"Quantifying of objective poverty in the districts of the Banská Bystrica Region (Slovak Republic)"

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QUANTIFYING OF OBJECTIVE POVERTY IN THE DISTRICTS OF THE BANSKÁ BYSTRICA REGION (SLOVAK REPUBLIC)

Abstract

Poverty, as a multispectral phenomenon caused by severe material depriving of the population, is now becoming one of the most watched socio-economic phenomena. Its scale and severity continue to increase in social consequences. The aim of the paper is to quantify and visualize the extent and level of poverty risk in the selected districts in Slovakia based on selected indicators and to compare their rates in 2015, 2019, and 2021.

The methodology of the pilot case study is based on a multi-criteria assessment of the poverty rate in a statistically unprocessed territorial unit (district) through 19 objective indicators in three domains: socio-demographic, economic performance, and infrastructure. Metfessel allocation, Fuller, and Saaty methods were used for its evaluation.

It is gratifying that the at-risk-of-poverty rate expressed by the synthesis of 19 indicators has decreased in all districts. In 2019, the poverty level decreased by 2.61 points (21.17%) compared to 2015 (23.78%). In 2021, the problem worsened again, and the poverty rate increased by 2.03 points to 23.2%. The Banská Bystrica region is characterized by low economic activity, reflected in the second lowest employment and the second highest unemployment rates, where up to 48.5% of the unemployed are under 35. The paper contributes to the growing debates on the inequality in living conditions, poverty, and marginalization, the scale and severity of which continue to increase in social consequences.

Keywords	objective poverty, multi-criteria method, spatial disparities, macroeconomics, poverty rate, risk of poverty
JEL Classification	R12, R23, I32

INTRODUCTION

The world has changed in recent decades, not only in terms of poverty but also in income inequality. The concentration of wealth in the hands of the world's wealthiest people continues to grow, opening up scissors between the wealthy and other categories of the world's population. Currently, 40% of the world's poor population lives in unstable or conflict-affected regions.

From an international perspective, Slovakia is one of the countries with the lowest poverty and social exclusion levels in the EU. The lower share of people at risk of poverty or social exclusion was in the Czech Republic (10.2%) and Finland (11.7%). In 2019, about 21.1% of the EU population was at risk of poverty or social exclusion, a slight decrease compared to 2018 (21.6%) (Eurostat, 2020). However, the proportion of people at risk of poverty or social exclusion increased to 21.9% in 2020. From data available from Eurostat (2021), the highest at risk of poverty or social exclusion rates in 2020 were mainly in Romania (35.8%), Bulgaria (33.6%), Greece (27.5%), and Spain (27.0%). On the

contrary, the lowest proportions of people at risk of poverty or social exclusion were recorded in the Czech Republic (11.5%), Slovakia (13.8%), Slovenia (14.3%), and the Netherlands (15.8%).

Poverty in Slovakia began to emerge significantly during the period of economic transformation when the change in socio-economic conditions led to increased inequalities not only in the economy but also in society, which caused significant property and social changes. With the onset of new socio-economic conditions, on the one hand, an old-new phenomenon is emerging – unemployment and job loss, as a reflection of the demise of many industrial enterprises, redundancies, and economic crises, which reflect new economic and political conditions and have led to existential problems even to the poverty of many groups of the population. On the other hand, property and social inequalities have shaped groups of people with disproportionate wealth. These changes are reflected in regions where they create differentiation and poverty concentrations. There is visible heterogeneity between regions at or within different hierarchical levels.

In Slovakia, the young generation aged 15 to 35 is most at risk of poverty. The unemployment rate is high and young people are not motivated to look for work and get out of poverty by their own efforts. Inequality of living conditions, poverty, and marginalization, especially in rural regions of Slovakia, their scale and severity continue to increase the social consequences. In such a situation, the effective application of regional and social policy tools to reduce poverty throughout the country is based on identifying poverty at a lower level: at the district level.

1. LITERATURE REVIEW

Poverty is currently one of the most widespread and persistent global social problems in the world (Knowles, 2000; Lehning et al., 2007; Todaro & Smith, 2006; Nyasulu, 2010; Jenčová & Litavcová, 2015), although its nature and form differ (Domfeh & Bawole, 2009). It is a complex, multidimensional phenomenon without a single generally valid definition. This multidimensional phenomenon (Cobbinah et al., 2013; Noble et al., 2004; Labudová et al., 2010) can be considered a complex phenomenon of an interdisciplinary nature. Poverty is an economic problem and needs a multidimensional approach that involves individual (psychological), social, economic, and political levels (Narayan et al., 2000; Misturelli & Heffernan, 2008; Beyers, 2014; Gwariro et al., 2017).

There are more approaches to defining poverty, and it is impossible to define the generally accepted term. According to Niemietz (2010), poverty is abstract and ambiguous. There is a consensus that poverty occurs when someone suffers from a significant deficiency associated with insufficient satisfaction of basic needs when they suffer from a lack of things necessary for basic human well-being (Michálek et al., 2020; Singer, 2006; Minnitti, 2013; Sharp et

al., 2009; Nándori, 2021a). Sen (1999) broadened the understanding of poverty by defining it as a condition that leads to the absence of freedom of choice and results from the lack of what he refers to as the ability to function effectively in society. According to the World Bank (2018), poverty is not only about income and consumption, but it is also linked to non-financial dimensions such as access to education, electricity, drinking water, and sanitation. Nandori (2021b, 2021c) states that the Covid-19 pandemic has affected public perceptions of poverty.

Poverty is not an isolated phenomenon. On the contrary, it is associated with many factors that support, exacerbate or cause poverty, including unemployment, underestimation of work, poor health, physical or mental disability, family breakdown due to a divorce or death, a low level of education, housing in economically underdeveloped regions, early leaving home, old or too young age, single-parent families, multi-child households, ethnicity, homelessness, indebtedness, ethnicity, social spending and many other factors (Dekkers, 2008; Rakoczyová & Mareš, 2005; Rochovská & Horňák, 2008; Bolečeková, 2013; Nándori, 2010; Spicker, 2010; Kallio & Niemelä, 2014; Michálek & Madajová, 2019). According to Dewilde (2004), income is one of the most important predictors

of poverty. In addition, attitudes to poverty-related issues vary depending on demographic data, socio-economic status, the country's development status, and social policy.

The economically developed world cannot escape poverty despite its basic living needs, especially food, clothing, and housing. From this point of view, poverty is always defined concerning the standard of a given society (Laca, 2011). Poverty can also be characterized by relative poverty (Spicker, 2010), based on the under-achieved percentage of the country's average income (Michálek et al., 2020), i.e., from the assessment of income to a particular average value, in the case of the Slovak Republic to the national poverty limit. Despite the positive economic results in Slovakia, regional disparities have been widening in recent years, mainly affecting economically weaker regions.

According to the EU SILC (n.d.), 16.4% of the population in Slovakia was at risk of poverty or social exclusion, representing 877,000 people in 2019. Regarding the total population, every sixth inhabitant of Slovakia is at risk of poverty (EU SILC, n.d.). 11.9% of the population of Slovakia, which represents 640,000 people, was below the risk of income poverty threshold. Objectively, poverty is best characterized by the at-risk-of-poverty rate. The most vulnerable group is the population affected by all three dimensions of poverty, which currently represents 2.4% of the population of Slovakia that should be given the most attention. In 2021, according to EU Silk (n.d.), compared to 2019, at-risk-of-poverty has increased by 0.4 points to 12.3%, very low work intensity has decreased by 0.9 points to 3.9%, severely materially deprived has decreased by 2.2% to 5.7%, and powerless or social exclusion has decreased by 0.8 points to 15.6%.

The intensity of poverty is also reflected in the differences between the city and the poorer countryside. According to Gerbery and Džambazovič (2017), two out of three towns in Slovakia characterized by the most significant urban poverty are located in the south of the Bánská Bystrica region – Modrý Kameň and Tisovec. The results of Gerbery and Djambazovic (2017) challenged the research design.

2. AIM AND HYPOTHESES

The paper focuses on the evaluation of selected indicators of poverty measurement in the districts of the region with the highest level of risk from the point of view of relevant experts in order to identify the extent, level, development, and depth of the poverty risk over two-time horizons in 2015, 2019 and 2021. To obtain the stated aim, two hypotheses were formulated:

H1: *Poverty intensity is reflected in urban-rural differences, and rural areas are assumed to be poorer in the Bánská Bystrica region.*

H2: *Poverty rates decrease, reflected in a decrease in disparities in poverty rates between districts of the Bánská Bystrica region.*

3. METHODS

In order to meet the set goal, the selection of indicators was made based on correlations to poverty. It was partly influenced by the availability of data (EU SILC, n.d.). From the geographical point of view, the selection of indicators was carried out for the statistical territorial units NUTS 4 – districts. The secondary data sources also included data from health statistics and the Plan of Economic and Social Development of the self-governing the Banská Bystrica region in 2015, 2019, and 2021.

A multi-criteria assessment was used to determine the poverty rate at the level of the Bánská Bystrica region districts, consisting of 3 steps:

1) selection of evaluation indicators based on set objectives and available data;

2) determination of values of selected indicators;

3) determination of partial values of the utility of individual indicators according to yield type, which Minár and Tremboš (1998) refer to as maximizing, Stankovičová (2010) as stimulants.

These are criteria in which the district's poverty increases as the value increases. The opposite is the second group of cost criteria (Tremboš, 1998)

or minimization criteria (Stankovičová, 2010; Křovák, 1981), the growth of which decreases their value (Nowak, 1990; Borys, 2000).

The result of the multi-criteria evaluation is highly dependent on the selected indicators and the determination of their weights. The size of the scales can also be influenced by the individual view of the evaluator – expert. Due to these limitations and the time aspect, eight experts – specialists in demogeography, regional development, spatial planning, tourism, environmental studies, economics, management, and marketing – were contacted, who evaluated each indicator in the range of 1-10 points. The evaluation criteria of three methods were used to determine the standardized weights:

1) scoring method (Metfessel allocation – "MA");

2) pairwise comparison method (Fuller method – "FM"); and

3) quantitative pairwise comparison method (Saaty method – "SM").

The resulting weight was created by averaging the sum of the standardized weights "n" of the evaluation criteria:

$$VV_n = \frac{MA_n + FM_n + SM_n}{3}. \qquad (1)$$

According to Hajdúchová (2015), the Metfessel allocation belongs to the group of direct scoring methods that uses a quantitative assessment of the importance of the criteria. It divides the total amount by 10 points between individual criteria according to the significance (Hajdúchová, 2015; Guhathakurta, 2013; Hanzl, 2020; Lizbetin, 2018). The principle of the Fuller method is to determine the number of preferences of a specific criterion over all other criteria. The form of writing in a square matrix is most often used. Saaty method is analogous to the pairwise comparison method. It consists in determining the number of preferences of a particular criterion for all other criteria. In the second step, the size of the preference is determined by a certain number of points from the selected scale (Tremboš & Minár, 1996; Boujelbene & Derbel, 2015; Rogalewicz & Juřičková, 2014; Siekelova et al., 2021). The elements of such a matrix are then arranged into individual pairs of criteria by estimating the proportion of weights. Subsequently, the average standardized weights of evaluation criteria (indices) for the economic, infrastructural, and socio-demographic dimensions were processed into the so-called indicator sheets, and a synthetic objective poverty rate (at-risk-of-poverty rate) calculated as the sum of the individual domains.

The development of poverty in the districts was determined by the year-on-year growth rate (Bartsch, 1987):

$$W = \left(\frac{\sqrt[n-1]{x_n}}{x_1} \right) \cdot 100 \left(v \ \% \right), \qquad (2)$$

where (n) is the number of years in the observed period, x_n – the last measured data in the observed period, x_1 – the first measured data in the observed period.

If the result of W is higher than 100, it is an increasing average growth rate; if W is less than 100, it is a decreasing average growth rate.

In order to assess whether or not objective poverty in the districts of the Bánská Bystrica region is deepening, the depth of inequalities between the districts was determined. Its identification was based on the methodology of Michálek and Podolák (2016), where in both years, the value of the least risky district was deducted from the value of the riskiest district. By subtracting the value for 2015 from the value for 2019, a change in the level of poverty was obtained.

Various economic developments have also affected the disparities in the at-risk-of-poverty rate of the regions of the Slovak Republic. Figure 1 shows that in terms of the risk of poverty, the regions of Eastern and Central Slovakia are above the average of the Slovak Republic (11.9% in 2019 and 12.3% in 2021, approximately 660,000 people). Gender disparity was most pronounced among all economic activity statuses in the categories of pensioners and unemployed. For pensioners, women were 1.7 times more likely to be at risk of poverty than men in 2021. In contrast, in the unemployed category – men (55.8%) were more at risk of poverty than women (48.7%). For a household of two adults
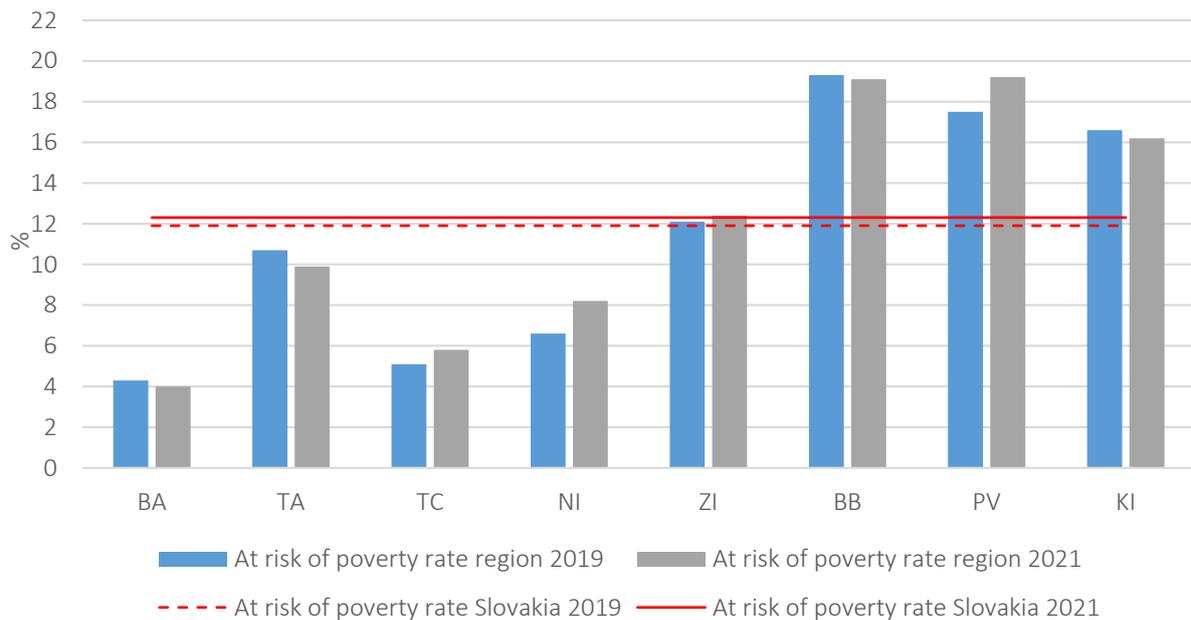
Note: Regions: BA – Bratislava, TA – Trnava, NI – Nitra, TC – Trenčín, ZI – Žilina, PV – Prešov, KI – Košice.

Figure 1. At-risk-of-poverty rate after social transfers, total and by regions, 2019 and 2021

with two children up to 14 years, the total annual value of the poverty risk threshold was €10,676, which for this type of household amounted to an average of €890 per month.

The most critical situation is in the Bánská Bystrica region, where 19.3% (2019) and 19.1% (2021) of the region's population were below the poverty line. With an area of 9,454 km², it is the largest self-governing region in Slovakia. With a population of 645,000 (68 inhabitants / km²), it is the third most populous region, located in the central part of the republic, consisting mainly of mountains and valleys. The region is administratively divided into 13 districts – Žarnovica (ZC), Žiar nad Hronom (ZH), Banská Štiavnica (BS), Krupina (KA), Zvolen (ZV), Veľký Krtíš (VK), Banská Bystrica (BB), Detva (DT), Lučenec (LC), Poltár (PT), Brezno (BR), Rimavská Sobota (RS), and Revúca (RA).

4. RESULTS AND DISCUSSION

To measure objective poverty, the indicators that are closely correlated with poverty and, by nature, were grouped into three basic domains (economic, socio-demographic, and infrastructural), which

created a synthetic picture of the risk of poverty in Bánská Bystrica region districts (Figure 2). The highest weight represents the indicator of "Registered long-term unemployment rate in %" (10.2%) from the dimension of economic indicators, and the lowest weight is the "Number of primary schools/1000 pupils" (1.2%) from the dimension of infrastructure indicators. The median value is 5.24%. 10 out of 19 indicators are above their limit.

The highest weight was achieved by the dimension of economic indicators from 10.2 (I. Registered long-term unemployment rate in %) to 2.06% (XIX. Number of registered cars per 1000 inhabitants), while the average group value is 6.68%.

Poverty is significantly affected by economic or financial crises and the current Covid-19 pandemic, which have strongly impacted the growth of unemployment. According to Crettaz (2011), even employment does not provide an opportunity to avoid poverty. Among the unemployed, it significantly affects the long-term unemployed. Districts with a high unemployment rate are characterized by the absence of a skilled workforce, low education, lack of jobs, and underdeveloped industry, which has a minimum amount of domestic and foreign capital and a low level of business activity.
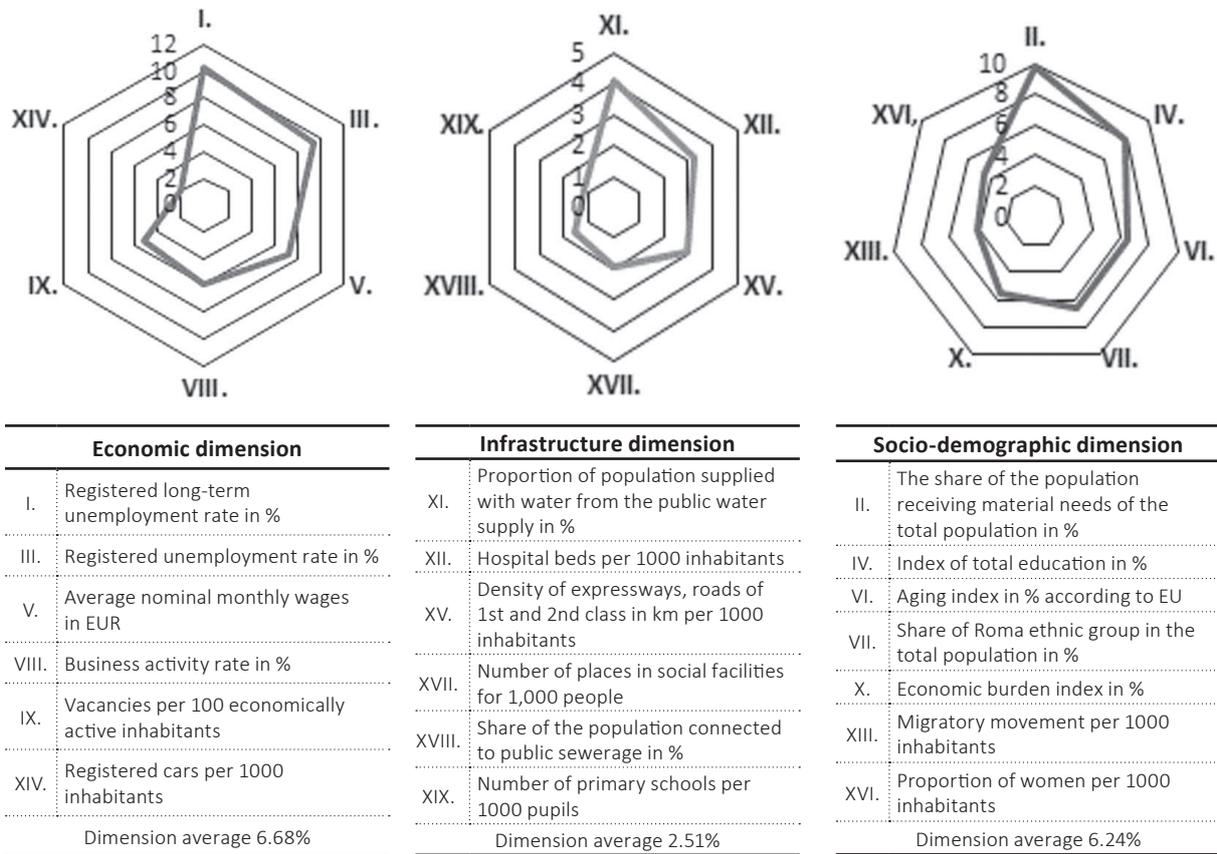
Economic dimension		Infrastructure dimension		Socio-demographic dimension	
I.	Registered long-term unemployment rate in %	XI.	Proportion of population supplied with water from the public water supply in %	II.	The share of the population receiving material needs of the total population in %
III.	Registered unemployment rate in %	XII.	Hospital beds per 1000 inhabitants	IV.	Index of total education in %
V.	Average nominal monthly wages in EUR	XV.	Density of expressways, roads of 1st and 2nd class in km per 1000 inhabitants	VI.	Aging index in % according to EU
VIII.	Business activity rate in %	XVII.	Number of places in social facilities for 1,000 people	VII.	Share of Roma ethnic group in the total population in %
IX.	Vacancies per 100 economically active inhabitants	XVIII.	Share of the population connected to public sewerage in %	X.	Economic burden index in %
XIV.	Registered cars per 1000 inhabitants	XIX.	Number of primary schools per 1000 pupils	XIII.	Migratory movement per 1000 inhabitants
				XVI.	Proportion of women per 1000 inhabitants
Dimension average 6.68%		Dimension average 2.51%		Dimension average 6.24%	

Figure 2. Indicator sheets of economic, infrastructural, socio-demographic dimensions

As can be seen from the maps of the individual dimensions of the at-risk-of-poverty rate in the Bánská Bystrica region, there are significant inequalities in space (Figure 3). The region under investigation belongs to the regions of Slovakia characterized by a combination of weak infrastructure, insufficient economic development, and other negative factors. It is gratifying that the at-risk-of-poverty rate expressed by the synthesis of 19 indicators has decreased in all districts. In 2019, the poverty level decreased by 2.61 points compared to 2015. Subsequently, the problem worsened again, and the poverty rate rose by 2.03 points to 23.2% in 2021 (Figure 3).

The most significant changes and a decrease in the at-risk-of-poverty rate occurred in three Banská Bystrica region districts (Žarnovica, Žiar nad Hronom, Banská Bystrica), which was mainly due to the significant growth rate of the economic dimension in these districts. The districts belong to the most economically developed districts of the region. Other districts recorded minimal but positive changes in the monitored horizons (Figure 4).

The Banská Bystrica region belongs to the regions of Slovakia characterized by a combination of weak infrastructure, insufficient economic development, and other negative factors. As the risk of poverty in the Banská Bystrica region has remained relatively high, it is necessary to pay increased attention to the economic and social policy of this region.

The results show fluctuations in poverty rates in the districts of the Banská Bystrica region. In 2015, the regional average poverty rate was 23.78% and ranged from 8.68% (Banská Bystrica district) to 38.05% (Rimavská Sobota district); in 2019, the procedure set the regional average at only 21.17%, while the poverty rate in the districts has decreased, but the ranking has not changed. The best situation was in the Banská Bystrica district (4.97%) and the worst again in the Rimavská Sobota district (38.05%). 2021 showed entirely different results. Unfortunately, the county average rose again by 2.03 points to 23.2%, attributed to the Covid-19 pandemic and its impact on the inhabitants' lives. In 2021, the best situation with the lowest poverty
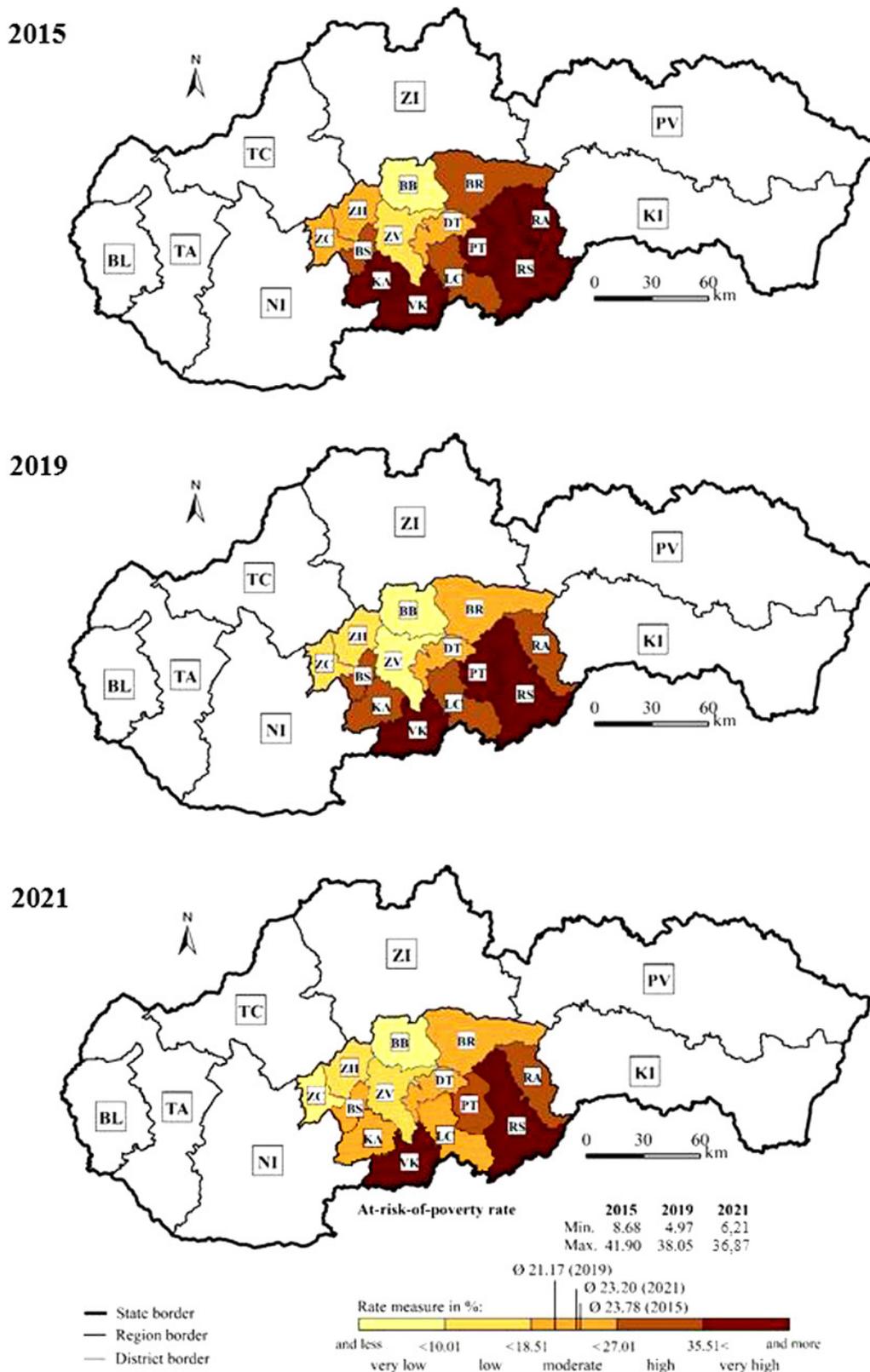
Note: Regions: BL – Bratislava, TA – Trnava, NI – Nitra, TC – Trenčín, ZI – Žilina, PV – Prešov, KI – Košice.

Figure 3. At-risk-of-poverty rate in the districts of the Banská Bystrica region in 2015, 2019 and 2021
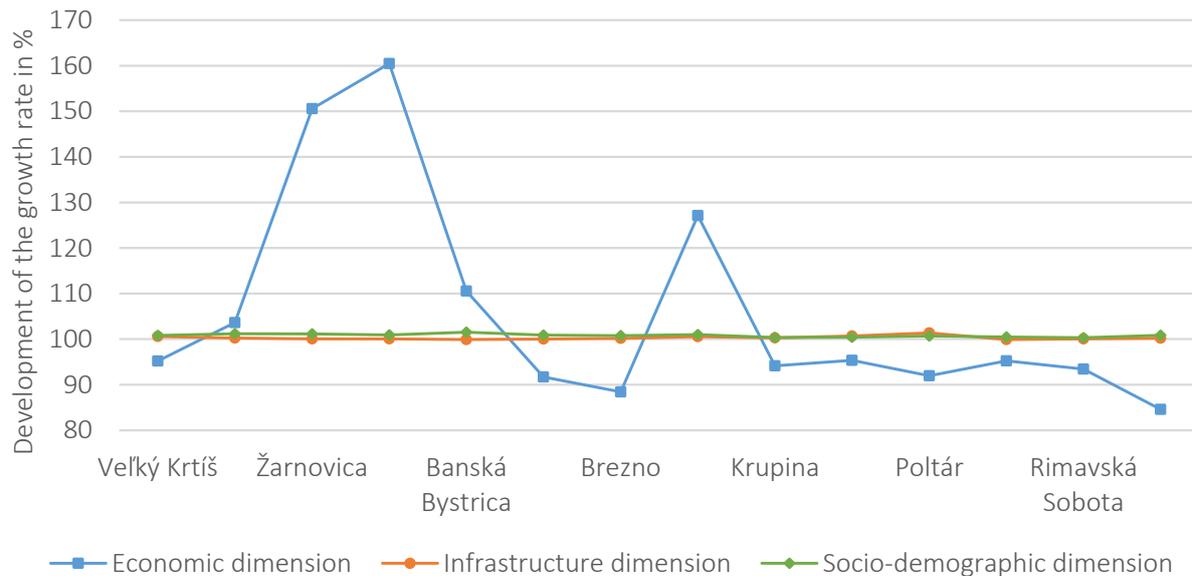
Figure 4. Development of the growth rate of the economic, infrastructural, and socio-demographic dimensions in the districts of the Banská Bystrica region in 2015 and 2021

rate was in the district of Zarnovica (6.21%); the district of Banská Bystrica took the second place with a result of 6.59%, which is a drop in the case of this district and also a regional city by up to 1.62 points. At the other end was the district of Veľký Krtíš, with a poverty rate of 36.87%, which was worse than the district of Rimavská Sobota, with a poverty rate in 2021 of 36.32%. Economic performance indicators have the most significant impact on poverty rates. On the contrary, socio-demographic profile and infrastructural amenities,

although substantial factors, did not gain such a significant impact in the short term (three years in the research).

It is recommended for future research to expand the number of economic performance indicators, which, based on the experience, have the most significant impact on the results of the objective poverty rate research and can even more strongly underlie the development scenarios of the objective poverty rate of the Slovak population.

CONCLUSION

The study aimed to conduct spatial identification of poverty rates at the district level in an attempt to quantify and visualize this complex social phenomenon for meaningful engagement with communities and policymakers. To effectively apply regional and social policy instruments to reduce poverty, it is necessary to identify poverty at a lower level: at the district level. The paper thus contributes to the growing debate on the inequality of living conditions and marginalization, especially in rural regions of Slovakia.

The territory of the studied region is one of the regions most affected by poverty in 2021, where 23.2% of the region's population is below the poverty limit (Slovak average 11.9%). In 2021, the Banská Bystrica region was characterized by low economic activity, which is reflected in the second-lowest employment and the second-highest unemployment rates, where up to 48.5% of the unemployed are under the age of 35. The marginal location, a weak level of the economy, high unemployment, unbuilt technical infrastructure, especially transport, the absence of a qualified workforce, the lack of interest of investors, lower quality of life, and others multiply the risk of poverty and classify Veľký Krtíš, Rimavská Sobota, Poltár, Lučenec, and Revúca districts as multiple

marginalized territories of Slovakia. According to research on regional disparities, unemployment, especially long-term unemployment (lasting more than 48 months), characteristic of this country and especially of the municipalities with a mixed ethnic population and the Roma population suffering from chronic poverty, has a dominant impact on poverty. The high proportion of the population receiving material deprivation also indicates the problematic economic situation in the region.

While globally, people experiencing poverty are concentrated in large cities, where they form typical neighborhoods (slums), in Slovakia, the population below the poverty line lives mostly in the countryside (*H1*).

The second hypothesis was not confirmed in 2019 because although the poverty rate in the Banská Bystrica region decreased by 2.61 points, regional disparities between districts increased. *H2* was confirmed in 2021 when the poverty rate determined by the procedure increased in the Banská Bystrica region from 21.17% to 23.2% between 2019 and 2021, and the disparities between districts also increased. The positive trend and the decline in the poverty rate in the first tracking period of 2015 to 2019 was due to sound economic development. However, this also stalled by 2021 due to the impact of the Covid-19 pandemic and was reflected in a renewed rise in the poverty rate in the Banská Bystrica region to 23.2% between 2019 and 2021.

The Banská Bystrica region belongs to the regions of Slovakia characterized by a combination of weak infrastructure, insufficient economic development, and other negative factors. As the risk of poverty in the Banská Bystrica region has not significantly improved, it is necessary to pay increased attention to the economic and social policy of this region.

AUTHOR CONTRIBUTIONS

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Project administration: Miroslava Trembošová.
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Supervision: Miroslava Trembošová, Jan Kramoliš.
Validation: Miroslava Trembošová, Jan Kramoliš.
Visualization: Miroslava Trembošová, Jan Kramoliš.
Writing – original draft: Miroslava Trembošová, Ľudmila Nagyová, Janka Beresecká, Alena Dubcová.
Writing – review & editing: Miroslava Trembošová, Jan Kramoliš, Ľudmila Nagyová.

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REFERENCES

1. Bartsch, H. J. (1987). *Matematické vzorce*. Praha: SNTL. (In Czech).

2. Beyers, J. (2014). The effect of religion on poverty. *HTS Theological Studies, 70*(1), 1-8. http://dx.doi.org/10.4102/hts.v70i1.2614

3. Bolečeková, M. (2013). *Chudoba a nástroje boja proti chudobe. Rozvojové vzdelávanie témy a metódy*. Bratislava: Nadácia Pontis. (In Slovak).

4. Borys, T. (2000). *Wezlowe problemy statystyki transgranicznej*. Wroclaw: AE we Wroclawiu. (In Polish).

5. Boujelbene, Y., & Derbel, A. (2015). The performance analysis of public transport operators in Tunisia using AHP method. *Procedia Computer Science, 73,* 498-508. https://doi.org/10.1016/j.procs.2015.12.039

6. Cobbinah, P. B., Black, R., & Thwaites, R. (2013). Dynamics of poverty in developing countries: Review of poverty reduction approaches. *Journal of Sustainable Development, 6*(9), 25-35. https://doi.org/10.5539/jsd.v6n9p25

7. Crettaz, E. (2011). *Fighting working poverty in post-industrial economies*. Cheltenham: Edward Elgar Publishing Limited.

8. Dekkers, G. J. M. (2008). Are you unhappy? Then you are poor! Multidimensional poverty in Belgium. *The International Journal of Sociology and Social Policy, 28*(11/12), 502-515. http://dx.doi.org/10.1108/01443330810915215

9. Dewilde, C. (2004). The multidimensional measurement of poverty in Belgium and Britain: A categorical approach. *Social Indicators Research, 68*(3), 331-369. https://doi.org/10.1023/B:SOCI.0000033578.81639.89

10. Domfeh, K. A., & Bawole, J. N. (2009). Localising and sustaining poverty reduction: Experiences from Ghana. *Management of Environmental Quality, 20*(5), 490-505. https://doi.org/10.1108/14777830910981186

11. EU SILC. (n.d.). *European Union statistics on income and living*. Retrieved October 9, 2022, from https://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions

12. European Parliament. (2020). *Boj proti chudobe, sociálnemu vylúčeniu a diskriminácii [The fight against poverty, social exclusion and discrimination]*. (In Slovak). Retrieved October 9, 2022, from https://www.europarl.europa.eu/factsheets/sk/sheet/60/boj-proti-chudobe-socialnemu-vyluceniu-a-diskriminacii

13. Eurostat. (2020, October 16). *Over 20% of EU population at risk of poverty or social exclusion in 2019*. Retrieved October 9, 2022, from https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20201016-2

14. Eurostat. (2021, October 15). *One in five people in the EU at risk of poverty or social exclusion*. Retrieved October 9, 2022, from https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20211015-1

15. Eurostat. (n.d.). *At-risk-of-poverty thresholds – EU-SILC and ECHP surveys*. Retrieved October 9, 2022, from https://ec.europa.eu/eurostat/databrowser/view/ILC_LI01/default/table

16. Gerbery, D., & Džambazovič, R. (2017). Urbánna chudoba na Slovensku [Urban poverty in Slovakia]. *Geografický Časopis – Geographical Journal, 69*(3), 263-280. (In Slovak). Retrieved from https://www.sav.sk/?lang=en&doc=journal-list&part=article_response_page&journal_article_no=14179

17. Guhathakurta, S. (2013). *Integrated land use and environmental models: A survey of current applications and research*. Chamonix: Springer Science & Business Media.

18. Gwariro, S., Haruzivishe, C., Kasu, Ch., Mhlanga, M., Dzimiri, T., Ncube, F., Ncube, B., Kanyaruma, D., Longwe, R., Musvipa, M., Njanje, A., Chihava, I., Dube, A., Chimbetete, S., Sibindi, T., Munangaidzwa, S., Dzvinyayi, E., & Ndaimani, A. (2017). Poverty: What is it and what is it not? A concept analysis. *International Journal of Health Sciences and Research, 7*(5), 346-353. Retrieved from https://www.ijhsr.org/IJHSR_Vol.7_Issue.5_May2017/51.pdf

19. Hajdúchová, S. (2015). Rozhodovací proces v modeli hodnotenia nákladov zariadenia staveniska [Decision making process for cost assessment model of the construction equipment]. *Mladá Veda – Young Science, 3*(2), 72-81. (In Slovak). Retrieved from https://www.academia.edu/31083869/DECISION_MAKING_PROCESS_FOR_COST_ASSESSMENT_MODEL_OF_THE_CONSTRUCTION_EQUIPMENT_ROZHODOVAC%C3%8D_PROCES_V_MODELI_HODNOTENIA_N%C3%81KLADOV_ZARIADENIA_STAVENISKA

20. Hanzl, J. (2020). General application of multiple criteria decision making methods for finding the optimal solution in city logistics. *Open Engineering, 10*(1), 147-153. https://doi.org/10.1515/eng-2020-0023

21. Inštitút Zamestnanosti (Employment Institute). (n.d.). *Least developed regions*. Retrieved October 9, 2022, from https://www.iz.sk/en/project/least-developed-region

22. Jenčová, S., & Litavcová, E. (2015). Analytický pohľad na chudobu Slovenska [Analytical view on poverty in Slovakia]. *Finančné Trhy, 4*(1). (In Slovak). Retrieved from https://www.derivat.sk/files/2015_financne_trhy/Dec_2015_FT_Jencova_Litavcova.pdf

23. Kallio, J., & Niemelä, M. (2014). Who blames the poor? *European Societies, 16*(1), 112-135. http://dx.doi.org/10.1080/14616696.2013.787435

24. Knowles, J. C. (2000). A look at poverty in the developing

countries of Asia. *Asia-Pacific Population and Policy, 52,* 1-4. Retrieved from http://hdl.handle.net/10125/3900

25. Křovák, J. (1981). Možnosti víceaspektního hodnocení podniků. *Statistika, 6,* 264-282. (In Czech).

26. Labudová, V., Vojtková, M., & Linda, B. (2010). Aplikácia viacrozmerných metód pri meraní chudoby [Application of multidimensional methods to measure poverty]. *E+M. Ekonomie a Management – Economics and Management, 1,* 6-22. Retrieved from http://hdl.handle.net/11025/17316

27. Laca, S. (2011). Súčasne aspekty chudoby v Slovenskej spoločnosti [Actual aspects of poverty in a Slovak society]. *Prohuman.* (In Slovak). Retrieved from https://www.prohuman.sk/socialna-praca/sucasne-aspekty-chudoby-v-slovenskej-spolocnosti

28. Lehning, A., Vu, C. M., & Pintak, I. (2007). Theories of poverty. *Journal of Human Behavior in the Social Environment, 16*(1-2), 5-19. https://doi.org/10.1300/J137v16n01_02

29. Lizbetin, J. (2018). Decision-making processes in introducing RFID technology in manufacturing company. *Naše More, 65*(4), 289-292. https://doi.org/10.17818/NM/2018/4SI.23

30. Michálek, A., & Madajová, M. S. (2019). Identifying regional poverty types in Slovakia. *GeoJournal, 84,* 85-99. https://doi.org/10.1007/s10708-018-9852-9

31. Michálek, A., & Podolák, P. (2016). *Regióny chudoby na Slovensku.* Bratislava: Geografický ústav SAV. (In Slovak).

32. Michálek, A., Podolák, P., Výbošťok, J., & Bilková, K. (2020). *Príjmové nerovnosti a ich prejavy v regiónoch Slovenska.* Bratislava: Geografický ústav SAV. (In Slovak).

33. Minár, J., & Tremboš, P. (1998). Porovnanie jednotlivých variantov diaľnice D2 Bratislava a výber optimálneho variantu. *Geographical Spectrum, 1,* 113-117. (In Slovak).

34. Minnitti, M. (2013). *The dynamics of entrepreneurship: Evidence from global entrepreneurship monitor data.* Oxford: Oxford University Press.

35. Misturelli, F., & Heffernan, C. (2008). What is poverty? A diachronic exploration of the discourse on poverty from the 1970s to the 2000s. *The European Journal of Development Research, 20*(4), 666-684. https://doi.org/10.1080/09578810802464888

36. Nándori, E. S. (2011). Subjective poverty and its relation to objective poverty concepts in Hungary. *Social Indicators Research, 102*(3), 537-556. https://doi.org/10.1007/s11205-010-9743-z

37. Nándori, E. S. (2021a). Evolution of the interpretation of poverty in Hungary between 2007 and 2019. *Corvinus Journal of Sociology and Social Policy, 12*(2), 23-45. https://doi.org/10.14267/cjssp.2021.2.2

38. Nandori, E. S. (2021b). Perception of the reasons for living in poverty in Hungary. *Hungarian Studies, 35*(1), 80-86. https://doi.org/10.1556/044.2021.00156

39. Nandori, E. S. (2021c). Individualism or structuralism-differences in the public perception of poverty between the United States and East-Central Europe. *Journal of Poverty, 26*(4), 337-359. https://doi.org/10.1080/10875549.2021.1910892

40. Narayan, D., Patel, R., Schafft, K., Rademacher, A., & Koch-Schulte, S. (2000). *Voices of the poor: Can anyone hear us?* Oxford: The World Bank and Oxford University Press. Retrieved from http://www.rrojasdatabank.info/voices/vol1.pdf

41. Niemietz, K. (2010). Measuring poverty: Context-specific but not relative. *Journal of Public Policy, 30*(3), 241-262. https://doi.org/10.1017/s0143814x10000103

42. Noble, M., Ratcliffe, A., & Wright, G. (2004). *Conceptualizing, defining and measuring poverty in South Africa: An argument for a consensual approach.* Retrieved October 9, 2022, from https://www.saspri.org/SASPRI/SASPRI/wp-content/uploads/Docs/CASA-SP_Working_Paper_3.pdf

43. Nowak, E. (1990). *Metody taksonomiczne w klasifikacji obiektów społeczno- gospodarczych.* Warszawa: PWE Warszawa. (In Polish).

44. Nyasulu, G. (2010). Revisiting the definition of poverty. *Journal of Sustainable Development in Africa, 12*(7), 147-158. Retrieved from https://jsd-africa.com/Jsda/V12No7_Winter2010_A/PDF/Revisiting%20the%20Definition%20of%20Poverty.pdf

45. Rakoczyová, M., & Mareš, P. (2005). *Social exclusion and poverty in the Czech Republic in comparison with EU countries, the direction of Czech social policy with emphasis on the Lisbon Strategy agenda.*

46. Rochovská, A., & Horňák, M. (2008). Chudoba a jej percepcia v marginálnych regiónoch Slovenska. *Geographia Cassoviensis, 2*(1), 152-156. (In Slovak). Retrieved from https://uge-share.science.upjs.sk/web-shared/GCass_web_files/articles/GC-2008-2-1/Rochovska_Hornak.pdf

47. Rogalewicz, V., & Juřičková, I. (2014). Multiple-criteria decision making: Application to medical devices. *Proceedings 2nd International Work-Conference on Bioinformatics and Biomedical Engineering* (pp. 1359-1372).

48. Sen, A. (1999). *Development as freedom.* New York: Knopf.

49. Sharp, A., Grimes, P. W., & Register, C. A. (2009). *Economics of social issues.* New York: McGraw-Hill/Irwin Education.

50. Siekelova, A., Podhorska, I., & Imppola, J. (2021). Analytic hierarchy process in multiple-criteria decision-making: A model example. *SHS Web of Conferences, 90,* 1-10. https://doi.org/10.1051/shsconf/20219001019

51. Singer, A. E. (2006). Business strategy and poverty alleviation. *Journal of Business Ethics, 66*(2-3), 225-231. https://doi.org/10.1007/s10551-005-5587-x

52. Spicker, P. (2010). *Definitions of poverty: Twelve clusters of meaning.* Retrieved October 9, 2022, from http://rszarf.ips.uw.edu.pl/welfare-state/spicker.pdf

53. Stankovičová, I. (2010). Regionálne aspekty monetárnej chudoby na Slovensku. In I. Pauhofová, O. Hudec, & T. Želinský (Eds.), *Sociálny kapitál, ľudský kapitál a chudoba v regiónoch Slovenska: Zborník statí* (pp. 67-75). Košice: Ekonomická fakulta TUKE. (In Slovak). Retrieved from http://www.ekf-old.tuke.sk/files/Zbornik_Herlany_el_verzia.pdf

54. Todaro, P. M., & Smith, S. C. (2006). *Economic development* (9th ed.). Washington D.C.: Pearson Education, Harlow.

55. Tremboš, P. (1998). Multikriteriálne hodnotenie ako metóda optimalizácie socioekonomických aktivít – Niektoré metódy stanovenia váh kritérií. In Z. Izakovičová, M. Kozová, & E. Pauditšová (Eds.), *Implementácia trvalo udržateľného rozvoja*. Smolenice: SAV. (In Slovak).

56. Tremboš, P., & Minár, J. (1996). Využitie metódy multikriteriálneho hodnotenia v procese posudzovania vplyvov na životné prostredie. *Acta Facultatis Rerum Naturalium Universitatis Commenianae, Geographica, 39,* 145-156. (In Slovak).

57. World Bank. (2018). *Poverty and shared prosperity 2018. Piecing together the poverty puzzle.* Retrieved October 9, 2022, from https://www.worldbank.org/en/publication/poverty-and-shared-prosperity-2018

58. World Bank. (2020). *Poverty and shared prosperity 2020: Reversals of fortune.* Retrieved October 9, 2022, from https://openknowledge.worldbank.org/handle/10986/34496