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Quality of Life in Commuting Zones in Slovakia in the Context of Local and Regional Development

*Mária Murray Svidroňová¹,
Radoslav Kožiak², Jolana Gubalová³*

Abstract:

The main concepts of indicators to measure the targets under SDG11 are presented. A long-term vision for the EU's rural areas up to 2040 and the United Nations 2030 Agenda for Sustainable Development stand out, providing a solid basis for understanding the context of this research. The objective of this study is to investigate the quality of life in commuter zones to propose and to test indicators and measures to support positive economic, social and environmental links between urban, peri-urban and rural areas under Sustainable Development Goal (SDG) 11. The methodology adopted for this research comprises statistical analysis of selected indicators on quality of life in commuter zones in Slovakia. Data were collected from the Supreme Audit Office of the Slovak Republic. The results revealed the importance of selected factors on the quality of life in commuter zones. The theoretical implications of this research point out the importance of indicators measuring the quality of life. The results can be applied in regional governance, policy, and planning by using quantifiable indicators that would measure the economic, social, and environmental goals set in action plans and other documents related to sustainable development under SDG11. This study contributes to the literature by proposing which indicators could be used to measure the targets under SDG11.

1 Matej Bel University, Banská Bystrica, Slovakia.

2 College of Polytechnics Jihlava, Czech Republic; Matej Bel University, Banská Bystrica, Slovakia.

3 Matej Bel University, Banská Bystrica, Slovakia.

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1. Introduction

Around the world, cities have grown to mega-proportions, with currently 548 cities having a population of over 1 million (UN, 2018). The pre-COVID global development pointed to a continuation of this trend towards mass agglomeration, with the estimated 55% of the world's population currently living in an urban settlement increasing to 68% by 2050 (UN, 2020). This urbanization trend has brought increasing socio-spatial and environmental inequalities around the world. To deal with this challenge, the United Nations proposed Agenda for Sustainable Development (UN, 2019), namely 17 Sustainable Development Goals (SDGs) that should serve as guidelines for peace and prosperity for people and the planet. In the context of urbanization, SDG 11 calls for sustainable cities and communities.

SDG11 is operationalized through distinct targets, each paired with one or more indicators to monitor progress in its achievement. When it comes to target 11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning, only one indicator has been identified: The amount of countries that have national urban policies or regional development plans that (a) respond to population dynamics; (b) ensure balanced territorial development; and (c) increase local fiscal space. Such an indicator seems to be insufficient to grasp the complexity of national and regional governance, policy and planning or the heterogeneity of programs, instruments and mechanisms that are implemented in different institutional contexts to address the economic, social and environmental challenges raised by urbanization (Berisha et al., 2022).

Based on the analysis of quality of life and financial indicators in commuter zones that can be defined as rural areas in Slovakia, we propose a list of indicators that could be used to measure the SDG11 target 11a. By doing so, we add to the knowledge on understanding, quantifying, and implementing the transformations needed to achieve SDG11.

2. Theoretical framework

Quality of life is closely linked to the implementation of public policies. Development activities and the performance of public administration itself are conditioned by the legal framework, tax policy and legislative and regulatory instruments of a given country or territory, as it is essential to ensure transparency, accountability, and coordination between public, private, and civic actors (Dušek, 2010; Juruš & Brizga, 2017). Municipalities in a given country thus operate in a uniform institutional and

organizational environment while experiencing different environmental, demographic, and socioeconomic potentials. To foster local and regional development, municipalities should provide quality cultural facilities, and encourage the development of social networks and institutional arrangements to attract skilled and creative people (Benčina et al., 2021). A prerequisite for local and regional development is the existence of institutional instruments in the form of cooperation between different levels of public administration and related institutions, whose aim is to ensure the implementation of public policies, project preparation and the use of funds (Landabaso, 2012; Martinez-Vazquez & Vaillancourt, 2008; Wong, 1998).

Pike et al (2016) define local and regional development as a coordinated set of public policies, strategies, and instruments that serve to improve the development of individual territories, minimize regional disparities, raise living standards, and promote economic competitiveness (Torre & Wallet, 2016). Local and regional development is based on several factors that influence a given territory and the quality of life therein (Capello, 2011; Szajnowska-Wysocka, 2009; Ascani et al., 2012). One factor is the economic potential of the area in terms of the existence of local businesses, employment rates, and the level of support for innovation. The quality of public services in education and healthcare is closely linked to another factor, namely the availability of transport, technical, and digital infrastructure. Last but not least, participation in the form of active involvement of civil society and local government is an important factor, with the efficient use of public policies and their support instruments through various national programs, PPP (public-private partnership) projects, and European Union funds playing a key role.

Antonescu (2014), Fratesi and Perucca (2019) and Miškovičová (2005) consider the Long-Term Vision for the European Union's Rural Areas, presented by the European Commission in 2021 as a strategic document aimed at transforming rural areas into stronger, more resilient, more connected and more prosperous areas by 2040 (Fratesi & Perucca, 2019). This document reflects current challenges such as an aging population, migration to cities and abroad, inadequate infrastructure, and climate change, which fundamentally determine the standard of living and economic sustainability of rural areas (Gavigan & Scapolo, 2001).

The vision is based on four main pillars, which can be derived from the goal itself, namely stronger rural areas, more connected rural areas, more resilient rural areas, and prosperous rural areas (Borma, 2014). From the perspective of the Slovak Republic, this vision is justified, as almost half of the population lives in rural areas, with most Slovak municipalities struggling with inadequate transport infrastructure, insufficient digitization, and an outflow of young people (Miškovičová, 2005).

The above shows that there are various strategies, policies, and tools for local and regional development with an emphasis on improving the quality of life. At the same time, however, it should be emphasized that there is a lack of methodologies and tools to measure the implementation of these strategies and plans, or they are only very

vaguely defined. When it comes to Target 11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning, only one indicator has been identified. Such an indicator seems to be insufficient to grasp the complexity of national and regional governance, policy and planning or the heterogeneity of programs, instruments and mechanisms that are implemented in different institutional contexts to address the economic, social and environmental challenges raised by urbanization (Berisha et al., 2022).

The article, therefore, identifies possible indicators for assessing quality of life in the context of local and regional development using the example of Slovak commuting zones. By analyzing selected indicators, it highlights their importance and impact on the quality of life in regions.

2.1 Local and regional development in commuting areas

Currently, the dynamics of local and regional development and quality of life are increasingly addressed in the development of urban hinterlands, i.e., in the development of commuter zones, suburban areas, and satellite towns (Capello, 2011; Szajnowska-Wysocka, 2009). Commuter zones are on the rise in municipal planning and development research, being neither urban nor rural (Mazúrová et al., 2021; Cole et al., 2025). Sopiřová (2014) considers commuter zones to be areas that are visibly separated from the central city but are functionally connected to the city in terms of commuting to work, school, culture, and other services.

Several authors (Antonescu, 2014; Gavigan & Scapolo, 2001; Lee, 2024) consider the development of commuter zones, suburban areas, and satellite towns as a two-dimensional phenomenon, where we can talk about opportunities in terms of economic growth, improving quality of life and diversifying the functions of a given area. However, it is also necessary to point out the emerging pressure on transport and technical infrastructure, the environment and overall public services. Therefore, public policy must ensure coordinated planning between the city and its hinterland, i.e., the development of individual zones should not be isolated but rather linked to broader regional policy, particularly in the form of long-term strategic planning (Gavigan & Scapolo, 2001; Iammarino et al., 2017).

Within the EU countries, including the member states of Central and Eastern Europe (CEE), there are several studies and analyses dealing with issues of quality of life at the level of municipalities. One of them is the "Report on the quality of life in European cities, 2023" analyzing selected cities in CEE. A primary research is focused on assessing the quality of life in selected cities from the perspective of various aspects, e.g. satisfaction with life in the city, suitability of life in the city for elderly people, for families with children, feeling of safety when moving around the city, satisfaction with work and housing in the city, transport in the city, culture and healthcare, local public administration (De Dominicis et al., 2023).

The European Commission, in cooperation with EUROSTAT, regularly processes the “Urban Audit” study. The survey conducted in June 2015 measured the local perceptions of quality of life in 79 cities. It includes cities in the Member States of the EU and cities in Iceland, Norway, Switzerland and Turkey. It concerns the following areas: employment, environment, housing, transport, culture, city services and immigration. Eurostat has three collections which provide a selection of key indicators for European cities:

The first collection shows all the individual cities with an urban center of at least 50 000 inhabitants. This collection also provides data for the city and its commuting zone, which is called the functional urban area. It provides indicators on population, employment, education, transport and the environment.

The second collection uses NUTS-3 regional data to create indicators for individual metro regions. Each metro region represents a functional urban area with at least 250,000 inhabitants. This collection provides data on demography, GDP, employment and patents among others.

The third collection provides indicators per country for all its cities combined. It also provides data for ‘towns and suburbs’ and ‘rural areas’. This collection has grown substantially over the past years and now has over 100 indicators in the database covering indicators on employment, education, poverty and ICT use by households (EC, EUROSTAT, 2015).

The European Foundation for the Improvement of Living and Working Conditions (Eurofound) processes and publishes (2003, 2007, 2012, 2016, in preparation for 2026) European Quality of Life Surveys (EQLS). The EQLS is a representative, questionnaire-based interview survey that covers the adult population (18+ years). The EQLS covers life domains that correspond to a wide range of policy areas and programs carried out by European institutions. Many of those policies address a range of issues affecting quality of life, quality of society and quality of public services. These include employment, income, education, housing, family, health and work-life balance. The survey also looks at subjective topics, such as people’s levels of happiness, how satisfied they are with their lives and how they perceive the quality of their societies and public services (Eurofound, 2016).

In the Czech Republic, the issue of regional inequality in the quality of life at the municipal level is being addressed by Daniel Prokop - coordinator of the Aspen Institute CE expert group. Its aim is to consider as many quality-of-life indicators as possible and their different importance and to examine the relationship to political dissatisfaction. The study works with data in areas such as unemployment, safety, dependence on industry, availability of various types of educational institutions, availability of health facilities, availability of the Internet, demographic characteristics, percentage of religious affiliation (Prokop, 2018).

Another study discusses two issues - standard of living and quality of life in Polish cities. The main aim of this work is to identify where, on the map of Poland, cities are

more and where they are less “friendly” to social issues. Subject to analysis were the following aspects: housing, income, work, community, education, environment, civil society, health, satisfaction with life, and security (Włodarczyk, 2015).

In our research we focus on Slovakia that is predominantly a rural country. This is proven by several analyses and studies, e.g., World Bank (2025), World Bank (2023), Sloboda (2006).

The municipalities that can be considered as commuter zones are defined by their distance to the urban centers, i.e., bigger towns (population 50k+). We focused on commuter zones that fall within 10 km of an urban center. This range extends to 15 km if a divided highway connects it to the urban center. The research sample consists of 152 municipalities, grouped within the regions (Table 1).

Table 1:
Commuter zones in Slovakia

Region	Municipality		Region	Municipality		Region	Municipality	Region	Municipality	
Bratislava (BA)	Dunajská Lužná	Dubová pri Modre	Žilina (ZA)	Dolná Tižina	Snežnica	Banská Bystrica (BB)	Zvolenská Slatina	Tnava (TT)	Zavar	Hviezdoslavov
	Gajary	Častá		Belá pri Martine	Košany n Turcom		Budča		Trakovice	Vlčkovce
	Budmerice	Senec		Horný Vadičov	Vrútky		Poniky		Jelka	Bohdanovce n TT
	Jablonové	Jakubov		Strečno	Bystrička		Selce pri BB		Biely Kostol	Špačince
	Veľký Biel	Pezinok 1		Gbeľany pri ZA	Teplička nVáhom		Silač		Maľženice	Suchá nad Parnou
	Dofany pri Castej	Pernek pri Malackách		Rudina	Dražkovce pri MT		Slovenská Ľupča		Suchá nad Parnou	Križovany nad Dudváhom
	Nová Dedinka	Kuchyňa		Divina	Rosina		Dobrá Niva		Dolná Krupá	
	Rovinka	Čataj		Rajecké Teplice	Višňové pri ZA		Harmanec		Štrvrtok na Ostrove	Hrnciarovce nad Parnou
	Tomášov	Štupava		Radofa	Turany nVáhom		Staré Hory		Šúrovice	
	Šenkvice	Ivanka pri Dunaji		Sučany	Dlhé Pole		Vlkanová		Bučany	Dolné Orešany
	Kráľová pri SC	Most pri Bratislave		Dolný Hričov	Lietava		Lieskovec		Dolné Orešany	
	Kostolište	Modra 1		Strážavy	Turie		Kováčová pri ZV		Majcichov	Zeleneč pri Trnave
	Hamuliakovo	Viničné pri Pezinku		Kotešová	Príbovce		Tajov		Zeleneč pri Trnave	
	Svätý Jur	Malinovo		Lietavská Lúčka	Žabokreky		Badín		Brestovany	
Region	Municipality		Region	Municipality		Region	Municipality	Region	Municipality	
Košice (KE)	Bohdanovce p KE	Družstevná p. Hornáde	Nitra (NR)	Lužianky	Veľké Zálužie	Trenčín (TN)	Dolná Súča	Prešov (PO)	Žehňa	Petrovany
	Letanovce	Nižná Myšľa		Alekšince	Jelšovce		Trenč. Teplice		Šariš. Bohdanovce	Bzenov
	Veľká Ida	Valaliky		Čechynce	Veľký Lapáš		Skalka nad Váhom		Spišský Štiavnik	Bajerov
	Hrabušice	Čaňa		Zbehy	Nitr. Hrnčiarovce		Trenč. Teplá		Vikartovce	Fintice
	Bidovce	Haniska pri KE		Ivanka pri NR	Podhorany pri NR		Soblahov		Jánovce pri PO	Veľký Šariš
	Ruskov	Šemša		Pohranice	Jarok		Trenč. Stankovce		Hranovnica	Matejovce
	Košická Belá	Rozhanovce		Kolíňany	Golianovo		Drietoma		Kendice	Batizovce
	Malá Ida	Budimír		Cabaj-Čápor			Trenčianska Turná		Kapušany pri PO	Hôrka pri Poprade
	Kráľovce pri KE	Sady nad Torysou		Lehota pri NR			Chocholná-Velčice		Spišská Bystré	Teplica

Source: Authors’ own, 2026

3. Methodology

The indicators for analysis are derived from the methodology of the Supreme Audit Office of the Slovak Republic (SAO SR). Among other things, the SAO SR also audits local governments. From an administrative and territorial point of view, the territory of the Slovak Republic is divided into eight regions, which are further divided into 79 districts and 2,927 municipalities, including 141 towns, 39 city districts, and three military districts. The SAO SR selects indicators for assessing quality of life based on whether the data is of high quality, reliable and available at the municipal level. The indicators are then processed into an interactive map (<http://mumap.nkusr.sk/>), and an overview of the indicators monitored is provided in Table 2.

Table 2:

Indicators for assessing quality of life according to the SAO SR

Indicator	Measurement
Demographics: change in population in 2023 compared to 2011	Index of population change (%)
Economic activity: average share of available job seekers in the working-age population in 2023	Unemployment (%)
Healthcare	Distance to the nearest hospital (km)
Education	Kindergarten capacity in 2023, distance to the nearest primary school (km), distance to the nearest secondary school (km)
Security	Number of crimes per 1,000 inhabitants
Environment	Average degree of extreme weather risk, distance from landfill (km)
Interest in public affairs	Participation in local elections in 2022 (%)
Social care	Distance to the nearest social facility for older people (km)
Culture	Number of leisure and recreational facilities for children and young people, number of libraries, number of theaters, number of cinemas, number of museums and galleries

Source: Authors’ own adapted from the SAO SR, 2024

The indicators have equal weight so that users can choose from the areas offered those that they subjectively consider important for assessing the quality of life. The resulting score for municipalities, therefore, varies depending on the areas selected by the user. Points for individual indicators and areas are averaged. Municipalities with the best indicator values and the highest number of points are considered to be of high quality for living.

3.1 Scoring methodology

According to the SAO SR, in the first step, the unique values of the indicator are ranked from best to worst based on the optimal direction, e.g., a lower unemployment rate is better, while a greater distance from a landfill is preferred. A score is calculated for each indicator. An entire area can receive 3,000 points, which are distributed evenly among its indicators. If, for example, an area is represented by three indicators, each of which has a fund of 1,000 points. The maximum number of points for an indicator is divided by the number of unique values of the indicator. The highest possible number of points is then assigned to the best indicator value, and the points for the other values are calculated according to the following procedure:

1. town = x_1
2. town = $x_2 = x_1 - \text{step}$
-
- n. town = $x_n = x_{(n-1)} - \text{step}$

After evaluating the indicators, the next step is to evaluate the areas. If an area represents multiple indicators, their scores are combined. If all indicators are improving in the same direction (i.e., for all of them, the lower the value, the better, and vice versa), the indicator scores are added together to produce a score for the area. However, if there is a combination of indicators of different types (i.e., for some, the lower the value, the better, and for others, the higher the value, the better), we proceed as follows: We add up the indicator points and then rank the unique indicator scores from highest to lowest and, as in point 2, calculate the score for the entire area (max. 3,000).

The final step of the calculation based on SAO SR consists of compiling a ranking – a higher average score for selected areas means a better position in the ranking of municipalities.

For greater objectivity, we have arranged the proposed quality of life indicators in descending order of importance and assigned weights to them. Given that some indicators unjustifiably favor larger settlements, we decided to modify them. The above concerns indicator No. 6: Kindergarten capacity, which we changed to Kindergarten, and points are awarded for the mere existence of a kindergarten in the settlement, regardless of its capacity. Similarly, indicator No. 12, Number of libraries, has been changed to Library, and points are awarded for the existence of this facility in the settlement, regardless of its number. The same applies to Cultural facilities and Leisure facilities for children. We have also decided not to award points for the indicator Number of primary schools (in the municipality). We assume that if the value of indicator No. 7: Distance to a primary school is zero, this indicates the presence of this facility in the municipality, and it is awarded the maximum number of points according to the specified weighting. Our proposed procedure for assessing quality of life is as follows:

Normalization of values:

- Positive indicators: + (higher is better) $\rightarrow \text{score} = \text{value}/\text{max}$
- Negative indicators: – (lower is better) $\rightarrow \text{score} = 1 - \text{value}/\text{max}$

– Weighted score = score x weight.

The resulting indicator value is the sum of the weighted scores from all indicators (the quality of life in a given settlement depends on the resulting indicator value). The adjusted indicators and assigned weights are summarized in Table 3.

Table 3:

List of quality of life indicators with assigned weights

No	Indicator	Max	Weight (%)	Character (+/-)
1	Index of population change	150	13	+
2	Unemployment (%)	15	12	-
3	Weather risk	10	12	-
4	Voter turnout (%)	80	12	+
5	Distance to a hospital (km)	25	10	-
6	Distance to a primary school (km)	5	7	-
7	Crimes per 1,000 inhabitants (%)	150	6	-
8	Distance to a secondary school (km)	15	5	-
9	Distance to social services for older people	15	5	-
10	Kindergarten	1	5	+
11	Culture (cultural facilities)	1	4	+
12	Library	1	3	+
13	Leisure facilities for children	1	3	+
14	Distance from a landfill	20	3	+
Total:			100	

Source: Authors' own, 2026

The score serves as an indicator of the quality of life in a settlement, with a score of 80-100% indicating an excellent quality of life, 60-79% good, 40-59% average, and 0-39% poor quality of life.

The database operated by the SAO SR contains 2,924 settlements, from which we selected a sample of settlements from the commuting zones of individual regions of the SR. The research database consists of 152 records (Table 1), together with the values of their indicators. We determined the maximum values of the indicators based on data from the research database. The exception is the Population Index, for which we set the maximum at 150, as we assumed that an increase in the population of a settlement by more than 50% may not necessarily improve the quality of life there, as it places increased pressure on infrastructure and the environment and may cause social tensions among residents.

4. Results and discussions

Based on a research database of settlements belonging to commuting zones, we calculated the average values of indicators within individual regions of Slovakia (Table 4).

Table 4:
Average values of indicators in regions

Average values of indicators	Váhy	B. Bystrica	Bratislava	Košice	Nitra	Prešov	Trenčín	Trnava	Žilina
Index of population change	13	102	140	115	117	112	104	135	109
Unemployment (%)	12	4.1	2.6	4.5	2.4	5.3	2.2	2.6	3.2
Weather risk	12	4.2	8.7	6.4	9.3	4.5	4.3	8.9	1.8
Voter turnout (%)	12	46.5	48.8	50.6	53.5	58.6	52.4	51.8	57.3
Distance to a hospital (km)	10	7.8	12.3	9.1	8.3	8.9	6.5	9.3	7.9
Kindergarten	7	1	1	1	1	1	1	1	1
Crimes per 1,000 inhabitants	6	18.5	9.1	6.4	12.1	11.8	7.4	6.5	17.5
Distance to social services for older people	5	5.5	3.4	4.3	6.5	4.3	1.3	3.8	3.9
Distance to a primary school (km)	5	0.6	0.1	0.3	0	0	0	0	0
Distance to a secondary school (km)	5	7.6	5.2	7.4	7.2	7.8	4.8	7.4	5.9
Culture	4	0.1	0.6	0.1	0	0	0	0.2	0
Libraries	3	0.9	1	1	1	1	1	1	1
Leisure facilities for children	3	0.3	0.1	0.3	0.1	0.1	0.2	0.1	0.4
Distance from a landfill	3	9.2	7.5	9.9	12.7	12.1	12.4	7.7	11.4
Number of commuter settlements		28	17	16	19	9	20	28	Σ150

Note: Maximum values are highlighted in green and minimum values in red.

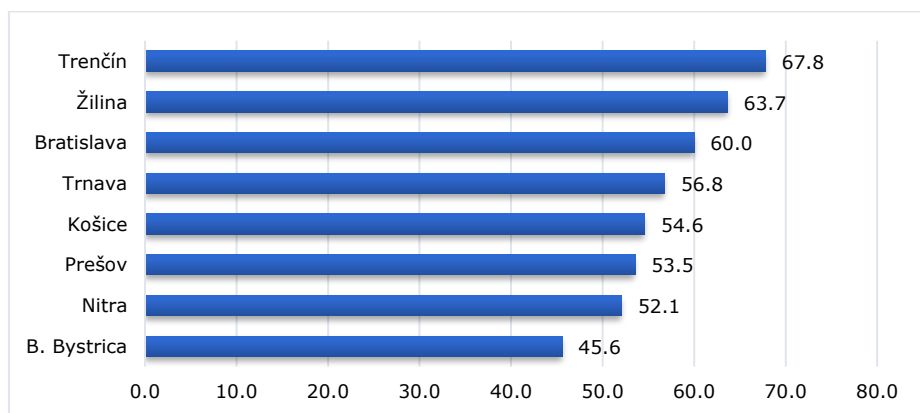
Source: Authors’ own, 2026

Based on the average values of quality of life indicators, we evaluated the commuting zones of individual regions, first without weights and then with weights. For

example, the evaluation of the population change index for the Banská Bystrica region: $(102/140) \cdot 100 \approx 72.9$. Unemployment rating: $(1-4.1/5.3) \cdot 100 \approx 22.6$, and so on. Since we do not use weights, the final score for each region will be calculated as the average of the partial values of the individual scores. The final scores for each region are shown graphically (Figure 1).

Figure 1:

Scores of individual regions – unweighted



Source: Authors' own, 2026

An analysis of commuting zones in individual regions of the Slovak Republic revealed significant regional differences in scores. The highest overall score was achieved by the Trenčín Region, which stands out in particular for its low unemployment rate, excellent access to primary and secondary schools, and short distances to facilities for older people.

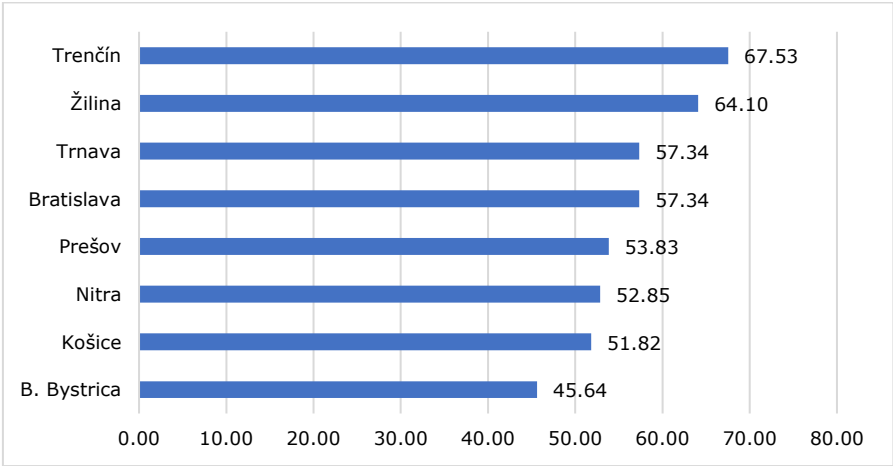
The Žilina region came in second place, scoring points for its low weather risk, high voter turnout (as an indicator of social cohesion), and good coverage of cultural institutions. Another advantage is its distance from landfills, which reduces environmental risks. The Bratislava region ranked third thanks to its high demographic growth, low unemployment, and rich cultural infrastructure. Its weaknesses include poorer access to hospitals and relatively higher crime rates. The Trnava region achieved stable results in most of the areas monitored. It is characterized by low unemployment and a high density of primary schools in urban areas. The Košice and Prešov regions are in the lower half of the ranking. Although the Košice region has a favorable crime rate and access to secondary schools, its overall score is lowered by higher unemployment and environmental threats. The Prešov region, on the other hand, scores very well in electoral indicators, but is disadvantaged by high unemployment. The Nitra region scored lower. Its strengths are low unemployment and excellent access to primary

schools. Demographic growth is also positive. However, it is highly vulnerable to weather conditions and is located at a greater distance from facilities for older people. It also lags in terms of cultural facilities and leisure activities for children. At the opposite end of the ranking is the Banská Bystrica region, which achieved the lowest overall score. Its position was influenced by the worst values in indicators such as the population change index, low voter turnout, the highest crime rate of all the regions surveyed, and greater distance to primary schools.

These results show that the quality of commuting zones is the result of the complex interaction of social, environmental, and infrastructural factors. At the same time, they indicate the need for regionally differentiated policies aimed at reducing disparities between regions. In the following assessment, we assigned weights to the indicators, the values of which are set out in Table 3. For example, the assessment of the population change index for the Banská Bystrica region: $(102/140) \cdot 13 \approx 9.47$, or its unemployment rating: $(1-4.1/5.3) \cdot 12 \approx 2.72$, and so on. We calculate the final score for each region as the sum of the partial values of the individual scores and display it graphically (Figure 2).

Figure 2:

Scores for individual regions – weighted



Source: Authors’ own, 2026

We consider weighted assessments to be more objective if the weights correctly reflect the importance of the indicators (both assessments – weighted and unweighted – are compared in Table 5). Not all indicators have the same impact on quality of life. For example, unemployment has a greater impact than the number of libraries. Weights allow key factors (e.g., access to healthcare, unemployment) to be emphasized and less important indicators (e.g., number of cultural facilities) to be downplayed.

Table 5:

Comparison of unweighted and weighted ratings

Region	Unweighted	weighted
B. Bystrica	8	8
Bratislava	3	3 to 4
Košice	5	7
Nitra	7	6
Prešov	6	5
Trenčín	1	1
Trnava	4	3 to 4
Žilina	2	2

Source: Authors' own, 2026

The analysis of weighted and unweighted ratings revealed two types of regions: those whose ranking remained stable (3 regions) and those that recorded a shift (5 regions). The Trenčín Region maintained its first place in both methodologies. The above is due to its balanced performance in key indicators such as unemployment, access to educational facilities, and low crime rates. The Žilina region remains in second place regardless of weighting, confirming its consistent quality in several areas. The Banská Bystrica region ranked last in both evaluations. Weaker results in demographic indicators, higher crime rates, and low voter turnout hold it back regardless of the methodology.

There were changes in the rankings of the following regions: The Trnava Region improved slightly after the introduction of weighting and reached the level of the Bratislava Region. Its strengths—in addition to demographic growth and low unemployment, higher voter turnout and better access to healthcare facilities—were given greater weight, which helped offset weaker results, such as a lack of leisure facilities for children. The Nitra region recorded a slight decline in the ranking because it scored lower on indicators that were given higher weightings (e.g., weather risk, distance to facilities for older people). The Košice and Prešov regions swapped places depending on the evaluation methodology. The Košice region benefited from a favorable crime rate, while the Prešov region benefited from high voter turnout.

The introduction of weights had a more significant impact on regions with an uneven distribution of strong and weak indicators. The unweighted assessment is neutral and provides an overall picture, while the weighted assessment better reflects the relative importance of individual factors for quality of life. The analysis highlights the importance of indicators and their impact on quality of life. The indicators listed in Table

3 could therefore also be used to establish measurable indicators for local and regional development. These indicators cover important areas that several authors (Capello, 2011; Szajnowska-Wysocka, 2009; Ascani et al., 2012) consider important for improving quality of life: employment, access to public services such as healthcare, welfare, education and culture, and civic participation.

The country's welfare depends on its economic and labor market policies, and also on its ability to ensure income for its people. Economic factors describe the state's economic situation. These indicators also include employment and unemployment level indicators. It can be observed that there is a relation between employment/quality of employment and evaluation of life quality (Bilevičienė et al., 2016; Maggino, 2023). Service infrastructure and availability of facilities, among other factors, influence the provision of health infrastructure (Kalalo et al., 2024) and, similarly, it is for social services (Iurchenko & Iurchenko, 2022; Guevara-Rosero, 2023), education (Fischer & Amekudzi, 2011; Cuesta et al., 2016; Barrett et al., 2018) and even culture (Mager & Wagner, 2022; Getzner, 2024).

Weitz-Shapiro and Winters (2008) pointed to a link between political participation and life satisfaction, suggesting that people who participate in political activities will be more satisfied with their lives because of the resulting feelings of autonomy, competence and relatedness. Despite a subjective feeling of happiness, life satisfaction can be, in this case, related to the quality of life. Yonk and Smith (2018), by tying quality of life directly to social and political outcomes, stressed the role of election participation. Not to omit the environment, Uzzell and Moser (2006) pointed out the environmental features which enhance quality of life, as further argued by Tartaglia (2012) or Perlaviciute and Steg (2018).

The study's greatest contribution is transforming abstract SDG 11 goals (make cities inclusive, safe, resilient, and sustainable) into a replicable system of indicators that local governments can apply and use for several purposes. For instance, evidence-based planning can use the proposed weighted QoL indicators (unemployment, healthcare access, cultural facilities, etc.) to guide municipal development plans. Moreover, data-driven evaluation helps justify infrastructure or social projects when applying for regional or EU funding. In terms of performance benchmarking, local governments can compare their results with others to identify gaps and strengths in their development. Regarding the specific aspect of commuter zones that were under the study in this research, data on commuter zones can guide coordination between urban centers and surrounding municipalities to improve connectivity, transport, and service access.

For national and EU-level policymaking, our analysis offers a model framework to operationalize SDG 11.a through measurable indicators, which could be standardized and compared internationally. This might help to ensure that rural and peri-urban areas are not overlooked in national urban policy.

5. Conclusion

The issue of urban hinterland development, i.e., commuter zones, suburban areas, and satellite towns, is a complex and strategically important element of local and regional development (Torre & Wallet, 2016). From a public policy perspective, the development of urban hinterlands is a cross-cutting issue that requires an integrated approach at multiple levels, from national to regional to local (Pike et al., 2016). Wood and Weigel (2012) add that community participation and functional links between city centers and their hinterlands, as well as the sustainability of transport, technical, and environmental infrastructure, also play a crucial role. For this reason, we consider it important that the development of commuter zones, suburban areas, and satellite towns be determined by strategic public policy documents (Landabaso, 2012; Martinez-Vazquez & Vaillancourt, 2008; Whitford, 2009) and that this development be measurable through key indicators.

The objective of this study was to investigate the quality of life in commuter zones in Slovakia to propose and to test indicators that could be used to measure positive economic, social and environmental goals. From a theoretical perspective, we proposed a list of indicators based on the methodology used by the Slovak Supreme Audit Office. We adapted this methodology to reflect the character of indicators better. By analyzing the quality of life in commuter zones in Slovakia, we showed the difference between the two methodologies – SAO does not use any weights, we used the weights. Using the weighted indicators, the results are more objective and accurate. As such, these indicators were proven to be important factors that influence the quality of life and can be used by decision-makers in various public policies and planning by using quantifiable indicators that would measure the economic, social and environmental goals set in action plans and other documents related to sustainable development under SDG11.

From our point of view, monitoring and assessing the quality of living conditions is also important from the point of view of positive motivation and healthy competition between local governments. The key competence of local governments as the “extended arm of the state” closest to the citizen is to create suitable and high-quality conditions for life, not only in the economic, but also in the social and adequate environmental areas. Quality assessment can thus help to set public policies in the desired direction. It can also be a tool for a healthy competitive “fight” for citizens between local governments and, of course, a tool for guiding citizens – as potential “clients”, residents of the municipality, in finding a living space for themselves and their families.

In this paper, we attempted to identify indicators that could serve as formal performance measures in regional and local development and quality of life. The main limitation of the study lies in its focus on a single country, but by examining the results of other studies, one can see the importance of the proposed factors based on the Slovak Supreme Audit Office. We believe that the analyzed indicators were proven to influence the quality of life, as seen in the ranking of regions. After showing the importance of these indicators in the international literature, the indicators can be adapted for any country. To measure the SDG11 target 11a, the list of proposed indicators can be used

to quantify the implementation of the transformations needed to achieve sustainable regional and local development. Further research could focus on international comparison of these indicators and apply the proposed methodology to assess the quality of life in different countries.

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