) quotes American Senator Mark Hann: “There are two things that are important in politics. The first is money and I can’t remember what the second one is.”

It is evident that market liberalization after 1998 contributed not only to economic growth but also led to cumulative regional processes and the creation of regional disparities. The negative impact of market liberalization on regional development in Slovakia and Czechia was highlighted shortly after the dissolution of both

countries in 1993 by Smith (1996), later by Stenning et al. (2010) and Ženka et al. (2024).

Madajová et al. (2014) after evaluating regional disparities in Slovakia at the district level, conclude that based on the analysis of 14 indicators using the method of uniform normalization, indicators of both socio-economic and demographic nature exhibit a high degree of regional differentiation. Ethnographic structure is another demographic indicator influencing regional differentiation, especially distribution of Roma and Hungarian minority. The authors also emphasize that despite improvements in practically all assessed indicators in Slovakia over the observed period of 2001–2011, regional disparities widened. It is worth noting, that the observed period was highly successful in terms of economic development in Slovakia. In 2007, the year-on-year growth of national GDP reached double-digit value of 10.4% for the first (and only) time in history of Slovakia.

Similarly, Matlovič and Matlovičová (2011) note that although there was a decrease in the gap in GDP per capita compared to European Union average across all NUTS3 regions in Slovakia over the aforementioned 10-year-period, national data suggest growth of regional disparities, notably stagnation of southern and eastern Slovakia.

Several authors conclude that growth of regional disparities in numerous European countries, including Slovakia, has negative socio-economic influence on affected regions, which can be proven by several socio-economic statistical indicators (Blowers and Leroy, 1994; Marada et al., 2006; Eriksson, 2008; Daugirdas and Burneika, 2008; Khün, 2015; Málíková et al., 2015; Pociūtė-Sereikienė, 2019, and others).

The above-mentioned long-term trend of increasing regional disparities in Slovakia is also considered very serious by the authors of this paper, especially in the context of the persistent negative impact of several key regional determinants of lagging regions (locational, demographic, cultural and economic determinants).

6 CONCLUSIONS

In the present study, the reality highlighted by nearly all researchers examining the development of Slovakia's regional structure since 1993 has been confirmed. Socio-economic regional inequalities, which can be termed as regional disparities, continue to increase, primarily to the detriment of central-southern Slovakia (border districts of the Banská Bystrica self-governing region) and eastern Slovakia (Prešov and Košice self-governing regions). Despite the long-standing referring to this negative phenomenon by economists, sociologists, politic scientists, geographers etc., as well as declarations of local and national governments, stating that reducing regional disparities is one of the primary goals, results have been minimal.

It is worth discussing what is the main reason behind this situation. Authors of this study suggest two approaches. Rigorously evaluate and respect influence of endogenous determinants of regional development and critically reevaluate effective-

ness of current regional policies at both local and national level. As geographers we will not dare to evaluate socio-economic policies of Slovakia, although some of the main concerns are well known. Influence of long-term underestimation of endogenous factors on regional development must be highlighted. Location determinant, or the determinant of geographical location must be taken seriously. West-east gradient characterized by decreasing development potential of regions has significantly shaped Slovakia in past 30 years. To this we add two points. First, several authors (HAMPL, 2001; ZARYCKI, 2010; ŠTEFANČÍK, 2012; KOREC et al., 2016, and others) discussed, west-east gradient must be understood not only in terms of geographical location, but also in terms of broadly defined culture of regions. Authors noted that differences in broadly defined culture also reflect in economic development opportunities of the regions. Second, determinant of geographical location is amplified by absence of motorway connection between more developed parts of the country, including capital city of Bratislava, and other parts of the country. Positive effects of globalization, which had positive impact on development of western part of the country were minimal in the east. The year of 2010, presented in 1993 as the deadline for completion of D1 motorway, seemed very distant. Today we can only hope that current deadlines of 2032 (2035 at the most), will already be definitive.

It may seem to some that reminding a demographic determinant is not appropriate, or even unethical. In our opinion, it is important to mention one crucial phenomenon influencing underdevelopment of less developed parts of eastern Slovakia. This phenomenon is characterized by a high number of Roma ethnicity residents in the southern border districts of Banská Bystrica region, as well as in the eastern parts of the country (Košice and Prešov regions). These regions exhibit an exceptionally high concentration of Roma population, with 346,555 out of a total 417,535 individuals representing 83,14% of the total Roma population (Ravasz et al., 2019). Specifically, Košice region accounts for 32.1%, Prešov region for 30.5%, and Banská Bystrica regions for 19.8%. We are inclined to believe that presented numbers cause a serious problem in economic development of mentioned regions. The growth in the number and increasing proportion of Roma population relative to the total population of these three regions are alarming (in the district of Revúca in 2019, share of Roma population relative to the total number of population was 33.9%, districts of Rimavská Sobota 32.3%, district of Gelnica 30.6%, district of Kežmarok 26.1% etc.). Correlation analysis between share of Roma population and selected socio-economic variables by districts are exceptionally high (e.g., unemployment rate 0.84; long-term unemployment rate 0.88; benefit recipients per 100 inhabitants 0.87) (Korec et al., 2022). Let us not turn a blind eye to this reality: living conditions of Roma population are alarming and disgraceful for our country. Unfortunately, the impact on the regional development of these areas is evident, but still secondary. Five Members of European Parliament visited in July 2022 Roma settlement in Petrovce nad Laborcom. “We wanted to see with our own eyes how life is in Roma settlements in Slovakia. The reality exceeded the idea we had. It is a disgrace for the European Union and for Slovakia”, French MEP Yonous Omarjee,

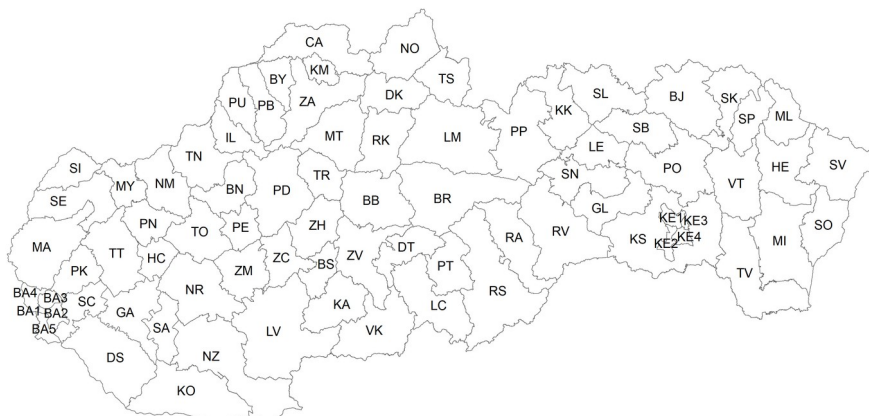
chair of the Committee on Regional Development, told during a press conference standing in front of a drinking water pump in a settlement (Otriová, 2022).

There are another endogenous determinants influencing eastern regions: economic – low business density, poorly diversified economy and lack of investments; social – lack of a strong middle social class, poorly active local society, lower average educational attainment compared to the west and high long-term unemployment; physical – more demanding geomorphological conditions, less fertile soils, colder and wetter weather; locational – the neighbourhood of less developed regions of Poland, Hungary and Ukraine; causing influence of certain level on regional development of eastern Slovakia.

We are inclined to the view of Atkinson (2016), who answers following question “Do we need to crucify national economic growth to ensure greater regional economic equity?” as follows: “while it is possible that the output of the national economy will be smaller as a result of policies aimed at reducing regional inequalities, this is not an argument for rejecting the reduction of regional disparities”. Atkinson also states, that more equitably distributed “slightly smaller pie” may be preferred because it will reduce the persistently high level of regional disparities and the strained social situation. At the same time, based on the current approach to addressing regional disparities in Slovakia, we again concur with the Atkinson that vigorous policy aimed at reducing regional disparities in the country is appropriate when three favourable conditions are present: (i) consolidated public finance, including the national debt, and the national budget deficit; (ii) favourable global economic and political situation conducive to the economic development; (iii) forward-thinking government able to work for the benefit of the country in the medium and long term. Unfortunately, such a situation in Slovakia has practically never occurred over the past 30 years, and since the 2020, the conditions regarding all three aforementioned factors have been very poor.

At this juncture, it is appropriate to draw attention to the fact, that districts are small regions in terms of territory, population, and economy, to have an effective regional policy. In addition, if out of 20 underdeveloped districts government decided to support in 2015, several are the hinterland of another core or population is too small, their underdevelopment is expected and more or less natural. We are inclined to believe even self-governing regions are not very suitable for effective regional policy. Self-governing regions are economically, socially and demographically diversified, especially in case of three regions lagging behind the most (Košice, Prešov and Banská Bystrica self-governing regions). One possible solution is to aim regional policy at natural (or historical) regions, which have higher level of economic, social and demographic integrity, as well as favourable area size. Natural regions also have a common long-standing historical development. Given the underdevelopment, it is almost imperative to address the issues of Gemer, Spiš, Šariš and Zemplín as separate entities, each with its own natural regional centres (Lučenec and Rimavská Sobota, Poprad and Spišská Nová Ves, Prešov and Bardejov, Michalovce and Humenné) as a core of regional policy.

Appendix 1 Identification of districts of the Slovak Republic



BA1	Bratislava 1	KO	Komárno	RS	Rimavská Sobota
BA2	Bratislava 2	KS	Košice-okolie	RV	Rožňava
BA3	Bratislava 3	LC	Lučenec	SA	Šaľa
BA4	Bratislava 4	LE	Levoča	SB	Sabinov
BA5	Bratislava 5	LM	Liptovský Mikuláš	SC	Senec
BB	Banská Bystrica	LV	Levice	SE	Senica
BJ	Bardejov	MA	Malacky	SI	Skalica
BN	Bánovce nad Bebravou	MI	Michalovce	SK	Svidník
BR	Brezno	ML	Medzilaborce	SL	Stará Ľubovňa
BS	Banská Štiavnica	MT	Martin	SN	Spišská Nová Ves
BY	Bytča	MY	Myjava	SO	Sobrance
CA	Čadca	NM	Nové Mesto nad Váhom	SP	Stropkov
DK	Dolný Kubín	NO	Námestovo	SV	Snina
DS	Dunajská Streda	NR	Nitra	TO	Topoľčany
DT	Detva	NZ	Nové Zámky	TN	Trenčín
GA	Galanta	PB	Považská Bystrica	TR	Turčianske Teplice
GL	Gelnica	PD	Prievidza	TS	Tvrdošín
HC	Hlohovec	PE	Partizánske	TT	Trnava
HE	Humenné	PK	Pezinok	TV	Trebišov
IL	Ilava	PN	Piešťamy	VK	Veľký Krtíš
KA	Krupina	PO	Prešov	VT	Vranov nad Topľou
KE1	Košice 1	PP	Poprad	ZA	Žilina
KE2	Košice 2	PT	Poltár	ZC	Žarnovica
KE3	Košice 3	PU	Púchov	ZH	Žiar nad Hronom
KE4	Košice 4	RA	Revúca	ZM	Zlaté Moravce
KK	Kežmarok	RK	Ružomberok	ZV	Zvolen
KM	Kysucké Nové Mesto				

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Endogénne determinanty a regionálna politika, výzvy pri znižovaní regionálnych rozdielov na Slovensku

Súhrn

Zásadným zistením porovnaním typizácie okresov Slovenska v rokoch 2001 a 2019 je skutočnosť, že regionálna polarizácia, t. j. zvýšenie rozdielov medzi „západom“ a „východom“ Slovenska, sa za sledované obdobie 19 rokov podstatne zvýšila. Pre typizáciu boli okresy charakterizované štyrmi základnými sociálno-ekonomickými ukazovateľmi: priemernou mesačno mzdou zamestnanca (i), mierou nezamestnanosti (ii), relatívnym ukazovateľom poberateľov v hmotnej núdzi (iii) a priemer-

nými výdavkami na dôchodky pre jedného obyvateľa nad 63 rokov (iv). V obidvoch sledovaných rokoch boli okresy rozdelené do štyroch zhlukov, od prvého zhluku s najlepšimi hodnotami ukazovateľov až po štvrtý, s najhoršími hodnotami.

Veľkú výpovednú hodnotu má fakt, že do posledného štvrtého klastra sa v roku 2019 zaradili z 26 okresov len štyri okresy na západe Slovenska. Jeden je „okres zázemie“ (Turčianske Teplice), dva sú „počtom obyvateľov malé okresy“ (Banská Štiavnica a Krupina) a okres Komárno. Na východe Slovenska sa zaradilo do tohto najhoršieho klastra 22 okresov. Je to 5 južných prihraničných okresov na juhu banskobystrického kraja a 17 okresov z dvoch východných krajov, z prešovského (11) a košického (6). Dôležitou skutočnosťou je aj fakt, že na východ od línie Ružomberok – Banská Bystrica – Zvolen sa nachádzajú, s výnimkou 4 mestských okresov Košíc, len okresy z dvoch najhorších klastrov 3 a 4 (obr. 2).

Z priestorových „vzorcov“ okresov podľa ich zaradenia ku klastrom 1 až 4 v rokoch 2001 a 2019 je zrejmé, že Slovensko sa za sledovaných 19 rokov, zreteľne rozdelilo na rozvinutejší (bohatší?) západ a zaostávajúcejší (chudobnejší?) východ. V uvedených 19 rokoch na Slovensku už spolu s endogénnymi determinantami regionálneho rozvoja mali na regionálny rozvoj výrazný vplyv aj efekty globalizácie (hlavne vplyv priamych zahraničných investícií) a integrácie (hlavne integrácia do nadnárodných spoločností). Lokalizácia priamych zahraničných investícií a aj procesy integrácie reagovali pochopiteľne na endogénne determinanty regiónov (Korec et al., 2016).

Podľa viacerých autorov zaoberajúcich sa regionálnymi disparitami na Slovensku sú pre regióny vyznačujúce sa vysokou koncentráciou negatívnych javov, hlavne okresov, ktoré sa zaradili v roku 2019 do 4 klastra typické viaceré črty, determinanty regionálneho rozvoja, resp. limity ich rozvoja. Z týchto determinantov menej rozvinutých regiónov považujeme za dôležité uviesť, že sú to regióny: s nevýhodnou geografickou polohou, ako vo vnútroštátnom tak aj v zahraničnom kontexte; s pomerne výraznými demografickými problémami, hlavne etnickou štruktúrou a nízkou vzdelanosťou obyvateľstva; s nadmerným odlivom mladého vzdelaného obyvateľstva; s absenciou diaľničného spojenia s hlavným mestom, západnými regiónmi a okolitými štátmi; s nízkou firemnou hustotou; s nižšou dostupnosťou tovarov a služieb; strácajúce sociálne a ekonomické funkcie i s niektorými ďalšími. Je veľmi dôležité, aby národná i regionálna politika rešpektovali tieto determinanty regionálneho rozvoja.

Z pohľadu geografie je potrebné upozorniť na skutočnosť, že okresy sú územne, populačne aj ekonomicky malé regióny, aby sa pri nich mohla viesť efektívna regionálna politika. Navyše, ak z 20 okresov, ktoré sa vláda podľa zákona č. 336/2015 Z.z. rozhodla podporovať ako menej rozvinuté sú viaceré len zázemím iného jadra alebo majú malý počet obyvateľov. Podľa nášho názoru ani kraje nie sú celkom vhodné pre efektívnu regionálnu politiku. Vnútorne sú diverzifikované, čo platí najmä pre tri zaostávajúce kraje, banskobystrický, prešovský a košický. Riešením by podľa nášho názoru mohlo byť zameranie regionálnej politiky na prirodzené regióny, ktoré majú nielen vyššiu integritu, ale sú aj veľkosťou primerané a majú spoločný historický vývoj. Vzhľadom na menšiu rozvinutosť sa núka riešiť problémy napr. Novohradu, Gemera, Spiša, Šariša a Zemplína ako samostatných celkov, ktoré navyše majú svoje prirodzené regionálne centrá (Lučenec, Rožňava a Rimavská Sobota, Poprad a Spišská Nová Ves, Prešov a Bardejov, Michalovce a Humenné), ktoré by sa mali stať jadrami regionálnej politiky.

Rešpektujeme, že jednotlivé národné vlády, najmä vlády členov Európskej únie a zvlášť členov eurozóny, sú čiastočne obmedzované. Hlavným miestom vytvárania efektívnej regionálnej politiky sú však aj tak národné vlády a znižovanie regionálnych rozdielov v štáte je z veľkej časti v rukách národných zákonodarcov.