THE DIFFERENTIATION OF LIVING STANDARD OF POPULATION IN THE SELECTED EUROPEAN COUNTRIES

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Abstract:

The contribution presents the level of living of population in Poland against the background of the selected countries of the European Union. The key to the selection of objects was the year of their accession to the European Union. All the selected countries joined the European Union in 2004.

The study covered years 2004 and 2009. It was based on the data collected by the Central Statistical Office of Poland, the Statistical Office of the EU and the OECD. In order to estimate level of living methods of multivariate statistical analysis were applied. On the basis of the synthetic variable, created for the research purposes, a ranking of countries was constructed.

Introduction

Poland acceded to the European Union in 2004. However the accession process of our country was accompanied by many fears it also evoked hope of the social and economic development and the improvement of level of living of population. The membership in the European Union and financial support of European funds were expected to enhance developmental possibilities of the Polish economy [3, 245].

No doubt, the countries – members of the European Union – differ with the extent of the social and economic development as well as the living standard of population. There are two important questions – the aims of the paper:

- to estimate the level of living and to indicate differences and similarities among the selected countries,
- to assess the changes of living standard after five years of membership.

The study was based upon the data, concerning years 2004 and 2009, collected by the Central Statistical Office of Poland, the Statistical Office of the EU and the OECD. In order to estimate the living standard of population methods of multivariate statistical analysis were applied.

Definition of level of living

There is no one, precise definition of level of living. Most of them combine only some aspects of phenomenon being analysed. Sometimes, level of living is comprehended solely as an extent of consumption of goods and services. In other cases, it's defined very widely and identified with quality of life.

The United Nations defines level of living as the whole of the real living conditions of population and also the extent of satisfying their material and cultural needs by means of goods, paid services and public funds [1, 11].

According to Drewnowski, level of living is an extent of supplying needs, which is combination of goods, services and living conditions. His definition includes: food, clothing, housing conditions, health, education, safety, the environment and social surroundings [4, 48].

The study was based on the definition that covered the following aspects of the living standard: social and economic development of country, economic situation of households, education, healthcare and the environment.

Methodological aspects

Level of living, as a complex phenomenon, was described with wide set of variables. Each of the determinants characterized only one feature of the phenomenon being analysed. In order to estimate level of living and to compare objects methods of multivariate statistical analysis were applied.

The estimation was made on the basis of the synthetic variable, created as a result of aggregation process of the determinants. Since the diagnostic variables were expressed in different units of measure and they belonged to the different intervals, all the determinants were normalised before the aggregation. The normalisation process was made according to the formula [6, 57]:

$$z_{ij} = \frac{x_{ij}}{\bar{x}_j},$$
(1)

Since the method of normalisation demanded that the set of the diagnostic variables covered only stimulants, all destimulants had been transformed before normalisation. The synthetic variable was constructed as follows [2, 227]:

$$z_i = \frac{1}{n} \sum_{j=1}^{n} z_{ij}$$
(2)

Upon the results the ranking of objects was created.

The applied methods of normalisation and aggregation of determinants didn't standardize the values of the synthetic variable. Because of that the synthetic variable was transformed into the synthetic measure of development according to the formula [7, 138]:

$$m_i = \frac{z_i}{\max_i z_i} \qquad\qquad (3)$$

The values of the synthetic measure, obtained according to the formula no. 3, belonged to the closed interval [0;1]. Its higher values meant the higher level of living of population.

Empirical results

The process of estimation of the level of living consisted of three stages. Firstly, the set of the potential variables, describing thirty-two aspects of the phenomenon being analysed, was selected. Since the lack of statistical data the set of determinants was reduced to twenty-six variables.

At the second stage, all of the potential variables were verified. During the verification process, differentiation and correlation of determinants were analysed. Upon the results, the set of the potential variables was reduced to eleven diagnostic variables. All of them met the postulates of maximum spatial differentiation and the lack of multicollinearity [5, 25].

The diagnostic variables covered the following aspects of the level of living: social and economic development of country, economic situation of households, education, healthcare and the environment. There were among them: gross domestic products per capita, harmonised index of consumer prices, unemployment rate, inability to face unexpected financial expenses, inability to afford paying for one week annual holiday, enforced lack of a washing machine, motorisation rate, live births, education expenditures, number of students, air-pollution.

At the third stage the value of the diagnostic variables were normalised according to the formula no. 1 and aggregated according formula no.2. On the value of the synthetic variable the ranking of the selected countries was constructed (see tab.1).

TAB.1: The rankings of countries upon the value of synthetic variable

		2004				2009	
no.	country	synthetic variable	measure of development	no.	country	synthetic variable	measure of development
1	Cyprus	1.202	1.000	1	Cyprus	2.406	1.000
2	Slovenia	1.180	0.982	2	Estonia	2.332	0.969
3	Lithuania	1.098	0.913	3	Slovenia	1.514	0.629
4	Czech Republic	1.077	0.896	4	Czech Republic	1.507	0.627
5	Estonia	0.988	0.821	5	Slovakia	1.190	0.495
6	Latvia	0.965	0.802	6	Lithuania	1.063	0.442

		2004				2009	
no.	country	synthetic variable	measure of development	no.	country	synthetic variable	measure of development
7	Malta	0.948	0.789	7	Malta	1.061	0.441
8	Hungary	0.921	0.766	8	Latvia	1.048	0.436
9	Poland	0.822	0.683	9	Poland	0.949	0.394
10	Slovakia	0.799	0.664	10	Hungary	0.917	0.381

Source: Own calculations.

The dynamics of changes of the living standard of a single country was estimated upon the values of the synthetic variable. The highest level of living of population was attained by Cyprus. During the EU membership, its synthetic variable doubled in value. Hungary achieved the lowest level of living standard. In 2009, the value of the synthetic variable amounted 0,917 and it was slightly lower than in 2004. Beside Hungary only Lithuania registered the decrease of the synthetic variable (by 3.2%). The other countries increased their value of z_i. The highest growth, by 136%, was obtained by Estonia. The increase of the synthetic variable, for most of the countries, indicates that their level of living has grown.

The spatial differentiation of the living standard was evaluated on the values of the synthetic measure of development. All the descriptive statistics of m_i (mean, median, fist and third quartiles, standard deviation, variation coefficient, skewness) indicated the higher differentiation of objects in 2009 than in 2004. During that period the variation coefficient almost tripled in value.

TAB.2: Descriptive statistics of the measure of development

statistics of m_i	2004	2009
mean	0.832	0.581
median	0.812	0.469
quartile1	0.772	0.437
quartile3	0.909	0.629
minimum	0.664	0.381
maximum	1.000	1.000
standard deviation	0.115	0.229
variation coefficient	0.138	0.394
skewness coefficient	0.040	0.897

Source: Own calculations.

The positive value of skewness coefficient meant the majority of countries obtained the level of living lower than average. Only four countries: Cyprus, Estonia, Slovenia and Czech Republic attained the level higher than average.

Conclusions

The article doesn't cover all aspects of living standard. It's only an attempt at estimating the differentiation of the level of living of the selected European countries. However, the results that had been attained were helpful to indicate differences and similarities among the countries.

Compared to 2004 year, most of the countries, except Lithuania and Hungary, improved the living standard of their population. But the growth of the level of living was accompanied by the increase of its spatial differentiation. This means that in comparison with "the best" objects the living standard of the majority of the selected countries has been decreased.

Estimation of the position of Poland against the background of the selected countries has fallen out badly. The value of the synthetic measure of development indicates that the level of living of population in Poland is lower than the living standard of the other countries.

There's no question that the level of living of population depends on the social and economic development of country. But it's also a result of geographical, historical and cultural conditions. The expansion of the European Union contributes to emphasizing the differentiation of living standard of population. It reveals the differences among the countries, but it's also a chance for their elimination.

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