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**THE POVERTY IN SLOVAKIA IN COMPARISON TO OTHER
SELECTED EU COUNTRIES**

**UBÓSTWO NA SŁOWACJI W PORÓWNANIU
DO INNYCH WYBRANYCH KRAJÓW UE**

**БЕДНОСТЬ В СЛОВАКИИ В СРАВНЕНИИ С ДРУГИМИ
ОТДЕЛЬНЫМИ СТРАНАМИ ЕС**

Abstract

Poverty is a phenomenon which is present in all parts of the world. The main objective of the paper is to assess poverty in Slovakia compared with selected EU countries through cluster analysis. To the best of the country combined into clusters so as to achieve maximum similarity in terms of the monitoring indicators of poverty in the group, and the largest difference between the groups. Joining countries into clusters to be followed in a period of three years - 2006, 2009 and 2012 in order to determine the impact of the economic and financial crisis on poverty and social exclusion in the EU.

Keywords: *analysis, economics, poverty, country, crisis.*

Streszczenie

Ubóstwo jest zjawiskiem, które występuje we wszystkich częściach świata. Głównym celem niniejszego artykułu jest ocena ubóstwa na Słowacji w porównaniu z wybranymi krajami UE przy wykorzystaniu analizy skupień. Państwa zostały połączone w skupienia tak aby uzyskać jak najbardziej podobne obiekty wewnątrz danego skupienia ze względu na wskaźniki monitorowania ubóstwa, i aby stopień powiązania obiektów z obiektami z pozostałych grup był jak najmniejszy. Analiza skupień została przeprowadzona dla 2006, 2009 i 2012 roku. Analiza miała na celu określenie wpływu kryzysu finansowego i gospodarczego na ubóstwo i wykluczenie społeczne w UE.

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Słowa kluczowe: analiza, ekonomia, ubóstwo, kraj, kryzys.

Аннотация

Бедность представляет собой явление, которое присутствует во всем мире. Основной целью работы является оценка бедности в Словакии по сравнению с отдельными странами ЕС с помощью кластерного анализа. Насколько страны объединяются в кластеры таким образом, чтобы достичь максимального сходства с точки зрения показателей мониторинга бедности в группе, и какая большая разница между группами. Присоединение стран в кластеры исследовано в течение трех лет в 2006, 2009 и 2012 годах с целью определения влияния экономического и финансового кризиса на бедность и социальную изоляцию в ЕС.

Ключевые слова: анализ, экономика, бедность, страна, кризис.

Introduction. In recent years, more and more effort to identify, measure, analyze and poverty alleviation was developed. There is a multitude of definitions (eg. Ringer, Townsend, World Bank, Council of Europe), and the resulting approaches to poverty, which often promote the formation of measurement of problems of poverty and seeking ways to address it. With certainty we can say that the poverty is seen as a multidimensional phenomenon, which is related not only to the lack of income but also social exclusion and perceived deprivation. [O. Džambazovič 2007]

In this paper we examine poverty in the EU through cluster analysis, where we are based on measurements made by Eurostat poverty through statistical surveys on income and living conditions of EU SILC. For joining, we used Ward's method, which is based on optimizing the homogeneity of clusters. Minimizes the increase of total intra-group sum of squares of objects from the average cluster (centroid). [T. Želinský 2014] It is this determination was the basis of our analysis, from which we used in the assessment of poverty in Slovakia and its comparison with other EU countries. When analyzing programs implemented in R and Excel, have left the country for which were not available in values of the parameters (Croatia, Malta). We used a total of 26 EU countries and Norway, which takes place as the EU SILC.

In comparison we transferred a period of three years - 2006, 2009 and 2012, in order to reveal the impact of debt and financial crisis

on poverty. [L. Ivančíková 2013, pp 215-223] The year 2006 was considered the year when the EU worked steadily, and that preceded the outbreak of the subprime crisis in the United States, which subsequently developed into the financial and debt crisis. In 2009, we observed clear signs of crisis in the EU. 2012 was the last year for which data were available all the values of the variables, and in which it was possible to monitor whether there are any changes after the crisis.

Based on these facts, we decided to approach to the assessment of poverty through the following indicators:

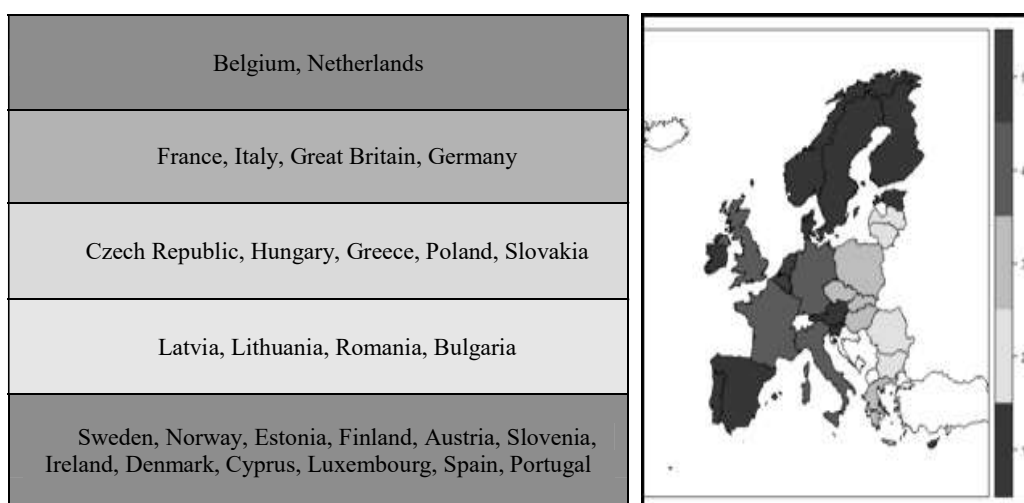
- gross disposable income (GDI);
- Long-term unemployment (LTU);
- Persons with low educational attainment (LE);
- The rate of material deprivation (MDR);
- Cost of Housing (HC);
- Persons living in households with low work intensity (LWI);
- Risk of poverty rate (APR). [P. Ondrejko 2004]

The variables we obtained from Eurostat databases, which are harmonized indicators, and thus for the same methodology for each country. This will allow, in contrast to the data obtained from different sources to work with undistorted data. Indicators were input variables for the cluster analysis, based on which we divided the country into different clusters. The number of clusters may be in the

range from 1 to p, but in practical terms is as the number of clusters is greater than 1 and less than the number of objects. [T. Želinský2014.] The authors focused on the changes that have occurred in different clusters, with emphasis on the position of Slovakia and the various clusters, we incurred using the map portraying the EU. These clusters were compared using average values

for each characteristic method of comparison. Based on the comparison, we then deduced and evaluated which of the clusters is doing in terms of poverty levels better, and which in turn worse. [M. Helmečzyová 2014]

In Fig. 1, 2 and 3 can divide countries into clusters for us compared rokov2006 period, 2009 and 2012. [Eurostat 2006, 2009, 2012.



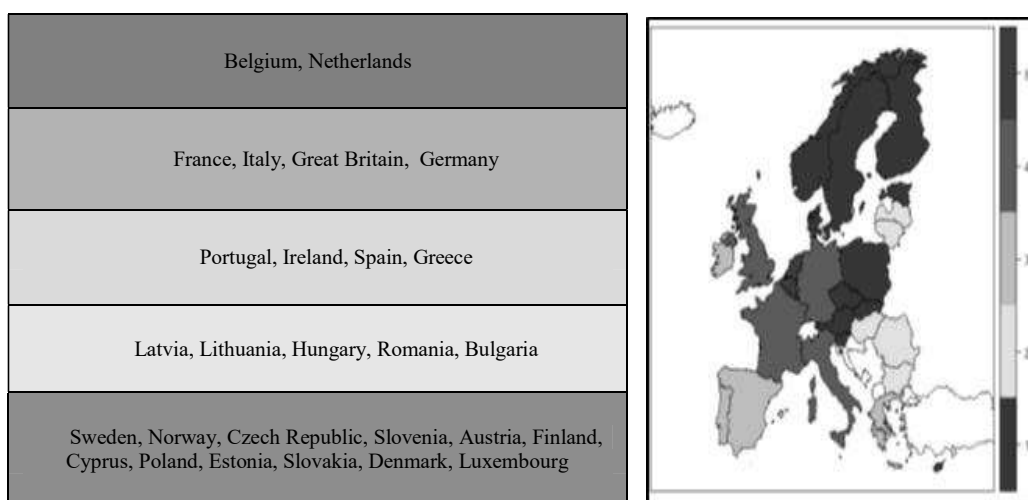
Source: own processing based on data from Eurostat for 2009

Fig. 1 The division of countries into clusters in 2006



Source: own processing based on data from Eurostat for 2009

Fig. 2 Division of countries into clusters in 2009



Source: own processing based on data from Eurostat for 2012

Fig. 3 Division of countries into clusters in 2012

Tab. 1 shows average values of monitored parameters in different clusters, for the years 2006, 2009 and 2012, under which we can characterize each group of countries in terms of factors related to poverty.

Tab. 1 Average values of variables in clusters in the years 2006, 2009, 2012

Clusters	Years	GDI	LTU	MDR	LE	APR	LWI	HC
1. cluster	2006	125 212	1,78	4,89	33,93	14,87	7,52	28,26
	2009	90 275	1,13	4,06	25,27	12,72	6,62	33,57
	2012	104 392	3,20	6,30	21,48	13,81	7,61	35,44
2. cluster	2006	25 042	3,50	36,58	26,75	21,18	9,42	36,39
	2009	46 775	2,60	37,05	28,90	22,10	7,30	30,45
	2012	35 742	5,86	29,02	21,44	19,12	11,16	38,82
3. cluster	2006	94 967	6,04	17,56	25,04	15,4	9,74	47,9
	2009	80 128	4,11	12,89	28,81	17,76	8,60	30,39
	2012	256 420	10,58	9,85	43,18	20,09	15,55	48,15
4. cluster	2006	1 270 194	3,58	5,23	34,15	16,08	11,40	38,28
	2009	1 162 288	3,32	5,16	35,32	16,84	9,68	36,63
	2012	1 398 199	3,75	8,13	28,7	16,45	10,4	32,5
5. cluster	2006	230 218	3,05	4,35	34	12,2	12,6	49
	2009	248 717	2,20	3,30	31,80	12,85	10,40	40,20
	2012	260 231	2,60	4,40	31,10	12,45	11,50	45,55
EÚ 27	2006	279 508	3,70	9,9	33,6	16,5	10,6	36,6
	2009	280 361	3,0	8,1	31,6	16,4	9,1	35,1
	2012	301 790	4,6	9,8	28,9	16,9	10,3	39,1

Source: Own calculations based on data from Eurostat for the years 2006, 2009 and 2012

Summary. As we can see the division of countries into clusters in Fig. 1, 2, 3, and average values of indicators in clusters in Tab. 1 for the years 2006, 2009 and 2012, so the composition of clusters in each year, more or less changed. Some countries maintain their place in a given cluster in each of the years studied, there are still others that were moved.

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Countries due to the shift change values of monitored parameters. If there was a stronger growth or decline of individual indicators of the country, the country has moved away from the rest of the cluster and attached to the fact that it was in terms of level indicators closer.

First cluster can be characterized as the most numerous. Its permanent members were Sweden, Norway, Finland, Denmark, Austria, Slovenia, Luxembourg and Cyprus. In 2009, these members joined Czech, has experienced positive developments in all variables except the proportion of the poor, where housing costs make up more than 40% of disposable income. Was the most positive in the Czech Republic decline in material deprivation and low labour intensity. In 2012, the first cluster, adding Poland, Slovakia and Estonia again.

The main reason for the connection of Slovakia and Poland can be considered both improvements in developing material deprivation and the proportion of people with low education, as well as deterioration in material deprivation, long-term unemployment rates and low labour intensity in the majority of the permanent members. The first cluster can be considered not only the most numerous, but also the most diverse in terms of countries that produce and are different both in terms of geographical and natural conditions, as well as economic. Based on this, we this cluster could be divided into two groups, namely the countries of Northern Europe and other countries. Most significantly, this diversity manifested in 2012, when joined to the cluster Poland, Slovakia and Estonia. These states in terms of living standards have not caught up country in northern Europe, where the standard of living is higher. If we compare the monitored indicators individually, and between these two groups of countries are major differences, especially in the case of disposable income, but in the assessment of all indicators simultaneously, these differences diminished.

Second cluster is formed by countries of Eastern Europe, which were the last of the accession countries as well as to countries of the former Soviet Union. Permanent members of the cluster are Bulgaria and Romania. In 2009, no longer part of Latvia and Lithuania,

primarily due to a sharp decline in the rate of material deprivation. The impact of the crisis and the deterioration of long-term unemployment, low labour intensity and population at risk of poverty with housing costs greater than 40% of disposable income caused Return Latvia and Lithuania back to the second cluster. Along with them to the cluster also joined Hungary. The second cluster assessed as least developed. Major cause of this situation can be considered historical development of these countries, their membership in the Soviet Union, inadequate economic and political reforms that prevented them from economic development. Countries are lagging behind both in living conditions, as well as in the economic and economic level, as evidenced also the lowest disposable income of the population, the lowest GDP and the lowest level of innovation. Although these countries have a standard of living than countries in northern and western Europe, their debt is much lower than in those countries. In the third cluster, we can observe the most significant impact of the financial crisis in terms of its member countries. The only country which held its position in this cluster in each year was Greece. The composition of this cluster in 2006 was expected, since it formed the Visegrad countries whose similarity in terms of living standards, poverty levels, but also economic and economic conditions was evident. Already in 2009 there were the first significant changes because they've included Eastern European countries (Lithuania, Latvia, Estonia). It was understandable because of the comparability of their standard of living and level of poverty in the countries of the cluster. On the other hand, they were joined also Portugal and Ireland, whose resemblance to the countries of Eastern and Central Europe is not so obvious. In these two countries there has been a significant change only in the increase of low labour intensity and the proportion of people living below the poverty line, while their housing costs accounted for more than 40% of disposable income. The reason for the connection to the third cluster was also to improve the monitoring indicators in other countries, thus these two countries more closer

to these countries compared to the first cluster of whose members in 2006 were most significant change occurred in the third cluster in 2012 was formed Ireland, Portugal, Spain and Greece, that the countries most hit by the financial and debt crisis. The crisis in these countries reflected not only in the worsening economic situation and indebtedness of countries, but with the underlying deterioration of living conditions, poverty and rising unemployment. The debt crisis has also hit Italy and Cyprus, but are not up to such a marked deterioration of the monitoring indicators to join the third cluster. The fourth cluster was in terms of its members stable and there are significant changes in it. Permanent members were France, Great Britain, Italy and Germany. These countries also belong to those with a better standard of living, as well as economic and economic situation. They are also the largest EU economies. Excel primarily at the level of disposable income, they are many times higher than in other countries. In 2009 they were joined also Spain, has experienced an increase in disposable income, but in 2012, the worsening situation in the wake of the crisis at hand more to the countries in the third cluster.

5 cluster formed in each year only two countries, Belgium and the Netherlands. These are the states with the smallest size, but also with developed economies and modern, with a better standard of living and lower levels of poverty. Belgium and the Netherlands, as the founding countries of the EU, together with Luxembourg created the first matron Union - Benelux in Europe, the essence of which the free movement of goods, capital and people. Given the similarity of countries is interesting

that to them to not join the cluster Luxembourg. The main reason is much lower disposable income in Luxembourg compared to Belgium and the Netherlands, as well as a lower proportion of the population at risk of poverty, where housing costs make up more than 40% of disposable income. For these reasons, it is more similar to Luxembourg with more countries in the first cluster as Belgium and the Netherlands.

Conclusions. The result of the cluster analysis was the creation of five major clusters, consisting of the countries that have been studied in terms of indicators of poverty and social exclusion of the most similar. We can say that the spatial distribution of poverty in the EU is uneven. Especially in the last accession countries have experienced higher rates of poverty. Composition of clusters in different years partly changed, but the most significant change occurred in 2012, just due to the crisis. The crisis is most visible in the increased number of long-term unemployed population and low labour intensity, as a result of the slump in world trade, uncertainty in financial markets, which Commission: Portfolio of indicators for the monitoring of the European Strategy for Social Protection and Social Inclusion – 2009 up dat Hard to say whether it is possible to eliminate poverty permanently.

It would require a very large amount of effort and strategic actions. The probability that poverty will be present in some form still leads us to the fact that we focus on finding measures to alleviate it, and ensure better living conditions for the most vulnerable groups are children and young people, the unemployed and the Roma minority.

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