# Living Standard and its Comparative Analysis in Lithuania and other Countries of the European Union

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### **Abstract**

Processes of integration in Europe induce the comparison of the economic indicators in countries of the European Union. According to the forecasts, it will take some time for the new members of the EU to achieve living standards of the old members even taking into account the support from the structural funds. The article, after discussion of the methodological issues of the concept of the living standard, the major components that describe the living standard and the methods of evaluation of economic inequality, presents the comparative analysis of the living standard of the European Union countries that has been performed by comparing GDP and overall income per capita and by calculating Gini coefficients of distribution of the overall income according to the age and education. The last section of the article provides the evaluation of distribution of the household expenditure in Lithuania in 2004-2007 by using the Theil and Atkinson class indexes and parametrical Gini coefficients for the measurement of inequality.

*Keywords:* living standard, income, expenditure, inequality, distribution.

### Introduction

Social and economic events that occurred in the EU countries during the last decade together with the carried out social and economic policy differently influenced the living standard of the countries. The living standard in the countries depends on many economic indicators, such as national income, overall monthly net (gross) pay, minimum monthly pay, purchasing power, retail price index, etc. The easiest way to describe it quantitatively is to use such economic indicators as gross domestic product (GDP) per capita, inhabitants' income and expenditure, income inequality.

In 2004, after Lithuania has become the full member of the European Union, there appeared new possibilities to achieve the living standard of the old member states of the European Union. The inhabitants of the country expected rapid improvement of their lives. However, the living standard during those 5 years has hardly improved, an increasing inequality

in welfare between the inhabitants of the country has been noticed. This fact is of great concern as the major differences in the inhabitants' wealth may decrease the integrity of the society this way restricting the possibilities for the economic growth. It may be invoked by the partial or incomplete usage of the human resources when some part of the inhabitants do not have enough possibilities to receive education, use cultural inheritance and latest technology products.

Processes of integration in Europe stimulate the comparison between the economic indicators of the European Union countries, especially the indicators of the living standard and the trends of its development. According to the forecasts, it will take some time for the new members of the EU to achieve living standards of the former ones even taking into account the support from the structural funds.

The *subject* of the research is the living standard of the inhabitants of the European Union countries

The *aim* of the research is to perform the comparative analysis of the living standard of the inhabitants in Lithuania and other countries of the European Union and evaluate major consumption expenditure inequality indicators of the Lithuanian inhabitants.

### The *objectives* of the research:

- To discuss the methodological issues of the concept of living standard having compared the different authors' attitudes concerning the issues of the living standard and life quality.
- 2. To discuss major quantitative indicators describing the living standard.
- 3. To perform the comparative analysis of the indicators describing the living standard in Lithuania and in other EU countries. To evaluate differentiation of the expenditure of the Lithuanian households in 2004–2007.

The *methods* of the research. General methods of scientific analysis were used, i.e. comparative analysis of literature, synthesis, systematization and generalization. Besides, graphic, statistical and econometric methods were applied. DERIVE Mathematic Software was used.

## **Methodological Issues of Concept of Living Standard**

The living standard, its content and living quality in the social economic literature is treated differently by various authors. Bagdonavicius defines the living standard as a degree of fulfillment of physical, intellectual and social needs of a human being which mostly describes the provision of the inhabitants or the group of the inhabitants with goods inherent to their living (Bagdonavicius et al. (2007), p.152). According to Stankevicius, the living standard is a concept describing the degree of fulfillment of humans' material and cultural needs, expressed by the quantity and quality of the goods and services used by an individual (Socialines grupes: nepritekliaus zymes (2004), p. 5).

Turnbull (2003) points out that concept of the living standard should not be confused with the concept of the living quality, the latter being wider and including the subjective dimensions as well as the objective ones. To describe the living quality there is no single and unvaried definition (O'Boyle, 1997). International group of researchers pointed out that all definitions of the living quality consist of the common feeling of welfare, positive social ties and possibility to realize one's potential. The researchers accepted the quality of life as being multidimensional and including the subjective dimensions as well as the objective ones (Turnbull et al., (2003).

Quite vivid differences between the living standard and the quality of life have been identified by Allardt:

- The living standard is understood as material needs from the point of view of health, food, occupation, income, etc.;
- The quality of life is immaterial living conditions which are revealed by social relationships, social and cultural integration and environment quality (Arbusauskaite et al., 2007).

Even theoretical positions of those authors who while revealing the concept of the living standard associated it with the degree of fulfillment of the

human needs and, to our point of view, basically chose the right direction, are not sufficiently methodologically substantiated, as in the very formulation of the problem there is a lack of revelation of the causalities, i.e. systematic attitude towards the subject of the research (the living standard).

In our opinion, the revelation of the concept of the living standard is first of all related to the final goal of the public production. No production can be self-oriented: it always has a goal that often is not the one and only, there are some goals that are rather different, even contradictory. However, the final goal of production is consumption, to be more precise, personal consumption, because the industrial consumption, as we all know, is only the intermediate link. In turn, personal consumption and its structure are shaped by personal needs, in which the theory of economics distinguishes physical, spiritual (intellectual) and social needs. Thus, personal needs finally manifest themselves as result of all other goals of production, the latter being subordinated to them in one way or another.

On the other hand, the fulfillment of the personal needs cannot be self-oriented as well. While implementing the model of a socially oriented nation, what seems to be the direction for most of the economically developed countries of the world, the structure of formation of personal needs has to be targeted to the development of a human being as a personality.

The relations discussed above can be depicted in the principal scheme presented below (see Figure 1), in which the vertical axis stands for the level of the development of personal needs (qualitative traits), and the horizontal axis stands for the level of fulfillment of personal needs (quantitative traits). On the bottom of the first (vertical) axis there are placed basic (physical) personal needs and above there are personal needs of higher rank (spiritual, intellectual and social). Those needs reveal particular normative standards, which should be directed towards the comprehensively developed personality as the final and major goal of the production and development of the society.

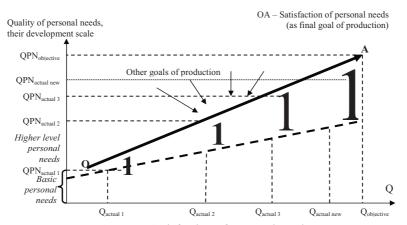


Figure 1. Satisfaction of personal needs

Although many of the personal needs grew out of the biological human needs (for example, to maintain life), however, personal needs have already become a formation of the humans' public life long time ago and mostly depend on the development of the public life (production, first of all). A high level of productivity always determines high level of personal consumption as well. Thus, a system of personal needs is an expression of the historical development of a person and society: the wider, more various and complex is the system of needs, the more developed is the society.

The development of the scale of personal needs in the context of the development of society is disclosed in the scheme by the symbols-units that reveal the development: they grow and increase not only quantitatively, but also qualitatively. At the same time it might be pointed out that from the quantitative point of view as well as from the qualitative one, it is necessary to distinguish objective normative parameters of the personal needs, manifesting through particular standards and actual level of their fulfillment. The former parameters are represented by symbols  $Q_{\it objective}$  and QPN  $_{\it objective}$  and the latter – by symbols Q $_{\it actual}$  and QPN  $_{\it octual}$  The Line OA in the scheme represents the final goal of the production to which all other goals of the production should be subordinated, i.e. the fulfillment of the personal needs of particular level and structure. It is obvious that under the influence of developing manufacturing and the law of increasing needs, there objectively appear socially acknowledged objective standards of consumption that increase quantitatively and qualitatively (Line OA), while the actual level of their fulfillment tends to lag behind those objective standards.

The personal needs and the norms of the living standard under discussion have been growing, they should be pointed towards the development of all society members in the direction of some social economic indiscretion (from the point of view of cultural-technological development): the society should create objective conditions as equal as possible for all its members to achieve particular level of cultural-technological development. Finally, the welfare acquired by society should be measured not only by the indicators of national product, but also by the level of the development of all members of society and the standards of their personal needs. This is what describes the methodological provisions of the baseline for the research into the society members' welfare and their living standard.

Thus, summarizing the material presented above, the living standard may be described as the level of the development of personal needs and their fulfillment. It is obvious that the scale of the development

of those needs represents the quality of life, which necessarily should be integrated into the concept of the living standard. At the same time it should be pointed out that necessity for the development of the personal needs and their fulfillment together with the increase in the cultural-technological level of all society members is not only the final goal of the social production, but also the prerequisite for its growth in the context of modern scientific and technical progress.

### **Major Quantitative Indicators Describing the Living Standard**

Many various circumstances determine the living standard; it is disclosed by the complex system of indicators, for discussion of which there is no enough space in this article. Therefore, here we restrict ourselves to the analysis of some generalized (integrated) indicators of the living standard, what can be met in the studies of social-economic character quite often.

To find out what the material living standard of a particular country is, we can compare gross domestic product per capita. In order to compare actual volumes, it is of vital importance to use conversion coefficients that reflect the differences in price level of the countries. Price differences in various countries are being evaluated by using purchasing power standards (PPS), therefore the living standard of various countries can be compared without bias while matching GDP per capita according to purchasing power standard. Thus, it is one of the components describing the living standard.

Usually, estimation of the living standard from the micro-level point of view includes the analysis of the income and consumption expenditure disposed by the households. The higher is people's income, the more needs they can allow to fulfill. It is supposed that distribution of expenditure is not so uneven in comparison to income (Mann, Riley, 2007, p. 90). Until the present day the scholars have been arguing which source (i.e. the inhabitants' income or consumption expenditure) better reflects the living standard and the level of the fulfillment of the needs of the households. Following the estimation of the World Bank experts and other scholars, information concerning expenditure is more reliable than data on the inhabitants' income (Atkinson, et al. 2002; Deaton, Zaidi, 2002; Essama-Nssah 2005; Hentschel Lanjouw, 1996). In their opinion, this is determined by several reasons:

1. Consumption is a better indicator of the living standard in comparison to income. Income is just one of the elements enabling consumption, meanwhile for evaluation of the living standard the most

valuable information is that on the fulfillment of the inhabitants' major personal needs. Some importance bears the fact that the households are inclined to hide some part of their income in case the income is illegal (received from shadow economy).

- Consumption expenditure can be measured more exactly than income. In the countries where the agrarian economy is poorly developed the income flows of the households can incur significant annual fluctuation. Meanwhile the fluctuations in the inhabitants' consumption expenditure usually are narrower.
- 3. Consumption expenditure better reflects the living standard of the household and its ability to fulfill major personal needs. Consumption expenditure reflects not only goods and services that the household disposes using its current income, but also reveals whether the household can use credit services and savings at the time when its income is low or even negative.

According to British scholar Atkinson, fulfillment of personal needs depends entirely on personal consumption, therefore, consumption expenditure is a more suitable indicator for measurement of a person's or household's welfare (not bearing in mind the source of income), meanwhile income is sufficient indicator when considering the living standard of the household on the whole. Following this attitude, while measuring the living standard by consumption expenditure it might be over-estimated (in case the current consumption is not restricted only to the income received, but the savings or loans are used) or underestimated (in a case the household saves and a part of income is not spent on the current consumption) (Atkinson, 1998). Sileika and Blaziene (2000, p. 32) assert that "inhabitants' income is a major factor determining personal consumption, thus it is an essential indicator of the living standard". According to the authors of the article, income and consumption expenditure of the households can be treated as the second component that defines the living standard.

GDP per capita together with income and expenditure per household reveals only overall living standard of the country and smoothes the differences between various strata of inhabitants. While analyzing living standard it is important to pay attention to the inhabitants' economic (of income and expenditure) inequality, which reveals how equally is the living standard of the country available to all inhabitants. In case of low level of income and comparatively high differentiation of income the number of people receiving very small income increases. The low living standard is a consequence of such situation. Only small poverty and low economic inequality in a

country can guarantee high overall living standard of that country. Measuring of inequality helps to evaluate the efficiency of policies targeted towards decreasing the inequality.

Various methods are applied to assess the unevenness of distribution of income and expenditures. The methods applied most are Gini coefficient, structural coefficients, Robin Hood index, Atkinson index and Theil entropy measure. Usually, separate methods include not one and only, but several absolute and relative indicators. Each method has its advantages and disadvantages. They may distort the results, for example, dispersion, one of the most general inequality measures, is very dependable on income: if income doubles, the increase in income inequality would be four times. Thus, the results obtained are reliable if they meet five axioms (Litchfield, 1999, p. 2–3):

- 1. Transformation principle of Pigau-Dalton. Inequality should increase or at least not to decrease if income of wealthy people increased, and vice versa: if income of poor people increased, the measure of inequality should decrease or at least not to increase.
- 2. Independence of the income scale. In case the indicators have changed in the same proportion, inequality should not change.
- 3. Population principle. Two equal subdivisions having been been merged the inequality should stay the same in a new population.
- 4. Axiom of anonymity or, call it another way, of symmetry. Inequality should depend solely on the income received, not on any other factors.
- 5. Divisibility. Inequality should be divisible into constituent parts.

Indicators of the Atkinson class (named upon famous statistician Anthony Barnes Atkinson) meet those axioms and are expressed as follows:

$$A_{\varepsilon} = 1 - \left[ \frac{1}{n} \sum_{i=1}^{n} \left[ \frac{y_i}{\overline{y}} \right]^{1-\varepsilon} \right]^{\frac{1}{1-\varepsilon}},$$

where n is sample value,  $y_i$  is income (expenditure) of element i,  $\bar{y}$  is income (expenditure) arithmetic mean,  $\varepsilon$  is a measure of inequality antipathy unevenness. Parameter  $\varepsilon$  evaluates the society's perception of social justice and a wish for income (expenditure) to be distributed evenly. This parameter may vary from zero to infinity  $\varepsilon(0 \prec \varepsilon \prec \infty)$ . The higher is  $\varepsilon$  value, the greater is the society's concern about income inequality (Atkinson, 1970). This parameter determines both the level of undesirability of income (expenditure) inequality and the level to which the diffe-

rences in income (expenditure) are acceptable in the lowest edge of income (expenditure) distribution. In case  $\varepsilon$ =0, there is no income inequality. In practice, the measure of  $\varepsilon$  varies from 0.5 to 2.

Indicators of Atkinson class are related to other measurement methods and help to find out income unevenness. Distinguishing feature of this class is possibility to evaluate income unevenness according to change of criteria in various segments. Indicators of Atkinson class are those from the minority of measures that present evaluation of social welfare, based on the function of social welfare. Particular cases of Atkinson (Dominguez-Dominguez, 2005, p. 5):

1. 
$$A_{0,5} = 1 - \frac{1}{\overline{y}} \left( \frac{1}{n} \sum_{i=1}^{n} \sqrt{y_i} \right)^2$$
;

2. 
$$A_1 = 1 - \prod_{i=1}^{n} \left( \frac{y_i}{\overline{y}} \right)^{1/n}$$
;

$$3. \ A_2 = 1 - \left(\frac{\mu_H}{\overline{y}}\right)$$

where  $\mu_H$  income harmonic mean.

Another measure meeting those axioms is a generalized entropy (GE) class of unevenness measures. Cowell (1995) has proved that measure meeting those five axioms belongs to this class. The indicators belonging to GE class are expressed as follows:

$$GE(\alpha) = \frac{1}{\alpha^2 - \alpha} \left[ \frac{1}{n} \sum_{i=1}^{n} \left( \frac{y_i}{\bar{y}} \right)^{\alpha} - 1 \right].$$

Values of  $GE(\alpha)$  coefficient may vary from 0 to  $\infty$ . Zero stands for equal distribution and this coefficient being higher means higher economic inequality in the being investigated population. Parameter  $\alpha$  reflects distribution in different parts and may acquire any real value. Mostly used values of  $\alpha$  are 0, 1 and 2, in a case  $\alpha=0$  more weight is put on the changes in lower income, when  $\alpha=1$  weight of income is the same in the whole subdivision, and when  $\alpha=2$  more weight is put on the changes in higher income (expenditure) (Litchfield, 1999, p. 3).

Theil indicators for inequality measure are separate cases of GE, when  $\alpha=0$  (deviation logarithm mean) and  $\alpha=1$  (Theil index). They look as follows:

$$GE(0) = \frac{1}{n} \sum_{i=1}^{n} \log \frac{\overline{y}}{y_i}, \qquad GE(1) = \frac{1}{n} \sum_{i=1}^{n} \frac{y_i}{\overline{y}} \log \frac{y_i}{\overline{y}}.$$

In case  $\alpha$ =2, GE( $\alpha$ ) index becomes variation coefficient:

$$CV = \frac{1}{\overline{y}} \left[ \frac{1}{n} \sum_{i=1}^{n} (y_i - \overline{y})^2 \right]^{\frac{1}{2}}$$

While calculating and analyzing these indicators, one should pay attention to the fact that:

- 1. Generalized entropy measures with  $\alpha > 1$  are very sensitive to high income (expenditure).
- 2. Generalized entropy measures with  $\alpha < 0$  and Atkinson class measures with  $\varepsilon > 1$  are very sensitive to low income (expenditure) (Cowell, Flachaire, 2004).

The commonly used indicator that reveals the distribution of income (expenditure), in statistics is represented as proportion of part of income taken in all income. These proportions are the points in the traditional Lorenz curve (Mann, Riley, 2007, p.19). This curve is graphical representation of inequality function. Lorenz curve graphically reflects cumulated income (expenditure). Its mathematic expression is:

$$F(x) = \int_{0}^{x} f(x) dx$$

F(x) meaning is a part of the being investigated households, the income (expenditure) of which is lower than x.

There are many indicators that generalize information presented by the Lorenz curve. The most popular is Gini coefficient (G). It is commonly used for evaluation of income (expenditure) differentiation though it also can be successfully used for evaluation of any other discontinuous differentiations. It is widely used in international comparisons.

Gini coefficient is a mode for expression of economic inequality in number. It is a proportion of area, restricted by Lorenz curve and diagonal, taken by area of triangle, restricted by the line of absolute equality. The greater is income inequality, the higher is Gini coefficient, the value of which may vary from 0 (in case of absolute equality) to 1 (in case all income comes to 1 person). Gini coefficient may be expressed through Lorenz curve. Assume L is a function defining Lorenz curve, then:

$$G = 1 - 2 \int_{0}^{1} L(p) dp.$$

Also, Gini coefficient may be expressed as follows (Mussard, 2007):

$$G = \frac{\sum_{i=1}^{n} \sum_{r=1}^{n} |x_i - x_r|}{2n^2 \mu},$$

where n is a sample value,  $x_i$  is income (expenditure) of i- element,  $x_r$  is income (expenditure) of r- element,  $\mu$  is income (expenditure) arithmetic mean. Though Gini coefficient is one of the most commonly used measures in the world, it also has its advantages and disadvantages.

Advantages: Gini coefficient is rather simple to calculate and easy to interpret. Its advantage lies in the fact that it measures unevenness, not the mean values, which in reality do not disclose the differentiation. For example, attempts to state the living standard in the country by GDP get some critics as GDP does not disclose the actual situation in the population as a whole, meanwhile, Gini coefficient reveals the distribution of income between the 'rich' and 'poor' people. Also, it is important that while using Gini coefficient it is possible to compare the income differentiation in the sectors of population and the states.

Disadvantages: Gini coefficient is very sensitive to changes occurring around the mode of distribution and less sensitive to changes occurring in both ends of distribution. In case the distribution changes occur at the same time on the top and the bottom but in contrariwise direction, the change of Gini coefficient may be equal to zero (Forster, Vleminckx, 2004).

To evaluate inequalities the parametrical Gini index can be used as well (Martínez-Camblor, 2007, p. 288), which also acquires values from zero to one and is expressed as follows:

$$SG_k = 1 - k(k-1) \int_0^1 (1-p)^{k-2} L(p) dp$$
, k>1.

where k is a parameter of inequality aversion. Traditional Gini coefficient as commonly used indicator of inequality, is a case of parametrical Gini index, when k=2. Other members present different ethical judgments. Indicators of the value k>2 put more social weight on the poor than traditional Gini, while indicators of the value k<2 put on them less social weight (Jenkins, Van Kerm, 2006, p. 534).

Robin Hood index is another measure for evaluation of unevenness generalizing information presented by the Lorenz curve. It discloses the greatest vertical range between the absolute equality line and the Lorenz curve. This index approximately reveals the part of all income that the households receiving more than average should transfer to the households receiving income below the average, for the income to be distributed equally.

To summarize, it might be stated that there is no one single method that would be best suitable for evaluation of economic inequality – each method has its own advantages and disadvantages. It is quite difficult to embrace the versatility of the economic inequality by using one indicator. Particular measures differently respond to income redistribution within the strata of society, for instance, Atkinson index is more related to spread of poverty, Gini coefficient demonstrates less response to redistribution of income within the middle class, Robin Hood index is insensible to redistribution of income in case it occurs on the same side of income average. The more vivid illustration of income inequality is presented by the Lorenz curve, using which one may calculate Gini and Robin Hood indicators.

# Comparative Analysis of the Living Standard in the Countries of the European Union

As it has been mentioned in the second part of the article, it is possible to compare the living standard of different countries without bias by matching GDP per capita using PPS. One PPS allows buying the same agreed amount of goods and services in all countries, meanwhile to buy the same agreed amount of goods and services in particular countries, subject to the national price level one may need different sums of national currency units. Thus, GDP of the countries expressed in PPS reflects absolute comparison of the scope since the component of price level is eliminated.

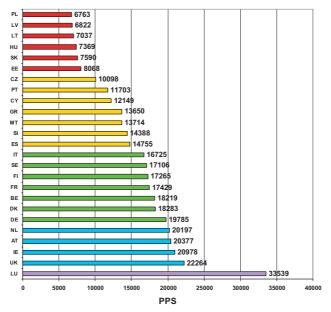
In 2007 the greatest GDP per capita expressed in PPS was in Luxembourg, i.e. 68500 PPS (2.76 times above the EU average). Ireland was the second in a rank according to this indicator, i.e. 36300 PPS (1.46 times above the EU average), the third position was taken by the Netherlands, i.e. 32900 PPS (1.33) times above the EU average). The lowest indicator was detected in the newest Member States: Bulgaria (0.38 of the EU average) and Romania (0.41 of the EU average). In thirteen EU countries GDP per capita expressed in PPS is above the average of EU Member States and in fourteen countries this number is below. By this indicator Lithuania occupied only 23<sup>rd</sup> position among 27 countries of the EU; its GDP per capita expressed in PPS constituted 59.4 per cent of the EU average. Lithuania overtook Poland and Latvia by this indicator in addition to Bulgaria and Romania mentioned above.

It is worthwhile paying attention to the fact that high level of gross domestic product per capita in Luxembourg partly depends on the employment of a significant part of employees from other countries. They contribute to creation of GDP, though while calculating gross domestic product per capita they are not treated the same as those living in the country (First estimates for 2007 GDP, p. 2).

During 2004-2007, GDP of the EU Member States per capita expressed in PPS was growing approx. by 4.72 per cent annually. The growth of this indicator was the highest in the following EU countries: in Latvia approx. by 13.33 per cent annually, in Estonia approx. by 13.31 per cent annually and in Lithuania approx. by 11.25 per cent annually, and the lowest growth was detected in the United Kingdom (approx. 2.83 per cent annually), in Italy (approx. 2.95

per cent annually) and in Germany (approx. 3.7 per cent annually).

The household income per capita is another important indicator of the living standard. Again, Luxembourg is unquestionable leader by this indicator, high average household income per capita is also in the United Kingdom, Ireland, Austria and the Netherlands. Low average income is in Poland, Latvia, Lithuania, Hungary and Slovakia (see Figure 2).



**Figure 2.** Overall income per capita in 2007 expressed in PPS<sup>1</sup> *Source:* drawn by the authors, with reference to Eurostat database

The living standard depends not only on GDP and income per capita, but also on inequality of income distribution. The results presented in Table 1 reveal that while comparing by age income is most unequal in Estonia, Sweden and Denmark (the highest Gini coefficients of income distribution according to age) and the least unequal it is in Slovenia, Poland and Belgium. The overall income of the people of retirement age in Lithuania constitutes 68 per cent of overall income of people of the age group from 24 to 49 years. The greatest indicator of this kind is in Poland, where the overall income of the people of retirement age constitutes 90 per cent of overall income of people of the age group from 24 to 49 years. The lowest value of the indicator (59 per cent) is in Cyprus. While comparing the people of the age group from 25 to 49 years to the people of the age group from 18 to 24 years, one may notice that almost in all countries older people's income is higher. The greatest differences were noticed in Sweden, i.e. income is approx.

by 28 per cent higher, in Denmark by 27 per cent, in Finland by 26 per cent. Smaller differences in income are in Malta, i.e. approx. 2 per cent, in Lithuania and Slovenia approx. 4 per cent. Malta is the only EU country in which the income of the group of 18-24 year old people is higher than income of people of the age group from 25 to 49 years.

Comparing income by education, the major differences appear in Lithuania, Poland and the United Kingdom and the least substantial they are in Sweden, Malta and France. The income of people with higher education in Lithuania is approx. 2.22 times higher than the income of people who do not have higher education. Perhaps this is the reason why Lithuanians strive for higher education so eagerly. Meanwhile in Sweden, for instance, income of people having higher education is only 1.3 times higher than income of people who do not have any education, even secondary.

<sup>&</sup>lt;sup>1</sup> Of 25 countries, as Eurostat does not present data on the inhabitants' overall income in Bulgaria and Romania.

Inequality of the Inhabitants' Income Distribution by Age and Education<sup>2</sup>

No.	Country	$\mathbf{G}_{_{1}}$	P <sub>25-49</sub> / P <sub>18-24</sub>	P <sub>65</sub> / P <sub>25-49</sub>	G <sub>2</sub>	$I_2/I_1$	$I_3/I_1$
1.	Ireland	0.062	1.15	0.71	0.148	1.328	1.831
2.	Austria	0.045	1.08	0.87	0.099	1.271	1.611
3.	Belgium	0.041	1.14	0.75	0.117	1.213	1.618
4.	The Czech Republic	0.053	1.08	0.76	0.11	1.264	1.745
5.	Denmark	0.079	1.27	0.64	0.087	1.179	1.459
6.	Estonia	0.086	1.08	0.72	0.131	1.32	1.824
7.	Greece	0.051	1.12	0.78	0.143	1.302	1.937
8.	Spain	0.056	1.11	0.75	0.124	1.251	1.664
9.	Italy	0.055	1.15	0.8	0.114	1.318	1.888
10.	The United Kingdom	0.058	1.22	0.71	0.154	1.44	2.051
11.	Cyprus	0.074	1.05	0.59	0.147	1.398	1.878
12.	Latvia	0.057	1.06	0.8	0.151	1.363	2.021
13.	Poland	0.04	1.16	0.9	0.175	1.263	2.229
14.	Lithuania	0.071	1.04	0.68	0.177	1.381	2.219
15.	Luxembourg	0.052	1.15	0.83	0.121	1.207	1.71
16.	Malta	0.051	0.98	0.8	0.067	1.275	1.579
17.	The Netherlands	0.062	1.15	0.75	0.1	1.139	1.531
18.	Portugal	0.061	1.07	0.73	0.081	1.504	2.523
19.	France	0.049	1.16	0.82	0.076	1.065	1.378
20.	Slovakia	0.053	1.08	0.76	0.101	1.313	1.679
21.	Slovenia	0.035	1.04	0.84	0.127	1.26	1.811
22.	Finland	0.073	1.26	0.69	0.115	1.139	1.605
23.	Sweden	0.083	1.28	0.67	0.06	1.132	1.312
24.	Hungary	0.047	1.11	0.87	0.135	1.249	1.883
25.	Germany	0.049	1.16	0.81	0.095	1.183	1.551

Source: calculated by the authors with reference to Eurostat database.

Increasing income under disposition allows higher consumption. Sometimes consumption expenditure and its structure reflects the living standard better than income. The level of income may vary, especially of those households receiving irregular income. Usually, consumption expenditure on the goods of everyday usage does not change significantly.

It is supposed that the smaller relative part of consumption expenditure goes for food, the higher the living standard in the country is. Inhabitants of the countries spending less on food are able to allocate bigger part of income to culture, leisure, education, savings, investment and so on. It is considered

that the smaller relative part of consumption expenditure goes for food, the higher the living standard in the country is. The results obtained proved this statement to be correct, since they yield the similar results as while evaluating income or GDP per capita.

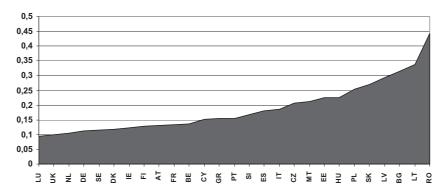
The inhabitants of Lithuania spend 33.8 per cent of their expenditures on food and non-alcoholic beverages, meanwhile such expenses of the inhabitants of Luxembourg and the United Kingdom do not even reach 10 per cent (see Figure 3). Worse situation among EU Member States is only in Romania, the inhabitants of which spend as much as 44.2 per cent of their expenditures on food and non-alcoholic beverages.

Having performed the correlation analysis of the relation between the GDP per capita and the part of expenses for food, we receive the correlation coefficient of -0.876. This means that there is strong inverse relation, i.e. the bigger part of expenses is allocated for food, the smaller is GDP per capita of that particular country (see Figure 4). Though the living standard in Lithuania little by little gets closer to the average living standard of the EU countries, not every inhabitant can feel it, talks have it that economic inequality in Lithuania increases. As it has been men-

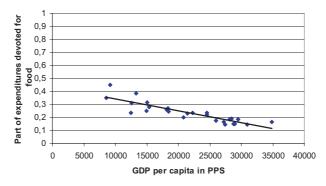
 $<sup>^{2}</sup>$   $G_{i}$  – Gini coefficient of the distribution of overall income by age, G, – Gini coefficient of the distribution of overall income by education;

 $P_{18-24}$  – average income of the group at the age of 18–24 years,  $P_{25-49}$  – average income of the group at the age of 25–49,  $P_{65}$  – average income of the group at the age of 65

 $I_t$  – overall income of people having education of the 1st degree (lower than primary, primary or under-secondary education),  $I_2$  — overall income of people having education of the  $2^{nd}$  degree (secondary, further education),  $I_3$  — overall income of people having education of the 3rd degree (higher education).



**Figure 3.** Part of income spent on for food and non-alcoholic beverages *Source:* drawn by the authors with reference to Eurostat database



**Figure 4.** Relation between GDP per capita and part of expenses for food *Source:* calculated by the authors on the basis of Annual Abstract of Statistics, Concise Statistical Yearbook of Poland, Eurostat databases, Household consumption expenditure, Namu ukiu biudzetai 2007, Total and average expenditure and percent distribution of total expenditure.

tioned, there is no one and only method that would be best suited for evaluation of the economic inequality – each method has its own advantages and disadvantages. To embrace the versatility of the economic inequality by using one indicator is rather difficult. Different measures differently respond to income redistribution within the social strata, therefore, inequality of income distribution among the inhabitants of Lithuania is evaluated by calculating indices of general entropy (GE) class of unevenness measures (with parameters  $\alpha = 0$ ; 1; 2), Atkinson class (A) indicators (with antipathy parameters  $\epsilon = 0.5$ ; 1; 2), parametrical Gini coefficients (SG) (with parameters of inequality aversion k = 1.5; 2; 2.5) and Robin Hood index.

Various inequality indicators are calculated using data of Lithuanian Department of Statistics on the average consumption expenditures of the Lithuanian households. Though, according to the data presented by the agency 'Eurostat', inequality between inhabitants of Lithuania decreases, however, having performed the evaluation of expenditure distribution of the Lithuanian inhabitants by using measurement indicators of Atkinson class and general entropy class of unevenness measures and Gini coefficients, we receive opposite results.

Table 2

Main Indicators of the Household Expenditure
Inequality

	2004	2005	2006	2007
GE (1)	0.07	0.075	0.079	0.082
GE (2)	0.07	0.076	0.081	0.083
GE (3)	0.602	0.631	0.658	0.667
$A_{0,5}$	0.077	0.084	0.088	0.091
$A_{I}$	0.149	0.159	0.167	0.172
$A_2$	0.270	0.285	0.295	0.3034
$SG_{1,5}$	0.209	0.219	0.226	0.229
$\overline{SG_2}$	0.317	0.33	0.339	0.344
$SG_{2.5}$	0.384	0.398	0.407	0.412
Robin Hood index	0.225	0.236	0.242	0.244

Source: calculated by the authors with reference to Namu ukiu biudzetai, Namu ukiu pajamos ir islaidos.

As it can be seen from the indicators presented in Table 2, parametrical Gini coefficient when k = 2.5, in 2007 was 41.2 per cent in Lithuania and increased by 2.8 per cent in comparison to year 2004. In comparison to year 2004, other indicators of the inhabitants' expenditure inequality (Atkinson coeffi-

cient, indices of class of measurements of general entropy of unevenness, Robin Hood index) increased as well. Increasing economic inequality between particular groups of inhabitants not only hinders economic growth and its efficiency and thus the future living standard, but also increases social tension among inhabitants.

### **Conclusions**

- 1. Performed analysis of scientific literature sources revealed that there is no one and universally accepted definition of living standard. The authors assume that the living standard might be defined as the degree of development of personal needs and their fulfillment. The scale of the development of personal needs reveals the quality of life, which needs to be included into the conception of the living standard.
- 2. Living standard is revealed by rather complicated system of indicators. The article is restricted to the analysis of some generalized (integrated) indicators of the living standard only. The living standard is quantitatively defined by the following economic indicators: GDP per capita, inhabitants' income and consumption expenditure and their inequality. The first two indicators reveal overall living standard of the country, while income and expenditure inequality discloses to which degree the living standard is available to all inhabitants of the country. In international comparisons there are used indicators of purchasing power parity.
- 3. Among scholars there is no single, unified opinion about what resources (i.e. inhabitants' income or consumption expenditure) describe household living standard and degree of the fulfillment of the needs more exactly. According to one group of scholars, information on consumption expenditure is more reliable than data on inhabitants' income, since it better reveals the fact about the fulfillment of the inhabitants' personal needs. According to other scholars, basically, the inhabitants' income is the major factor determining personal consumption; consequently, it is an essential indicator of the living standard. When evaluating the living standard in consumption expenditure, it might be over-estimated (in the case the current consumption is not restricted only to the income received, but savings or loans are used as well) or under-estimated (in the case the household saves and a part of income is not spent on the current consumption). According to the authors of the article, while analyzing the living standard, it is necessary to study both income and expenditure.
- 4. While analyzing the living standard it is impor-

- tant to pay attention to inhabitants' economic (income and expenditure) inequality, which reveals how equally the living standard is available to all inhabitants of the country. There is no one and only method that would be best suited to evaluation of the economic inequality: each method has its own advantages and disadvantages. Mostly, for evaluation of unevenness of distribution of income and expenditure, the following methods are applied: Gini coefficient, structural coefficients, Robin Hood index, Atkinson index and Theil entropy index.
- 5. During 2004–2007, GDP of the EU countries per capita expressed in PPS was increasing by approx. 4.86 per cent each year. The most significant growth was in Latvia, Romania, Estonia, Lithuania, and the least significant it was in Denmark, Italy and the United Kingdom. Evaluated according to the majority of indicators, the living standard of Lithuania is one of the lowest in comparison to the EU countries.
- 6. Results of the calculations performed by the authors reveal that while comparing by age, the most unequal income is in Estonia, Sweden and Denmark, and the least unequal it is in Slovenia, Poland and Belgium. The overall income of people of retirement age in Lithuania constitutes 68 per cent of overall income of people of the age group from 24 to 49 years. Earnings of people of the age group from 24 to 49 years in Lithuania are 4 per cent higher than those of people aged from 18 to 24.
- 7. When comparing income by education, the major differences appear in Lithuania, Poland and the United Kingdom, and the smallest they are in Sweden, Malta and France. The income of people with higher education in Lithuania is approx. 2.22 times higher than the income of people who have not obtained even a secondary education.
- The calculations performed disclose that parametrical Gini coefficient when k = 2.5, in year 2007 comprised 41.2 per cent in Lithuania and increased by 2.8 percentage points in comparison to year 2004. In comparison to year 2004, other indicators of the inhabitants' expenditure inequality (i.e. Atkinson coefficient, indices of measurements of class of unevenness measures of general entropy, Robin Hood index) increased as well. All these indicators reflect the increase of the level of living standard differentiation among particular strata of Lithuanian people, though according to the data presented by the Agency 'Eurostat', inequality between the inhabitants of Lithuania decreases. Increasing economic inequality between particular groups of inhabitants not only hin-

ders economic growth and its efficiency and thus the future living standard, but also increases social tension among inhabitants.

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### Gyvenimo lygis ir jo lyginamoji analizė Lietuvoje ir kitose Europos Sąjungos šalyse

#### Santrauka

Pastarąjį dešimtmetį ES šalyse vykę socialiniai ir ekonominiai reiškiniai bei vykdomos socialinės ir ekonominės politikos turėjo nevienodos įtakos šalių gyvenimo lygiui. *Tyrimo tikslas* – atlikti Lietuvos ir kitų ES šalių gyventojų gyvenimo lygio lyginamąją analizę, įvertinti Lietuvos gyventojų išlaidų pagrindinius pasiskirstymo rodiklius.

Socialinėje-ekonominėje literatūroje gyvenimo lygis, jo turinys ir gyvenimo kokybė skirtingų autorių traktuojami labai nevienodai. Teorinės pozicijos net ir tų autorių, kurie atskleisdami gyvenimo lygio sampratą, ją sieja su žmonių poreikių patenkinimo laipsniu ir, straipsnio autorių nuomone, iš esmės eina teisinga kryptimi, nėra pakankamai metodologiškai pagrįstos, nes, jau formuluojant pačią problemą, pasigendama priežastinių ryšių atskleidimo, t. y. sisteminio požiūrio į tiriamąjį objektą (gyvenimo lygį). Autorių nuomone, gyvenimo lygį galima apibūdinti kaip asmeninių poreikių išvystymo ir jų patenkinimo laipsnį. Suprantama, kad šių poreikių išvystymo skalė rodo gyvenimo kokybę, kurią būtina integruoti į gyvenimo lygio sampratą. Kartu pabrėžtina, kad asmeninių poreikių plėtotė, būtinybė kuo geriau juos tenkinti ir visų visuomenės narių kultūrinio-techninio lygio kėlimas yra ne tik visuomeninės gamybos galutinis tikslas, bet ir jos augimo sąlyga šiuolaikinės mokslinės techninės pažangos kontekste.

Gyvenimo lygį rodo pakankamai sudėtinga rodiklių sistema. Straipsnyje apsiribojama tik kai kurių apibendrintų (integruotų) gyvenimo lygio rodiklių analize. Gyvenimo lygis kiekybiškai apibūdinamas tokiais ekonominiais rodikliais, kaip BVP, tenkantis vienam gyventojui, gyventojų pajamos ir vartojimo išlaidos ir jų pasiskirstymo netolygumas. Pirmieji du rodikliai rodo šalies vidutinį gyvenimo lygį, o pajamų ir išlaidų pasiskirstymo netolygumas atskleidžia, kaip gyvenimo lygis prieinamas visiems šalies gyventojams.

Tarp mokslininkų nėra vieningos nuomonės, kokie ištekliai (gyventojų pajamos ar vartojimo išlaidos) geriau apibūdina namų ūkių gyvenimo lygį. Vienų mokslininkų vertinimu, informacija apie vartojimo išlaidas yra patikimesnė nei duomenys apie gyventojų pajamas, nes jos geriau parodo, kaip patenkinami asmeniniai gyventojų poreikiai. Kitų mokslininkų nuomone, gyventojų pajamos iš esmės yra pagrindinis asmeninį vartojimą lemiantis veiksnys, taigi ir pagrindinis gyvenimo lygio rodiklis. Straipsnio autorių nuomone, analizuojant gyvenimo lygį, būtina nagrinėti tiek pajamas, tiek išlaidas ir jų nelygybę.

Nagrinėjant gyvenimo lygį, svarbu atkreipti dėmesį į gyventojų ekonominę (pajamų ir išlaidų) nelygybę, kuri rodo, kaip vienodai prieinamas šalies gyvenimo lygis visiems gyventojams. Pajamų ir išlaidų pasiskirstymo netolygumui įvertinti dažniausia taikomi tokie metodai: Gini (Džini) koeficientas, struktūriniai koeficientai, Robin Hood (Robino Hudo) indeksas, Atkinson (Atkinsono)

indeksas, Theil (Teilo) entropijos indeksas. Ekonominei nelygybei įvertinti nėra vieno geriausio metodo – kiekvienas metodas turi savų privalumų ir trūkumų. Aprėpti ekonominės nelygybės įvairiapusiškumą vienu indeksu yra sudėtinga. Skirtingi matai nevienodai reaguoja į pajamų perskirstymą visuomenės sluoksniuose, pavyzdžiui, Atkinson indeksas labiau siejasi su skurdo paplitimu, Gini koeficientas mažiau reaguoja į pajamų perskirstymą viduriniuose sluoksniuose, Robin Hood indeksas nejautrus pajamų perskirstymui, jei jis vyksta toje pačioje pajamų vidurkio pusėje. Vaizdžiausiai vartojimo išlaidų nelygybę iliustruoja Lorenz kreivė, iš kurios galima apskaičiuoti Gini, Robin Hood indeksus.

Autorių atliktų skaičiavimų rezultatai rodo, kad pagal amžių pajamos labiausiai netolygiai yra pasiskirsčiusios Estijoje, Švedijoje ir Danijoje (didžiausi pajamų pasiskirstymo pagal amžių Gini koeficientai), o mažiausiai skiriasi Slovėnijoje, Lenkijoje ir Belgijoje. Lietuvos pensinio amžiaus žmonių vidutinės pajamos sudaro 68 proc. 24–49 m. žmonių vidutinių pajamų ir yra 23 vietoje tarp 27 ES šalių. Jos BVP, tenkantis vienam gyventojui, išreikštas PGS, sudarė 59,4 proc. ES vidurkio. Pagal išsilavinimą pajamos labiausiai skiriasi Lietuvoje, Lenkijoje ir Jungtinėje Karalystėje, mažiausiai – Švedijoje, Maltoje, Prancūzijoje. Žmonių, turinčių aukštąjį išsilavinimą, pajamos Lietuvoje vidutiniškai 2,22 karto didesnės už žmonių, neturinčių net vidurinio išsilavinimo.

Laikoma, kad kuo mažesnė santykinė vartojimo išlaidų dalis skiriama maistui, tuo aukštesnis gyvenimo lygis šalyje. Lietuvos gyventojai maistui ir nealkoholiniams gėrimams skiria 33,8 proc. išlaidų, kai tuo tarpu Liuksemburgo, Jungtinės Karalystės gyventojai tam neskiria net 10 proc. Blogesnė situacija iš ES narių tik Rumunijoje, kurios gyventojai maistui ir nealkoholiniams gėrimams skiria net 44,2 proc. išlaidų.

Pagal agentūros "Eurostat" pateikiamus duomenis, nelygybė tarp Lietuvos gyventojų mažėja, tačiau atlikus Lietuvos gyventojų išlaidų pasiskirstymo vertinimą, panaudojant Atkinson klasės, bendrosios entropijos netolygumo matų klasės matavimo rodiklius, parametrinius Gini koeficientus, gauti priešingi rezultatai. Parametrinis Gini koeficientas, kai k = 2,5, 2007 m. Lietuvoje sudarė 41,2 proc. ir, lyginant su 2004 m., padidėjo 2,8 procentiniais punktais. Lyginant su 2004 m., padidėjo ir kiti gyventojų išlaidų nelygybės rodikliai – Atkinson koeficientas, bendrosios etropijos netolygumo matų klasės indeksai, Robin Hood indeksas. Didėjanti ekonominė nelygybė tarp atskirų gyventojų grupių ne tik mažina ekonomikos augimą ir jos efektyvumą, taigi ir gyvenimo lygį ateityje, bet ir didina socialinę įtampą tarp gyventojų.

*Pagrindiniai žodžiai:* pragyvenimo standartai, pajamos, išlaidos, nelygybė, paskirstymas.