

Socio-economic analysis of development of regions

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Abstract

The quality of life is affected by many factors, which can be combined according to the similar attributes into some dimensions. A major impact on quality of life has a feeling of security. The quality of life is directly related to the development of regions that can be examined through subjective and objective indicators as well as the security situation. The paper is going to deal with selected socio-economic indicators of regional development that directly affect the safety of citizens, and therefore their quality of life. There will be evaluated primary socio-economic indicators of regional development such as regional gross domestic product, the level of economic activity, the rate of regional employment and unemployment, the average regional wages. Trough comparison of the above indicators can be seen if the qualities of life in Slovak regions have been positive and what is the position of regions in terms of development.

Keywords: quality of life, regional development, regional disparities, socio-economic indicators.

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1. Introduction

The development of society has a major impact on the quality of citizens' life. The factor that positively affects the quality of life is especially economic growth. On the other side, the current geopolitical situation and the problems with illegal migration have substantially negative impact on the sense of security and thus on the quality of life. A sense of security is only a subjective factor that cannot be accurately measured. According to Stofko and Stofkova (2011), a crucial indicator of quality of life in addition to the security situation is development of society. The development is possible (as security situation), measured by objective indicators that can be merged into dimensions according to their common features.

Since that quality of life is closely linked with economic development, it is necessary to specify the area of interest - such as: Does the quality of life among countries vary? Is the quality of life different among regions, districts or the cities and municipalities in the Slovakia? The result of the examination of the quality of life in the regions and thus the regional socio-economic indicators is the knowledge of regional disparities on which it is possible to propose measures to decrease regional disparities and ensure equal regional development.

2. Quality of life as a prerequisite for regional development

The quality of life is a set of factors that influence the comfort of life. Quality of life characterizes the side of life associated with satisfying material and spiritual needs of people. It is also a part of the social, group and individual life which cannot be clearly quantified (Wishlade, 1997). Every person perceives these factors subjectively, causing the plurality of views on whether the quality of life is rising or decreasing. A problem in the subjective assessment of quality of life is in factors that person is able to realize, what the hierarchy of these factors is and how the factors are being evaluated.

2.1. Quality of life dimensions

The starting point for examining the quality of life is to study its dimensions, each of which is characterized by a certain level through a number of objective indicators. The decisive parameter for the selection of indicators is also the object of interest. For examining the quality of life at the regional level or at the district level the objective indicators can be grouped into six dimensions (Massam, 2002):

- The demographic dimension - life expectancy, infant mortality.
- Information-educational dimension - the share of population by achieving the highest education, households with Internet connection.
- Security dimension - the level of crime.
- A dimension of material comfort and social security - employment index, apartment size.
- The household equipment dimension - the proportion of permanently occupied dwellings.
- The environmental dimension - the proportion of forest land, the share of population connected to the sewage system.

It is said that the quality of life is affected by more factors than the above mentioned. Impacts on quality of life have definitely the availability of medical facilities, schools, number of enterprises and many other factors. Their omission from their dimension is the proof that it is never possible to cover all the parameters guiding the quality of life.

2.2. Regional development

Generally, the development can be regarded as progressive growth, expanding or enlarging. In Regional studies the regional development can be seen especially in the context of economic development. The essential element of development may be considered as economic growth; however, these two terms together cannot be equated (Maier 1998).

The basis for the definition of the region is its geographic definition. The most appropriate definition of the region depends on the purpose for which it is intended (for administration, planning, policy, etc.). In the Slovakia, regions are considered traditional compact areas. The decisive definition provides Act no. 539/2008 Coll. on of regional development support. It defines the region as a territorial unit defined according to the Nomenclature of Territorial Units for Statistics - NUTS (fr. La Nomenclature des unites territorial statistics).

NUTS classification is currently governed by the European Parliament and the Council no. 1059/2003. The NUTS classification consists of at least three levels of NUTS 1, NUTS 2 and NUTS 3. Member States may use additional levels - LAU 1 and LAU 2. In the Slovak Republic, this classification is governed by the Decree of the Statistical Office of the Slovak Republic no. 438/2004 Coll. According to this Decree, in the Slovakia there are three regional and two local levels. Fig. 1 depicts the names of regions of NUTS level and the number of districts (LAU 1) and municipalities (LAU 2).

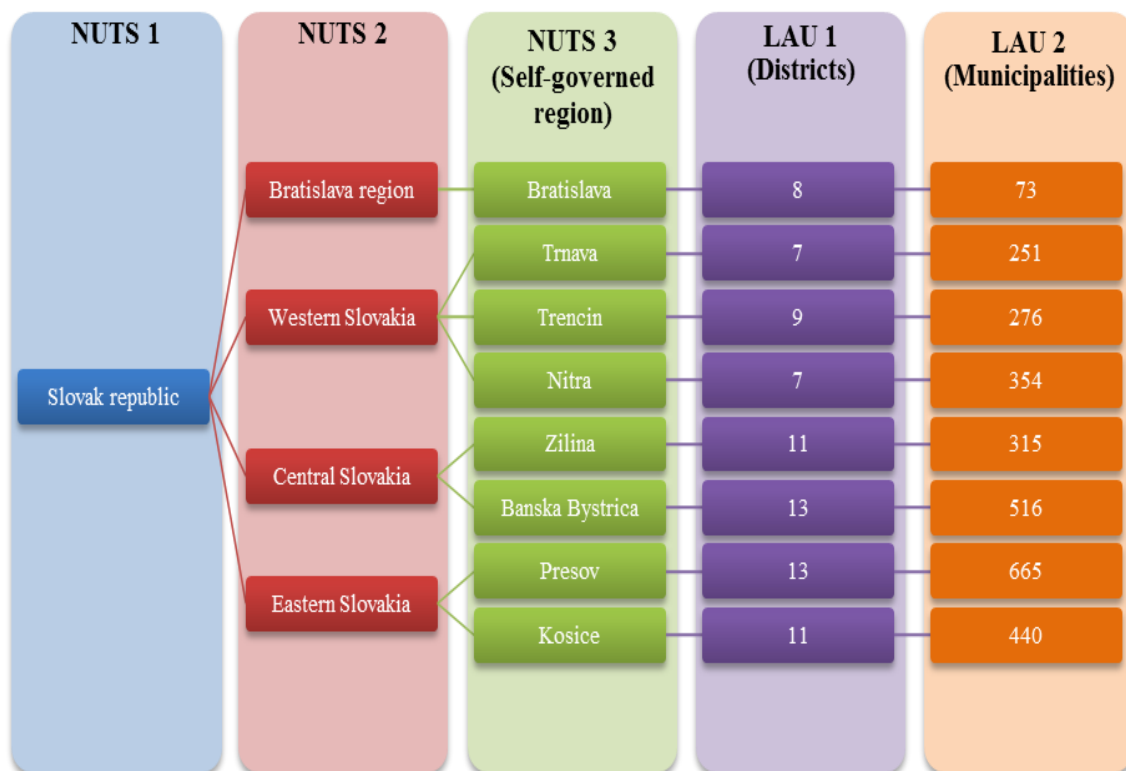


Figure 1. NUTS classification in the Slovakia (Elaborated by authors).

The development of regions and increase in their competitiveness often leads to the formation of regional differences (disparities). The most common causes of the regional disparities are insufficient use of available resources, different amenities, natural and historical conditions, demographic and educational characteristics etc. The consequences of regional disparities are reflected in the economic, social and political situation (Betakova, 2014). Bearing in mind these consequences the state aims to suppress the regional disparities through the regional policy and thus ensure balanced development.

3. Analysis of regional development according to selected socio-economic indicators

The monitoring of socio-economic level is determined to seek the effects of implementation of strategic and planning documents at national, regional and local level. This information is used to promote the region, inform the public and is used as basis for the development. Particular problem of assessing the socio-economic level of regions, resulting mainly from the principle of ensuring sustainable development, is the issue of obtaining reliable data and evaluation selected indicators.

A limiting factor in the selection of appropriate indicators is limited by the availability of suitable data. Selected indicators must provide a view of the position of regions within the regional structure of the Slovakia. For these reasons, in order to carry out the analysis of the regional development, it is only appropriate to use the following socio-economic indicators: unemployment rate, gross domestic product per inhabitant in Purchasing Power Parity (PPP), net monthly income per person, number of enterprises and self-employed persons (Vyrostova, 2010).

Monitoring the progress of mentioned indicators within the NUTS 3 regions (Self-governed regions) creates conditions for their future examination in the context of security indicators. For the measurement of regional development and regional disparities, there are several statistical tools. It includes the Gini coefficient, which was originally conceived as an instrument for measuring income inequality (Byrtusova, 2015). It ranges from 0 (absolute equality) to 1 (absolute inequality).

In addition to the Gini coefficient, it is possible to express the differences among variables using a statistical tool - standard deviation. From standard deviation can be derived coefficient of variation, which is used in this paper. The coefficient of variation is a relative measure of variability. It is used to compare the variability of files with different variable. It is calculated as ratio of standard deviation and the arithmetic mean.

3.1. Development of selected indicators in regions of the Slovakia

The unemployment rate is measured as a ratio of number of registered unemployed people to the total number of economically active population. Table 2 shows the unemployment rate in the Slovak regions.

Table 1. Unemployment rate in Slovak regions (own elaboration according to (Statistical, 2009, 2014)).

Region / Coefficient	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Bratislava	5,2 %	4,3 %	4,2 %	3,6 %	4,7 %	6,1 %	5,7 %	5,6 %	6,4 %	6,0 %	5,9 %
Trnava	10,4 %	8,8 %	6,5 %	6,2 %	9,1 %	12,0 %	10,6 %	11,4 %	12,2 %	12,3 %	11,4 %
Trencin	8,1 %	7,1 %	5,7 %	4,7 %	7,3 %	10,2 %	8,7 %	9,0 %	9,5 %	8,6 %	7,2 %
Nitra	17,8 %	13,2 %	10,7 %	8,8 %	13,0 %	15,4 %	12,5 %	13,3 %	13,2 %	11,9 %	10,9 %
Zilina	15,2 %	11,8 %	10,1 %	7,7 %	10,6 %	14,5 %	14,3 %	14,3 %	14,0 %	13,6 %	10,4 %
Banska Bystrica	23,8 %	21,1 %	20,0 %	18,2 %	18,8 %	18,6 %	17,5 %	18,0 %	19,6 %	18,3 %	15,8 %
Presov	23,0 %	18,1 %	13,8 %	13,0 %	16,2 %	18,6 %	17,8 %	18,3 %	18,2 %	17,5 %	17,0 %
Kosice	21,5 %	20,3 %	15,9 %	13,5 %	15,5 %	18,3 %	18,6 %	19,7 %	18,7 %	15,6 %	12,9 %
Coefficient of variation	0,4546	0,4785	0,5020	0,5305	0,4053	0,3186	0,3547	0,3588	0,3345	0,3264	0,3339
Gini coefficient	0,2406	0,2542	0,2648	0,2769	0,2164	0,1641	0,1872	0,1893	0,1758	0,1722	0,1758

The unemployment rate in the Slovakia in the reporting period declined, while the minimum was reached in 2008. Subsequently, the unemployment rate increased slightly and now again gradually declines. According to coefficient of variation, the regional differentiation over the last five years is not deepening, and is stabilized at around 3.33 values. Also according to Gini coefficient the regional differences are not deepening because values of that coefficient have a downward trend. Gross

domestic product (GDP) is the most common indicator by which it is possible to measure the degree of economy development and living standards. Its importance is underlined by its use by the European Union to calculate the level of regional development. Regions ranked by the European Union according to GDP figures as undeveloped may receive funding to reduce regional disparities. According to Hofreiter (2014), regional GDP is calculated as the sum of value added of all types of economic activity or institutional sectors and taxes on production in the region. Because of the different currencies in countries for international comparison is expressed in purchasing power parity (PPP). Regional GDP per inhabitant is the ratio of two indicators - the average regional GDP and population permanently living in the region. Table 2 shows the development of regional GDP per inhabitant in PPP in the Slovak regions.

Table 2. Development of regional GDP per inhabitant in PPP in regions of Slovakia (own elaboration according to (Statistical, 2009, 2014)).

Region / Coefficient	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bratislava	25 878	27 891	32 964	34 960	39 890	41 807	42 495	44 634	46 787	47 273	48 949
Trnava	11 974	13 028	14 645	18 260	20 228	20 799	19 103	20 811	21 102	21 847	21768
Trencin	10 591	11 434	11 959	14 027	15 566	16 457	15 378	16 400	16 670	17 267	17 556
Nitra	9 961	10 912	12 022	12 857	14 061	15 374	14 627	15 382	16 859	17 535	17 542
Zilina	9 204	9 997	11 157	12 145	14 130	15 792	14 963	16 403	16 299	16 850	17 165
Banska Bystrica	9 883	10 170	9 716	11 078	12 505	13 672	12 683	13 697	13 280	13 905	14 548
Presov	6 977	7 391	7 968	8 203	9 260	10 646	10 008	10 472	11 045	11 618	11 917
Kosice	10 227	10 884	11 427	12 633	13 851	14 913	13 559	14 624	14 696	15 320	15 644
Coefficient of variation	0,4939	0,4982	0,5655	0,5378	0,5492	0,5226	0,5761	0,5635	0,5805	0,5612	0,5710
Gini coefficient	0,1961	0,1997	0,2266	0,2306	0,2314	0,2165	0,2322	0,2305	0,2362	0,2292	0,2282

The highest values of regional GDP per inhabitant in PPP reaches the Bratislava region. At the opposite side is Presov region. The coefficient of variation points out that regional difference is increasing. Likewise, the Gini coefficient indicates a slight increase of regional differences but its value is low. Therefore, there is not the dramatic increase of regional differences. Net monthly income per inhabitant belongs to the economic indicators of regional disparities. It is an indicator that incorporates income from employment and private business, social income and other income (e.g. incomes from property, loans). Table 3 follows the development of net monthly income per inhabitant in € in regions of Slovakia.

Table 3. Development of net monthly income per inhabitant in regions of Slovakia in € (own elaboration according to (Statistical, 2009, 2014)).

Region / Coefficient	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bratislava	294,50	340,47	326,23	381,30	407,87	465,57	441,32	442,79	452,51	468,54	487,00
Trnava	229,10	239,16	253,60	285,97	335,43	367,58	359,39	373,21	376,65	384,57	388,00
Trencin	232,99	221,07	242,18	282,85	309,81	338,55	347,04	355,47	364,55	370,95	376,00
Nitra	226,71	230,30	254,03	285,27	321,72	349,13	345,28	343,98	361,81	352,16	354,00
Zilina	219,58	235,28	241,15	277,14	307,21	336,53	345,47	337,53	356,26	367,01	362,00
Banska Bystrica	229,17	229,27	241,98	276,04	309,99	331,48	323,81	335,25	349,62	353,07	356,00
Presov	209,72	221,37	222,83	247,53	287,54	309,19	327,03	305,47	327,08	327,65	328,00
Kosice	245,97	235,44	243,71	269,57	304,87	340,95	331,15	322,07	330,44	333,77	337,00
Coefficient of variation	0,1095	0,1619	0,1225	0,1374	0,1143	0,1342	0,1072	0,1192	0,1074	0,1194	0,1332
Gini coefficient	0,0493	0,0607	0,0509	0,0570	0,0502	0,0579	0,0457	0,0570	0,0497	0,0554	0,0602

In the reporting period there was an increase in net monthly income in all regions. Most grew Bratislava region (€ 192.50), while the least growing region was Kosice region (€ 91.03). According to the coefficient of variation and also Gini coefficient the development of net monthly income is minimally differentiated.

Socio-economic situation of the region and the business environment may be also characterized by the development of the number of enterprises and self-employed persons. An enterprise is considered to be a legal person who carries out continuous work in order to make profit. Self-employed person is a natural or legal person who operates owns business. Table 4 shows the development of the number of enterprises and Table 5 the development of the number of self-employed persons in the regions of Slovakia.

The number of enterprises for the reported period throughout the Slovakia increased, by almost 120,000. In the Bratislava region more than tripled, so the Bratislava region in this aspect is unequivocal on the first position. In the last 5 years Trencin region holds the last place. Very strong regional differentiation indicates steady increase of values of the coefficient of variation. Slightly increasing Gini coefficient also points to the increasing disparities.

Table 4. Development of the number of enterprises in the Slovak regions (own elaboration according to (Statistical, 2009, 2014))

Region / Coefficient	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bratislava	20 047	22 364	25 505	28 866	31 975	39 236	43 034	49 600	54 391	58 401	63 262
Trnava	5 790	6 602	7 554	8 585	9 444	10 991	11 886	13 197	14 210	14 963	16 614
Trencin	5 964	7 737	8 452	9 187	9 622	10 988	11 107	11 854	12 403	13 123	14 494
Nitra	5 713	6 678	7 453	8 547	9 468	11 666	12 422	14 352	15 449	17 040	19 836
Zilina	6 711	7 464	8 444	9 336	9 983	11 760	12 246	13 451	14 057	15 232	17 508
Banska Bystrica	6 170	7 183	8 060	8 883	9 655	10 805	11 341	12 573	13 279	14 115	15 692
Presov	6 319	7 311	8 401	9 324	9 980	11 535	12 077	13 178	14 192	15 068	16 299
Kosice	7 706	8 868	9 841	10 683	11 447	12 952	13 296	14 796	15 900	16 829	18 209
Coefficient of variation	0,6071	0,5752	0,5850	0,5976	0,6156	0,6550	0,6890	0,7190	0,7407	0,7443	0,7236
Gini coefficient	0,2179	0,2074	0,2076	0,2064	0,2080	0,2202	0,2306	0,2440	0,2528	0,2559	0,2534

While the number of enterprises in Slovakia in the reported period grew by nearly 120,000, the number of self-employed persons rose by less than 50,000. Their number increased the most in Presov and Zilina region and least in Kosice and Bratislava region. According to the coefficient of variation and the Gini coefficient there is possible to observe deepening of regional disparities. An interesting situation occurred in 2012, when more enterprises than as self-employed persons were present in in Bratislava region. Such a situation happened for the first time in the history of the regions of Slovakia.

Table 5. Development of the number of self-employed persons in the Slovak regions (own elaboration according to (Statistical, 2009, 2014)).

Region / Coefficient	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bratislava	51 110	56 746	56 740	59 318	59 267	59 644	59 110	58 282	56 581	54 654	53 724
Trnava	33 601	36 497	37 738	40 210	41 190	43 058	42 934	42 004	40 222	38 874	37 338
Trencin	34 385	38 262	38 696	42 127	42 197	44 429	43 864	43 553	42 153	40 355	39 035
Nitra	37 995	41 005	42 468	44 933	46 137	48 979	48 665	47 759	46 120	44 756	43 873
Zilina	43 654	48 289	50 119	52 570	54 325	56 978	56 313	56 079	58 612	54 307	53 810
Banska Bystrica	32 218	35 345	37 156	39 163	40 150	41 785	41 165	41 156	39 656	38 031	37 669
Presov	40 083	44 787	46 006	49 019	52 618	57 998	56 748	56 443	55 132	52 774	51 625
Kosice	33 310	35 709	35 947	36 845	38 498	40 000	39 077	38 926	37 246	35 824	35 635
Coefficient of variation	0,1696	0,1782	0,1706	0,1677	0,1640	0,1627	0,1629	0,1627	0,1821	0,1748	0,1774
Gini coefficient	0,0845	0,0892	0,0866	0,0870	0,0850	0,0843	0,0848	0,0841	0,0941	0,0901	0,0907

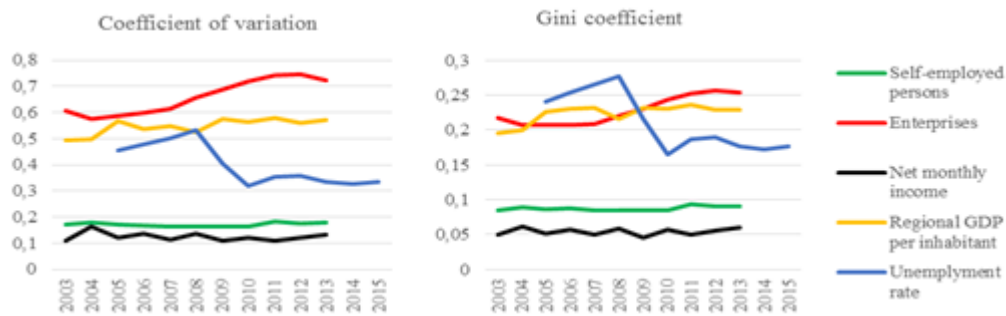


Figure 2. Development of regional disparities according to Coefficient of variation and Gini coefficient (Elaborated by authors).

Figure 2 graphically illustrates the complex development of regional disparities, as was calculated by the coefficient of variation and the Gini coefficient in the regions of Slovakia. In terms of regional differences can be noted that in 2010 was a larger decrease, however just in terms of the unemployment rate. The deepening of regional disparities mainly occurs in terms of the number of enterprises indicator. Regional differences are also slightly rising in terms of regional GDP per inhabitant in PPP. Regional differences are greatest precisely according to these two indicators. The smallest regional differences can be noted in terms of number of self-employed persons and in terms of the amount of net monthly salary.

4. Conclusion

Research was aimed to address the issue of quality of life, which is becoming very attractive for many scientific disciplines. Yet there is still a significant content fragmentation and absence of a comprehensive interdisciplinary approach. However, the quality of life can be divided into the dimensions which can be further examined. Various dimensions are interrelated and it is necessary to seek their common features.

The social dimension and the economic dimension of quality of life are connected to each other to such an extent that sometimes it is difficult, if not impossible, to find differences between them. The unemployment rate, regional GDP per inhabitant, number of enterprises and self-employed persons as well as net monthly income may be included among the indicators that have significant influence on these dimensions.

The paper deals with the analysis of these indicators in terms of NUTS 3 regions in Slovakia, also with the comparison of individual regions and subsequently with the examination of regional disparities with respect to these indicators. Bratislava region has the best position, in the long term, out of all indicators from eight regions. Presov region is in last place, in the long term, following the the regional GDP per inhabitant and net monthly income per inhabitant. The number of self-employed persons in long term is lowest in the Kosice region.

On the disparities in development, the regional disparities are only slightly growing in the number of enterprises and the regional GDP per inhabitant. Regional differences are greatest in these two indicators. Nearly zero-regional differences are observed in the number of self-employed persons and in the amount of net monthly income per inhabitant. A significant decrease of regional differences in the unemployment rate was observed in 2010. In the near future the public authorities should seek ways to reduce the regional disparities. Tax breaks and other support should be provided particularly to companies that would be show interest to operate in other regions than Bratislava region. This would also influence the regional GDP per inhabitant.

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