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MULTIDIMENSIONAL ASSESSMENT OF THE QUALITY OF LIFE: LITHUANIA IN THE EU CONTEXT *

The article examines the problems of measuring and evaluating the quality of life (QoL) of population. The authors have developed a methodology to assess the QoL. The methodology is based on the concept of QoL, encompassing 3 main blocks into one system – health and demographic characteristics of population, wealth, cultural and moral-ethical indicators. The article presents a model for evaluating the QoL in the case of Lithuania, which allows measuring and evaluating the individual components of QoL and also calculating the integrated index of QoL.

Keywords: quality of life; multidimensional assessment; Lithuania.

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МУЛЬТИФАКТОРНЕ ОЦІНЮВАННЯ ЯКОСТІ ЖИТТЯ: ЛИТВА В КОНТЕКСТІ ЄВРОПЕЙСЬКОГО СОЮЗУ

У статті розглянуто проблеми вимірювання та оцінювання якості життя населення. Розроблено методологію оцінювання якості життя населення, в основу якої покладено концепцію якості життя населення, що об'єднує в єдину систему 3 основні блоки – здоров'я та демографічні характеристики населення, матеріальний стан, культурні та морально-етичні індикатори населення. Представлено модель оцінювання якості життя населення на прикладі Литви, що дозволяє вимірювати та оцінювати як окремі складові якості життя, так і розрахувати загальний індекс якості життя населення.

Ключові слова: якість життя; мультифакторна оцінка; Литва.

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МНОГОФАКТОРНАЯ ОЦЕНКА КАЧЕСТВА ЖИЗНИ: ЛИТВА В КОНТЕКСТЕ ЕВРОПЕЙСКОГО СОЮЗА

В статье рассмотрены проблемы измерения и оценки качества жизни населения. Разработана методология оценки качества жизни населения. В основу методологии положена концепция качества жизни населения, объединяющая с одну систему 3 основных блока – здоровье и демографические характеристики населения, материальное положение, культурные и морально-этические индикаторы населения. Представлена модель оценки качества жизни населения на примере Литвы, которая позволяет измерить и оценить как отдельные составляющие качества жизни, так и рассчитать общий индекс качества жизни населения.

Ключевые слова: качество жизни; многофакторная оценка; Литва.

Introduction. In Europe, it has been decided at the level of heads of state to change the established practice of assessing countries' economic development by macroeconomic indicators only. Well-known economic researchers claim that general economic indicators (GDP, inflation, budget deficits etc.) do not reflect the real situation of a country's economy; the actual state of economy and the efficiency of economic policy are reflected by the indicators of population welfare and quality of life (QoL) (Stiglitz et al., 2010).

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Taking into account the research findings and recommendations – to use the indicators reflecting the QoL instead of general economic indicators, the assessment of a country's economic situation should include the following areas: wealth, health, education, the balance between work and leisure, time spent on personal development, self-education, physical, economic, social, and legal security, the ability to influence government decisions, social contacts and participation in community activities, living environment. According to researchers, it is essential to explore the distribution of income, consumption, and wealth between the richest and the poorest groups in society, as uneven distribution of created products defying social justice detrimentally affects economic growth and state budget revenues. Uneven distribution of income, which merely increases the income of the rich and impoverishes the rest of society, makes the economy less efficient, because it restricts investment and innovation promotion opportunities. Therefore, welfare and QoL must be measured not only quantitatively, but also by the distribution of created wealth among social groups.

Although the factors of QoL in Lithuania were not given priority in research for a long time, social development of Lithuanian population has always been a matter of interest for Lithuanian researchers. Two decades after the restoration of Lithuania's independence and since Lithuania's accession to the EU, WTO and NATO, the country's economic situation and the welfare of its population have undergone major changes, hence a more solid ground has emerged for analysis of trends of changes in the welfare of Lithuanian population.

After the European Statistical System Committee responded to the initiatives of J. Stiglitz, A. Sen, J.-P. Fitoussi and the European Commission to improve the measuring of the society progress and prepared special sets of indicators to evaluate these phenomena, in April 2012 Lithuania made the first significant step towards measuring QoL. Namely, the Lithuanian Department of Statistics began, by using the information available to it, to publish the values of some indicators of QoL available since 2005. The data published is providing answers to the questions of what makes inhabitants (un)happy and, most importantly, what are the main differences between various groups of society in terms of the overall welfare. However, it was decided not to measure the single aggregate indicator, that is, the QoL index or the Happiness index.

Literature review. Both foreign and Lithuanian sources widely use and differently understand such concepts as the *standard of living, welfare, well-being, quality of life, fullness of life, life satisfaction and happiness*. All these concepts reflect the aspects of welfare and life, but they are not identical.

The term "QoL" is used to describe a number of related, but different economic, social and political phenomena. While recognising the importance of QoL as a degree of welfare or as the parameter reflecting the principal living conditions of population, there is still no hard-and-fast definition of this concept among researchers. Therefore, depending on a paradigm, approach and school the terminological issue remains topical in scientific literature, just as does a rather subjective selection of the methodology for QoL, which depends on a definition a respective concept.

The topic of the meaning of life, happiness and QoL has always been of interest to writers and philosophers. Greek philosophers Aristotle and Socrates wrote in their works about the fullness of life and human happiness. The term "quality of life" is

believed to have been first mentioned at the beginning of the 20th century by English economist Arthur Cecil Pigou in his book on the economy and welfare, and the concept of the QoL, which established itself in contemporary culture, was first used in a political speech by Lyndon B. Johnson, the US President (1963–1969). He stressed the need, instead of measuring the quantity of items which the members of society would be able to purchase, to assess the impact on their QoL.

Development of scientific approaches to QoL is believed to have started in the works of sociologist E. Allardt, who was the first to assess the overall impact of objective and subjective factors on individual welfare (Allardt, 1978), and the QoL was described by means of 3 dimensions of needs – *having, loving, being* (Allardt, 1993). The very concept of QoL took its shape in the 7th decade of the 20th century in an attempt to determine the relationship between traditional material interests and newly emerging needs and economic opportunities.

In 1993, a new definition of QoL was proposed by the World Health Organization; in 1997, a representative of medical sciences Barbara Kay Haas drew attention to the fact that QoL is an individual assessment linked to personal goals, standards and needs, dependent on professed values and affected by "person's physical health, psychological condition, independent perception, social relations and the environment".

Since 1970, various methods of public welfare, happiness, life satisfaction and QoL assessment have been described in literature and have been employed in the world practice. The Physical Quality of Life Index was proposed in 1970 by D. Morris, who, contrary to previous practices of measuring public welfare solely on the basis of economic welfare, incorporated into this concept the indicators of health and literacy. The studies on population QoL covering even more areas were conducted in the mid-1970s by sociologists from the University of Michigan, who focused their attention on such factors as personal life, work, and the environment. Life satisfaction and happiness became the main criteria of assessment of an individual QoL. Taking into consideration individual priorities and evaluating the importance of various aspects of life for individuals, representatives of medical sciences C. Estwing Ferrans and M. Powers proposed their own methodology. Since 1990, *Human Development Index*, proposed by the Nobel laureate Amartya Sen and Mahbub ul Haq, has been applied. In 1995, the *Genuine Progress Indicator* evolved in Canada from green economy theories, which treated the market as an integral part of the ecosystem. Following a six-year joint work of researchers, practitioners, representatives of governmental and non-governmental organisations, the QoL assessment methodology by Calvert-Henderson was first published in 2000 in the USA. The development team saw the need to create a more practical and up-to-date system of criteria for assessment of living conditions of society. Worldwide, the Gross National Happiness measured in the Buddhist kingdom of Bhutan is also well-known; since 2003, QoL surveys have been carried out in Europe every 4 years by means of public opinion polls. Various ways of assessment of QoL by means of synthetic indices, using both subjective and objective evaluation methods, have been developed by scientists and researchers in a variety of disciplines: psychologists R.A. Cummins, A.G. White, sociologist R. Veenhoven, the representative of management and marketing sciences M.R. Hagerty etc., as well as the international consulting firm "*Mercer Human Research*", the Legatum Institute, the "*International Living*" Publishing Group etc.

Problem statement and the research objective. However, summarising the concepts of QoL developed by various scientists and researchers and the assessment methods proposed by them we have to admit that at this point, a *research problem* arises: *which models of assessment of QoL could actually quantify QoL.*

The research problem is determined by 3 circumstances.

Firstly, there is still no uniform perception and scientific definition of the QoL in economic literature. QoL is understood as a degree of welfare experienced both at the individual and national level. Everyone can provide the concept of QoL with own interpretation, but in science QoL must be a concept expressed by specific indicators and measured in relation to population welfare in a country.

Secondly, the concept of QoL is extremely broad and covers many areas, it is difficult to define it by means of not only a single indicator, but also a system of indicators; the more intensive is the processes of internationalisation and globalisation, the more complicated becomes its content.

Thirdly, as economists have proposed recently, QoL is an integral part of the economy, it depends on economic policy and resources allocation by the state and, in turn, it also influences country's economic development.

The **research objective** is, upon analysing interdisciplinary scientific approaches to QoL assessment, to develop a multidimensional model of QoL assessment and to apply the proposed model, evaluate QoL of Lithuanian population in the EU context.

Research methodology – multidimensional assessment at the macro- and microlevels. The analysis of research works of foreign authors in the field of the QoL has shown that *in economic literature, the definition of the QoL concept is still an issue under discussion*, and the assessments of QoL according to different assessment methodologies are performed in a fragmented manner by analysing the situation only in certain regions, whereas a consistent and regular assessment of QoL is not performed. Moreover, only a small number of QoL assessment methodologies reveal its connection with the efficiency of economic policy implemented by the state.

Upon analysing the concepts of QoL provided in scientific literature and the quality of life assessment methods applied in practice, the authors argue that QoL is a *transdisciplinary research object and a multidimensional indicator reflecting the efficiency of economic policy implemented by the state and the level of society welfare*, that is, the entirety reflecting physical and mental health, population development and family well-being, social and physical security, quality of environment, balance between work and private life, degree of material, cultural and spiritual needs satisfaction *assessed at the macro* (country-wide) *and microlevel* (from the point of view of an individual).

However, from the paradigmatic perspective QoL must be considered as an object of economic research, as it is highly dependent on economic factors: economic policy implemented by the state, efficient, and equitable distribution of resources, i.e. other areas of QoL, such as population development, health, healthy environment, cultural indicators, the degree of meeting social and spiritual needs, moral and mental development of society, are dependent on economic conditions and living standards in a country.

The authors propose the *concept of QoL*, which consists of 3 groups of QoL indicators (these groups are divided into 14 areas) (Figure 1).

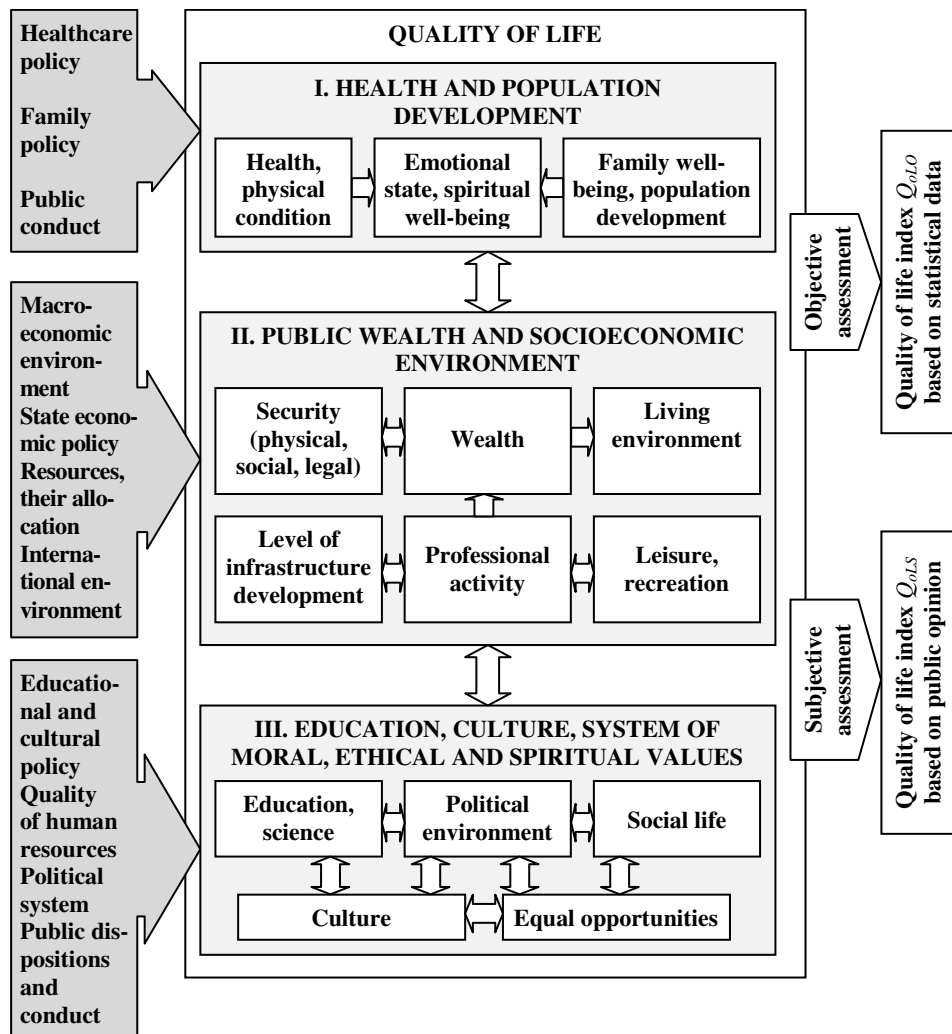


Figure 1. Multidimensional QoL assessment model, developed by the authors

Breaking down QoL into the groups characterising it and dividing the latter into the areas, selecting for each area certain QoL of indicators make it possible to quantify the quality of life.

The first group of areas of the quality of life includes individual physical and mental health and demographic (population development) indicators, that is, the incidence of certain diseases and mortality rates, mental and emotional stability, life expectancy, fertility and mortality rates, natural increase of population, marital status, family stability, number of marriages/divorces etc.

The second group of QoL areas includes wealth indicators: the income level of population, differentiation of income and consumption, living conditions dependent on the standards of living, the quality of the living environment, physical, social and legal security, professional activity and the time spent on recreation, infrastructure and

technological aspects, opportunities provided by them and access to public services.

The third element defining QoL is education, culture, and the system of moral and spiritual values. In these areas are the indicators of the education level, scientific achievement, cultural sightseeing, social relations of population, also the areas significant for QoL, such as political environment and equal opportunities. Although it is difficult to express the third element of QoL by means of quantitative indicators, using the already developed indices (e.g., in political environment – the degree of freedom, respect to political rights, corruption perception index) makes it possible to obtain a relatively objective view, and to compare the indices in the context of other countries.

Table 1. Areas of QoL and their indices, developed by the authors

Groups of QoL areas	QoL areas	Indices of areas
I. Health and population development	1. Health, physical condition	Public health and physical condition index
	2. Emotional state, spiritual well-being	Public spiritual / emotional well-being index
	3. Family well-being, population development	Population development index
II. Material conditions and level of country's development	4. Wealth	Public wealth index
	5. Living environment	Environment quality index
	6. Security (physical, social, legal)	Public security index
	7. Professional activity	Professional activity index
	8. Leisure, recreation	Work and private life balance index
III. Education, culture, system of moral and ethical and spiritual values	9. Level of infrastructure development	Infrastructure development level index
	10. Education, science	Public education and science index
	11. Culture	Public cultural level index
	12. Social life	Social relations index
	13. Political environment	Political vitality index
	14. Equal opportunities	Equal opportunities index

Based on the proposed concept of QoL, the authors provide a *QoL assessment model* supported by an objective assessment at the macrolevel (country-wide) using statistical data and a subjective assessment based on public opinion polls at the micro-level (from the point of view of an individual):

- *the macrolevel* (objective assessment) methodology offers indices of 14 areas of QoL (health, wealth, education etc.) covering the statistical indicators in the relevant field, thus allowing to evaluate and compare the condition of a particular area of QoL and change trends from the perspective of time and other countries. These indices allow for a more detailed assessment of QoL by its component parts and identification of positive progress areas and problem-prone areas of QoL.

The integrated index of QoL is expressed by the following formula:

$$Q_{oL} = \sum_n a_n Q_{nO}, \tag{1}$$

where Q_{oL} – the index of QoL (according to objective assessment); Q_{nO} – indices of specific areas of QoL; a_n – the relative weighting of indices of specific areas of QoL (provided that $\sum_n a_n = 1$); $n = 14$.

- *the microlevel* (subjective assessment, i.e. based on public poll data) methodology determines the weight of each of 14 QoL areas representatively reflecting the priorities given by society at the time of the poll and taking into account the distribution of population by age, education, social status, place of residence. This methodology also allows identifying the problem areas of QoL, as each of them is expressed in points and the ratio of positive to negative evaluations reflecting the general opinion of the public in a given area is calculated.

For the purpose of summarising the subjective assessment, an integrated QoL index based on public opinion is calculated, that is, the data obtained are converted into scores (negative and positive responses are summed up, with the most satisfied one assigned the score +2, a less happy one – the score +1, a rather unhappy – the score -1 and the least satisfied – the score -2) and the average QoL rating is obtained for each area. It is multiplied by the relative weight assigned to each area of QoL according to priorities of the population and summed up and converted to % or unit fractions:

$$Q_{oLS} = \sum_n a_n Q_{nS}, \quad (2)$$

where Q_{oLS} – the index of QoL (according to subjective assessment); Q_{nS} – satisfaction with a certain area (in points); a_n – the relative weight of indices of specific areas of QoL (provided that $\sum_n a_n = 1$); $n = 14$.

Another aspect emphasised by the authors when developing a new model for QoL assessment – *evaluation of favourability or, in other words, causality of conditions for the formation of a particular QoL*. Quality of life is highly dependent on the efficiency of economic policy implemented by the state, decisions taken by public policy representatives, the country's wealth in resources and their rational use and equitable distribution, the quality of human resources (level of education and culture, intellectual potential, initiative-taking). Taking into consideration the impact of these conditions, QoL itself as presented in the model is treated as a consequence or as the result influenced by the entirety of these conditions.

The model (Figure 1) proposed by the authors of this article is just one of possible options of QoL assessment and certainly does not cover all areas of QoL and not take into account all the conditions that determine a certain level of QoL and a quantifiable value. However, the model can be applied in evaluating country's socioeconomic situation or the progress in the field of QoL, identifying critical indicators and particularly pronounced imbalances between certain areas of QoL.

In order to determine the position of a specific (in the case under analysis – Lithuanian) indicator, sub-index or index in respect of other EU countries, and thus evaluate the complexity of the situation in the country, the authors use the method of distance normalisation between the minimum and the maximum values.

The following rating scale is used for the purpose of identification of critical areas of QoL in the model (Table 2).

Research findings: quality of life of Lithuanian population for the past 10–20 years. The dynamics of QoL indicators established during the empirical study has allowed to see changes in QoL of Lithuanian population since the emergence of the market economy and to identify the main positive and negative factors that influenced QoL during the past 10–20 years. Positive factors which particularly promoted

the increase in QoL of Lithuanian population were rapid economic growth, increasing employment and decreasing unemployment, rapid wage and population income growth, consumption growth, rapid increase in people’s savings and loans, and the development of real estate market. The negative impact on QoL of Lithuania’s population was exercised by worsening demographics and increasing emigration, deteriorating public health indicators, emotional state (spiritual well-being), distrust of authorities, and decline of cultural, and moral and ethical and spiritual values promoted by hypertrophied consumerist behaviour.

Table 2. Scale rating the criticality of indices and sub-indices of QoL areas

	Value intervals for indices and sub-indices			
According to the objective assessment methodology (min 0, max +1)	0–0.4	0.41–0.7	0.7–0.95	0.96–1
According to the subjective assessment methodology (min -1, max +1)	-1–0.25	0.26–0.5	0.51–0.75	0.76–1
	Critical value	Average value	High value	Ideal condition

Trends concerning the material conditions of population in Lithuania over the past 20 years show a marked growth in the standards of living. However, the growing wealth of population (growing wages, savings and consumption) does not mean the increase in QoL. It can be claimed that even contradictory processes were taking place: *wealth was growing at the expense of other areas of QoL*. Population welfare measurements in consumer society reveal certain paradoxes. Thus, life satisfaction does not increase in direct proportion to increasing earnings, i.e. wealth does not make a person happy, and the significance of earnings for individual well-being is different and depends on a person’s marital status or health condition – the same income can mean for different persons a completely different level of welfare.

Using the objective assessment methodology, the results of the empirical study allow the assessment of QoL in Lithuania in the context of the EU countries. Upon ranking the EU countries according to the calculated indices of specific areas of QoL, we find that in many cases, Lithuania ranks the lowest. The following areas have emerged as *particularly critical areas of QoL*: wealth, public spiritual/emotional well-being, population development/demographic status, public (physical and social) security, the level of culture in the society. *The most positive areas are as follows*: quality of the environment, public education and science, quality of professional activity, ensuring equal opportunities.

As regards the overall QoL index calculated according to the statistical data and upon evaluating the significance of each area, Lithuania ranked recently (2008–2011) among the lowest in comparison to the EU countries. The areas of the QoL which are the most significant and vital for population – health and physical condition, wealth, spiritual well-being, population development/demographic status, (physical, social, legal) security – are especially backward in Lithuania, and the majority of indicators of these areas are among the lowest among the EU countries.

Comparing Lithuania against Sweden (Figure 2) as the most advanced EU country in 2011 by the QoL index calculated according to the proposed assessment model, the largest disproportion between the indices of QoL areas can be pointed out

in the following areas: wealth, spiritual/emotional well-being, population development, security, education and science, social life, political, environment, level of infrastructure and technology development. It is only in the areas of the quality of environment and equal opportunities that Lithuania surpassed in recent years more than one EU member state (including Sweden, known as the leader in the field of implementation of gender equality policies).

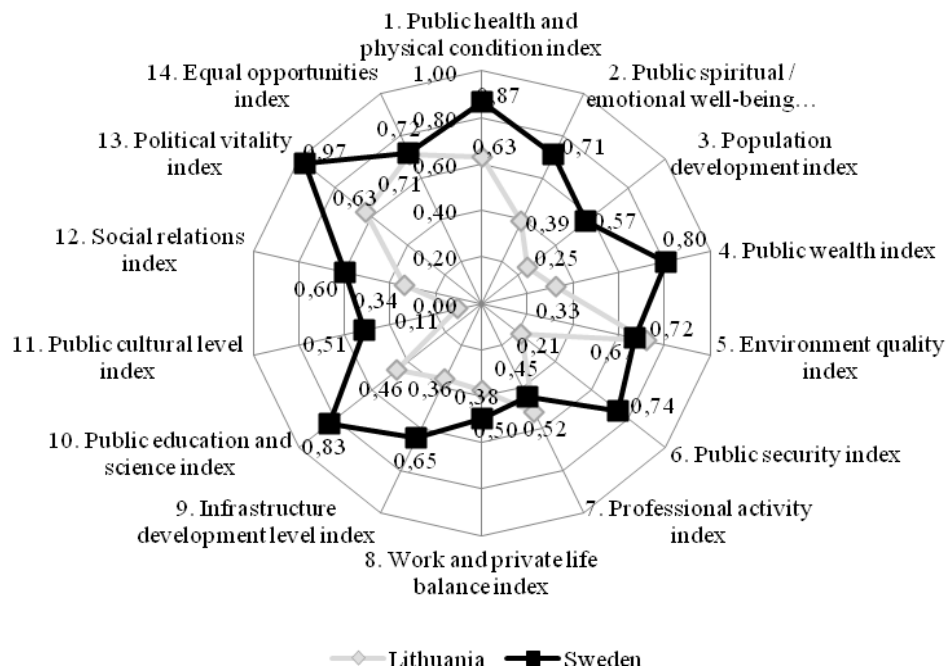


Figure 2. Comparison of the indices of QoL areas for Lithuania and Sweden, 2011, developed by the authors according to the objective assessment methodology using Eurostat, Social Watch and EQLS data

The methodology for the development of an integrated index according to subjective assessments has revealed that, by the data from Lithuanian population surveys carried out in 2011 and 2013, inhabitants *view most positively their family well-being, social life, living environment, physical security of an individual* and sufficiently positively – their health condition. *However, social security is evaluated particularly negatively, inhabitants are also very unhappy with political situation and ensuring equal opportunities in the country* (Figure 3).

The comparison of values of QoL indices calculated by the subjective and objective assessment methodologies shows that *subjective evaluations by the inhabitants of Lithuania are more pessimistic*, i.e. make up 22–27% of the ideal condition, whereas when assessing QoL of Lithuanian population status according to the statistical data, the index has reached 40–41% of the ideal condition. However, comparing the results of the subjective assessment against the indices of QoL areas calculated according to the statistical data we can see that the areas of QoL characterised by good statistics are viewed more positively also when assessed subjectively.

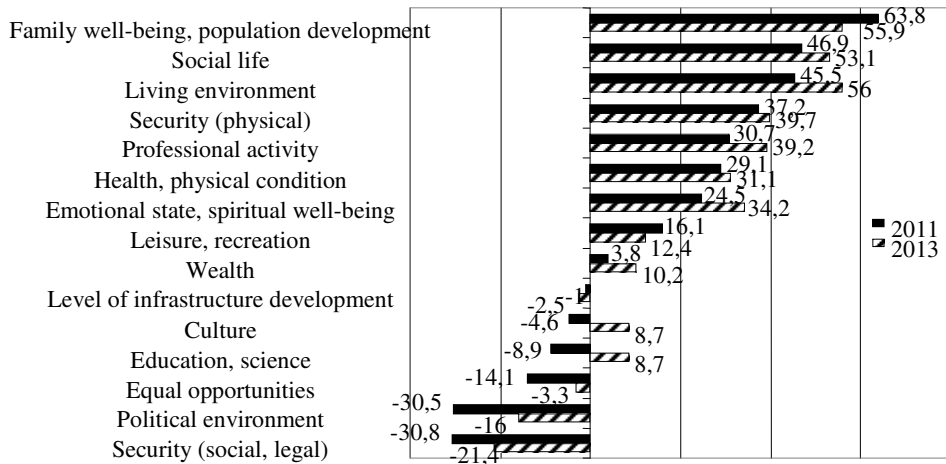


Figure 3. Balance of satisfaction with areas of QoL in Lithuania, 2011 and 2013 (difference between positive and negative responses, %), authors'

As regards the problematic features of QoL assessment, the authors conclude that the *multidimensional QoL assessment model is not an unambiguous and objective tool for assessing QoL*, as the representativity of the index depends on the compiler's paradigm approach to QoL and its components.

Conclusions:

1. The studies conducted by well-known foreign (R.A. Cummins, R. Veenhoven, J. Stiglitz, A. Sen, J.-P. Fitoussi, R. Reich, etc.) and Lithuanian researchers (B. Gruzevskis, R. Lazutka, V. Pukeliene etc.) support the argument that *general economic indicators (GDP, inflation, budget deficit) do not always reflect the real economic situation in a country*. Economic policy efficiency is shown by the indicators of QoL, hence evaluation of the country's economy needs to focus on QoL indicators. A paradoxical situation often occurs, when macroeconomic indicators show that a country is making rapid progress, whereas social ones show that it is lagging behind. The determinants of QoL are the proportions of redistribution of the generated GDP and an efficient, and equitable distribution of resources, rather than the volume of GDP.

2. In the course of conducting the empirical research, the analysis of QoL change trends brought to the fore *the critical areas of QoL of Lithuania population* and the indicators determining their problem character: *increasing differentiation of income and consumption, deteriorating mental and physical health of population, growing emigration rates, declining level of culture, lack of social security* etc. (the indicators of these areas are among the lowest in the EU), which evidences the inefficiency of state economic policy in certain areas. Economic processes taking place in Lithuania are increasing the segmentation of society, prevent the formation of the middle class, pose social threats, cause social tensions and its "spiritual illness", promote emigration, thus holding back the country's overall economic growth.

3. The proposed *multidimensional QoL assessment model can be practically applied in practice to monitor changes in QoL and assess the efficiency of economic policy*. The model enables to follow regularly and assess QoL in a country and to

observe its evolution trends. Continuous monitoring and evaluation of changes in statistical data and index values, results of subjective QoL studies would help government authorities and other public sector institutions take evidence-based decisions and develop, in a targeted manner, country's economic development and social progress strategy.

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