University of Pardubice
Faculty of Economics and Administration
Institute of Economic Sciences

Dissertation thesis

QUALITY OF LIFE AS AN USEFUL INDICATOR FOR DECISION-MAKING PROCESSES OF PUBLIC ADMINISTRATION AT THE REGIONAL LEVEL

Author: **Mgr. Tetiana Korovchenko**
Supervisor: **doc. Ing. Romana Provazníková, Ph.D.**

Pardubice 2020

AUTHOR'S DECLARATION

I hereby declare:

This thesis was prepared separately. All the literary sources and the information I used in the thesis are listed in the bibliography. I got familiar with the fact that the rights and obligations arising from the Act No. 121/2000 Coll., Copyright Act, apply to my thesis, especially with the fact that the University of Pardubice has the right to enter into a license agreement for use of this thesis as a school work pursuant to § 60, Section 1 of the Copyright Act, and the fact that should this thesis be used by me or should a license be granted for the use to another entity, the University of Pardubice is authorized to claim a reasonable contribution from me to cover the costs incurred during making of the thesis, according to the circumstances up to the actual amount thereof.

I am aware that my thesis will be accessible to the public in the University Library and via the Digital Library of the University of Pardubice in agreement with the article 47b of the Act No. 111/1998 Coll., on Higher Education Institutions, and on the Amendment and Supplement to some other Acts (the Higher Education Act), as subsequently amended, and with the University Pardubice's directive no. 7/2019.

In Pardubice on May 11, 2020 Mgr. Tetiana Korovchenko

ACKNOWLEDGEMENTS

I wish to express my profound appreciation to my supervisor doc. Ing. Romana Provazníková, Ph.D. for her guidance and support in the last year of my studies and doc.Ing.Ivana Kraftová, CSc. for her unflinching support, motivations, encouragements and criticisms during the first years of my studies. This study wouldn't have been accomplished without both of you as my supervisors. I am also indebted to doc. Ing. Oksana Veretennikova, Ph.D., Mgr. Jan Mandys, Ph.D., Ing. Martin Maštálka, Ph.D. and Ing. Pavel Zdražil, Ph.D. for their suggestions and guidance. Mrs. Bc. Bartonickova Radka is also not left out.

Furthermore, I would like to thank my family for their support and understanding throughout this study and the whole time of finishing the thesis.

ANNOTATION

Determining the level of quality of life plays an important role in the governance process of socio-economic development of the country. The relevance of this issue is also the fact that with proper measurement, based on both objective and subjective statistical indicators, there will be an opportunity to determine the strategy of development of the society, the level of the economic well-being of the population, as well as potential of human possibilities. This dissertation deals with the quality of life evaluation and its impact on regional development and human needs as a whole. This work is supposed to show an appropriate way to increase the dynamics of the quality of life in Ukraine, using the image of seven countries with common geographical proximity and a similar history of the recent 50 years. The main subject of the research is the particular indicators of assessing the quality of life used in the framework of various approaches. The recommendations to improve the quality of life in Ukraine using the experience of other countries were developed as the main result of the dissertation thesis.

KEYWORDS

Quality of life, life satisfaction, living conditions, aggregate indicator, life quality assessment.

ANOTACE

Stanovení úrovně kvality života hraje důležitou roli v procesu řízení sociálně-ekonomického rozvoje země. Význam tohoto problému je spočívá také v tom, že při správném měření na základě objektivních i subjektivních statistických ukazatelů máme příležitost ovlivnit strategii rozvoje společnosti, úroveň ekonomické prosperity obyvatelstva i potenciál lidských možností. Tato práce se zabývá hodnocením kvality života a jejím dopadem na regionální rozvoj a lidské potřeby jako celek. Tato práce má ukázat vhodný způsob, jak zvýšit dynamiku kvality života Ukrajiny s využitím zkušeností sedmi zemí se společnou geografickou blízkostí a podobnou historií posledních 50 let. Hlavním předmětem výzkumu jsou konkrétní ukazatele hodnocení kvality života používané v rámci různých přístupů. Hlavním výsledkem dizertační práce je doporučení ke zlepšení kvality života na Ukrajině s využitím zkušeností jiných zemí.

KLÍČOVÁ SLOVA

Kvalita života, životní spokojenost, životní podmínky, souhrnný indikator, hodnocení kvality života.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

QoL	Quality of life
GDP	Gross Domestic Product
GNNP	Green Net National Product
GPI	Genuine Progress Index
IEWB	Index of Economic Well-Being
PQLI	Physical QoL Index
ISH	Index of Social Health
HDI	Human Development Index
HPI	Human Poverty Index
GPI	Genuine Progress Indicator
ULF	Undersokningar av Levnadsförhållanden) [Investigations of Living Conditions]
CCI	Consumer Confidence Indexes
WHOQOL	World Health Organization Quality of Life
ISP	Index of Social Progress
PPP	Purchasing Power Parity
EU	European Union
Baseline indicators	Particular indicators, on the basis of which is created the aggregated indicator
Subaggregates	Group's of indicators related to each of 4 determined fields of life quality. This indicator is transitional, serves for separate characterisation of each of 4 fields (which the QoL is depends on)
Aggregated indicator	The final composite indicator which will serve for QoL evaluation.

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

Complex socio-economic and socio-psychological problems, which occurred due to cardinal political and economic transformations in most countries of the world, determine the increased attention of the scientific community to issues of ensuring a decent life quality. Despite their fundamental and applied significance, life quality is currently underdeveloped. One of the scientific research niches is the lack of sufficiently substantiated decision-making tools aimed at ensuring a decent life quality in a single state using the experience of other countries.

In this regard, this thesis aim is to develop the theoretical, methodological and practical research foundations of the life quality and ways to improve it.

This goal requires the following tasks:

- to conduct a meaningful genesis analysis of the approaches formation to understanding the category “life quality”**;**
- to systematize theoretical and methodological approaches to understanding the category “quality of life”;
- to clarify the main indicators of life quality assessment, used in different approaches;
- to improve the methodological apparatus for determining life quality;
- to test the scientific and methodological approach to the population's life quality assessment;
- to develop recommendations for improving the life quality in Ukraine using the experience of other countries.

The object of the research is the conditions that determine the population's life quality; the subject is the specific indicators of life quality and sustainable development.

The theoretical and methodological basis of the research is the concepts, provisions and conclusions taken from native and foreign economists' scientific works.

The empirical basis of the research, which ensures the reliability of conclusions and suggestions, was statistics data, as well as scientific publications and periodicals, Czech and Ukrainian experts' estimates, and information obtained from the Statistical databases.

The scientific novelty of the thesis is developing the methodology of public sector officials of the population's life quality and the formation of a strategy of improving the population's life quality based on the results of applying the existing scientific and methodological approaches to life quality assessment.

The practical significance of the results is determined by the possibility to use the theoretical and practical developments, conclusions and suggestions presented in this research to draw up targeted programs to improve the Ukrainian population's life quality.

The research materials can be used in universities for studying such disciplines as Public Administration, Human Resources, Economics of public sector, Regional Development and special courses on the population's life quality. Work approbation: theoretical provisions and practical results of the study were reported at national and international scientific and scientific-practical conferences. The main provisions of the thesis are reflected in the author’s publications published in various scientific journals.

1. ANALYSIS OF THE THEORETICAL AND METHODOLOGICAL APPROACHES TO UNDERSTANDING THE QUALITY OF LIFE CATEGORY (CURRENT STATE OF THE ISSUE)

The chapter is devoted to solving problems by clarifying the content of the category "quality of life"; identifying typical parameters of the methodological apparatus for determining the current state of the quality of life of the population and making decisions on the need for its adjustment.

The need for each state to implement an effective policy aimed at increasing the degree of satisfaction of living conditions of its citizens, as well as the lack of systematic studies, that provide the most effective solution for solving the set of tasks associated with the creation of such conditions for various groups of the population in any state, makes it relevant, basic and applied research on issues related to the quality of life.

As human civilization develops, there is a gradual ascent from simple to complex and more mature forms and ideas that indirectly characterize certain facets of the quality of human life and various groups of society. The study of such forms, various ideas about the QoL and the methodology for its assessment is a prerequisite for the development of new authors procedures for choosing a scientific-methodological approach to assessing the quality of life within a particular state; the formation of a modern scientific and methodological approach that allows for a comparative assessment in the context of several countries; its approbation; developing a strategy for improving the quality of life of the population at the macro- and meso-level based on the results of the assessment.

1.1. The genesis of the formation of approaches to understanding the category "quality of life"

Complex socio-economic and socio-psychological problems, the occurrence of which is caused by cardinal political and economic transformations in most countries of the world, determine the increased attention of the scientific community to issues of ensuring a decent level of QoL. Despite their fundamental and applied significance, the problems of the quality of life are currently underdeveloped. There are many contradictions caused by the need for each state to pursue an effective policy aimed at increasing the degree of satisfaction of citizens with living conditions, and the lack of appropriate comprehensive studies to solve

the totality of tasks associated with the creation of such conditions for various population groups.

An analysis of historical trends in the study of the phenomenon of "quality of life" indicates that the origins of the formation of modern concepts of studying the QoL were laid down in the works of ancient thinkers of various cultures and religions. So, in the works of Aristotle, for example, much attention was paid to the problems of the welfare of the population. He is the author of the definition of "good" as "means of living and well-being" (Aristotle, 1978), the statement that "the goal of the state is a collaborative move towards a high quality of life" (Aristotle, 1978).

Trying to determine the meaning of human life and nature, the ancients formulated the problem of measures of moderation in the consumption of material goods; and law-abiding, spiritual improvement, and helping others were interpreted as the most important prerequisites for a worthy human being (Table 1).

Table 1: Stages of formation of understanding of categories "quality of life"

Stages of formation of understanding of categories «quality of life»	Main ideas	Scientific schools, significant publications
The origin of the foundations of the understanding categories (ancient times - the end of the 18th century)	Understanding the meaning of life and human nature as a worthy existence (moderate consumption of material wealth, law-abiding, spiritual improvement, helping others, etc.). The origin of understanding the quality of life through the prism of material representations	The scientific community of the ancient philosophers and thinkers (Aristotle, Platon et al.).
Stage of initial development (end of the 18th century - mid-20th century)	The occurrence of new economic and social ideas, due to the development of the political economy, which was formed as a science of wealth. Understanding human well-being as a factor determining the quality of his life. Formation of methodological and theoretical approaches to understanding the concept of "quality of life" on the basis of an in-depth study of the content of the categories "wealth of society", "welfare", "standard of living", "level of quality of life", etc.	Smith, 1759; Smith, 1776; Smith, 1785, Sey, 1828; Clark, 1888; Pigou, 1932, Marx, 1959; Sismondi, 1972 et al.

The stage of formation of the "quality of life" as a scientific concept (mid-20th century - end of the 20th century)	Changing the approach to the problem of welfare: it is no longer the "quality of life" that acts as a function of economic growth, but economic growth shall become a function of the "quality of life". Formation of the concept of "perceived quality of life". Change of the dominant of the life values of the population from material well-being to health promotion, cultural development, improvement of environmental and other living conditions, the formation of partnerships between different sectors of society	Vseobshhaja deklaracija prav cheloveka, 1948; Galbraith, 1958; Porter, 1961; Rimashevskaja, 1972; Rostou, 1973; Smith, 1973; Wingo, 1973; McCall, 1975; Popov, 1977; Anan'ev, 2001; Bestuzhev-Lada, 1978; Rodgers, 1981; Moskalenko, Serzhantov, Herzog, Rodgers, Woodworth, 1982; Michalos, 1982;Ackerman, Paolucci, 1983; Bestuzhev-Lada, 1984; Campbell, Converse, Abbey, Andrews, 1985; Shuessler, Fisher, 1985; Pigou, 1985; Inglehart, Rabier, 1986; Saharov, 1990, Medouz, et al. 1991; Toffler, 1999; Druker, 1999; Bell, 2004 et al.
The beginning of the 21st century - the present	The quality of life has a versatile manifestation in the system of qualitative and quantitative parameters. The quality of life of a modern person is increasingly determined by the ability of society to provide him with the necessary information products and services, i.e. information quality of the society itself. The quality of life is the subject of research by representatives of a number of different branches of scientific knowledge: psychology, economics, medicine, political science, pedagogy, sociology, etc.	Krupka, J. et al., 2011; Kovyneva, 2006; Kalinina, 2007; Kolin 2010; Ajvazjan, 2012; Liga, 2013; Zaharova, 2014; Loginova, Semina, Fedotov, 2014; Ivanova, 2016; Subetto, 2019; Abramov, 2017; Kosinskij, Haritonov, 2017; Gerasikova, 2019; Heintzelman, Diener, 2018; Krys, Uchida, Oishi, Diener, 2018; Sobol', 2018; Payne, Hawley, Ketchum, Philippus, Eagye, Morey, GerberHarrison-Felix, Diener, 2018 et al.

Source: own researches based on the mentioned authors.

The results of the study of scientific works indicate that some changes in ideas about the quality of life began in Europe from the end of the 18th century influenced by the first industrial revolution. New economic and social ideas caused by the development of political economy were formed as a science of wealth. These are reflected in the works of scientists (Smith, 1759; Smith, 1776; Smith, 1785; Sey, 1828; Sismondi, 1972; Clark, 1888). The analysis and generalization of the theoretical views of representatives of various scientific schools of the 19th century and the first half of the 20th century, show that the scientists concentrated their studies on two concepts: "wealth of society" and "welfare". This period was characterized as the period of the beginning of the study of the concept "standard of living". Scientific schools of this time period have not studied the concept of "quality of life". At the same time, the study of the concepts of "wealth of society", "wealth", "standard of living", despite the contradictory views and approaches and their politicized nature, created the basis for the formation of methodological and theoretical approaches to understanding the concept of "quality of life".

The concept of "quality of life" began to be used in left-wing bourgeois-liberal circles in the middle of the 20th century (Gelbrejt, 1975). V. Shabashev, A. Levanov, L. Shcherbakova noted the reasons for this use: deepening social problems and contradictions of capitalism, global consequences of the Second World War, the presence of contradictions in the general theory of welfare; the presence of many social problems (Shabashev, Levanov, Shherbakova, 2004). Particular attention to the problem of quality of life was demonstrated in connection with studies on economic growth.

In this period there was a change in the approach to the problem of well-being: if the earlier "quality of life" was a function of economic growth, then as now, on the contrary, economic had to be a function of the "quality of life". This formulation of the question arose due to the fact that rapid economic growth had a negative impact on the environment, distorted national priorities, and worsened income distribution. This is what D. Tobin and W. Nordhouse have pointed out (Dubson, 1979). Particularly deep concern was expressed about a possible catastrophe for mankind due to the tendency of population growth, production, and irrational use of natural resources in the work of Meadows and his associates, "Limits of Growth" (Medouz, 1991). Much attention was paid to the quality of life in the fifth report of the Club of Goals of Rome, Rome, prepared under the guidance of E. Laszlo and published in 1977 (Pechchei, 1981).

The first attempts at a theoretical description of individual demonstrations of the "quality of life" category are attributed to the English economist A. Pigou, who in his scientific works studied the problems of human well-being, noting that the general well-being of a person was in addition to economic well-being depends on the nature of his work, the environment, relationships between people, his position in society, living conditions and public order (Pigou, 1985). K. Marx wrote in the "Economic and Philosophical Manuscripts of 1844" that in order for people to develop more spiritually, they should not be a slave to their physical needs, a serf of their body. He must have, first of all, leisure for spiritual activity and spiritual pleasures. Progress in the organization of labor makes it possible to carve out time for it. (Marx, 1961).

On December 10, 1948, the UN General Assembly adopted and proclaimed the Universal Declaration of Human Rights (Universal declaration of human rights , 2020). The Declaration was the first document to legally formalize and clearly define the basic rights that were not dependent on national or social origin, class, property or another status of any person, race, gender, language, religion, political or other beliefs, and that belong to him by birth. According to its content, each person has the right to such a standard of living, including food, clothing, housing and medical care and necessary social services, that is required for his family health and well-being (Universal declaration of human rights, 2020).

It is generally accepted that the term "quality of life" first appeared in the book of the economist J. Galbraith, The Society of Abundance in 1958 (Galbraith, 1958). This term was introduced into the political vocabulary by US President J. Kennedy in 1963 when the thesis was put forward that "... the quality of American life must keep up with the number of American goods" (Mitin, 1977, 35). According to the American sociologist Stors McCall, the expression "quality of life" was first used in 1964 by US President L. Johnson, who stated that the goals of American society "... cannot be measured by the size of ... bank deposits. They can be measured by the quality of life ... of people" (McCall, 1975, 129).

Precisely during this time period the interest of scientists in the humanitarian content of economic progress began to increase in the West as a result of the transition of a society to a higher stage of development. According to Kulajkin (2012), the problem of quality of life as a subject of scientific research became particularly relevant during this period and due to the fact, that in the most industrialized countries there was a social crisis of "consumption society". At the same time, there was a need to change the dominant of people's life values from material well-being to health promotion, cultural development, improvement of

environmental and other living conditions, the formation of partnerships between different sectors of society. The combination of all these values and interests began to be interpreted by scientists and practitioners as the "quality of life". In this historical period, various options for the definition of this concept were proposed, some indicators and criteria for the quality of life were developed (Zaharova, 2014).

Representatives of post-industrialism (Rostou, 1973; Toffler, 1999; Bell, 2004), each of whom created his own original concept, made a great contribution to the development of the quality of life problem. Thus, D. Bell substantiated the idea that in a post-industrial society there were changes in the economy, the main goal of which was not the production of goods, but the production of information and services; knowledge, intelligence and creativity become an important force in socio-economic development (Bell, 2004). In developing the concept of stages of economic growth, W. Rostow understood the QoL as "an increase in individual income and its proportional expenditure on consumer goods, luxury (or close to luxury) and, ultimately, even on intangible things such as household services, culture, leisure time" (Todorov, 1960, 148). J. Galbraith believed that the quality of life was a combination of obtaining various kinds of public goods to meet the intellectual needs of the individual (Todorov, 1960). P. Drucker linked progress with the stages of changing the role and significance of knowledge in society: the first stage - with the use of knowledge to develop technologies, tools and organize industrial production; the second stage - with the application of knowledge to the processes of work organization; the third was that knowledge became the main condition for production and was used to produce knowledge" (Druker, 1999). W. Rostow identified five main stages of development of society while arguing that each country had to go through all stages, introducing its own special characteristics. As the main criteria for the selection of these stages, the scientist noted technical progress, growth, changes in the structure of production. Depending on these criteria, he identified the following stages of economic development:

– "traditional society" (the main area of the economy is primitive agriculture with a low level of development of science, the use of manual equipment, a hierarchical social structure);

- "transitional society" (the occurrence of a centralized state, the application of new technologies in the industry, an increase in investments);

- "take off" (the time of the industrial revolution as a result of the transition from pre-industrial to industrial society);

– “maturity” (the rapid development of industry, the introduction of scientific achievements, increasing the share of skilled labor);

- the era of “high mass consumption” (the guidelines for the development of society are changed, the service sector and the production of consumer goods begin to play a leading role in the economy, a new middle class and a “welfare state” occur).

Later, W. Rostow identified the sixth stage in the economic development of society - the stage of “quality of life”. Criticizing the stage of “high mass consumption”, which was marked by mass unemployment; rising prices, crime; aggravation of environmental problems, the scientist raised the question of the establishment of the “quality of life” stage. W. Rostow considered the quality of life both as a goal of socio-economic development and as a regular stage of social development. According to the scientist, the stage of quality of life is characterized by the transition from mass consumption to an individual, the leading role is played by health care, education, politics, recreation, religion. W. Rostow believed that the stage of quality of life began in the USA in the 50s (Rostou, 1973). This stage for the United States is characterized by “a whole set of political requirements for improving indicators in the fields of education and health, recreation, reducing environmental pollution, urban vicissitudes of the automobile age, and the fight against poverty and inequality” (Rostou, 1973; Pigou, 1985). The main goal of the stage of QoL is the spiritual development of the individual, which can be provided by such areas of society as education, culture, and healthcare. The stage of QoL is a logical step in the development of society, the basis of which is science and technology. At the stage of QoL, society does not consider the development of technologies and production as its main goal, for it the main thing is the problems of QoL (Poljakova, 2004).

Attempts to form an integrated system of social indicators and QoL indicators have been taken in the US and Japan in 1969 in the preparation of manuals on living standards in the countries - members of the United Nations. As the main integral characteristic of the country's development, the “definition of the global Qol” was considered (Brazevich, et al., 2004). Since the mid-70s, the study of the “subjective” (“felt”) quality of life, as measured by subjective indicators, has developed significantly. An important contribution to the establishment of the concept of “perceived quality of life” was made by American sociologists A. Campbell, P. Converse, W. Rodgers (Campbell, Converse, Rodgers, 1976).

In general, during the 60’s and into the 80’s of the 20th century, Western economists and sociologists actively carried out research aimed at solving the problems of QoL of

individuals and society as a whole. In addition to those mentioned earlier, a significant contribution to the development of this issue was made by Abbey, Andrews (1985); Bell (2004); Diener, Fujita (1995); Heintzelman, Diener (2018); Krys et al (2018); Tay, Biswas-Diener et al (2012); Shuessler, Fisher (1985); Smith (1973); Wingo (1973); Inglehart, Rabier (1986); Ackerman, Paolucci (1983); Michalos (1982); Pigou (1932); Herzog, W. Rodgers, et al (1982).

In the countries of the former post-Soviet space, the problems of QoL began to be actively discussed in the late 70s and early 80s. The initial version of the relationship between the QoL and the concept of "standard of living" was criticized. The braking lever in the development of the theory of QoL through the measurement of living standards was the non-comparability of almost all economic indicators of state statistics in the USSR with those adopted in other UN member countries. The sociological approach to understanding the QoL became more fruitful - subjective assessments of people's life were taken as the basis. The QoL began to be presented as an indicator that removed the limitations of the concept of "standard of living" by measuring those qualitative conditions for satisfying needs that were not amenable to direct quantitative measurement (Bestuzhev-Lada, 1978). The works of Anan'ev (2001), Bestuzhev-Lada (1984), Moskalenko, Serzhantov (1984); Popov (1977), Rimashevskaja (1972); Sakharov (1989) and others appeared during this period.

At present, the QoL is the object of the study of a number of representatives of the various branches of scientific knowledge: psychology, economics, medicine, political science, pedagogy, sociology and this determines rather different research approaches to the study of the category of "quality of life". Thus, the sociological aspects of understanding the QoL can be clearly seen in the works of Kim and Komarenko (2015); Muzdybaev (2005); economic side of QoL is reflected in the works of Kalinina (2007), Krys et al, (2018); Payne et al, 2018), Gorodnova, Samarskaya (2019), E. Gerasikova (2019) and other scientists. Markovich (1998) described the necessity of the environmental aspect of the QoL evaluation. The following authors focus on the psychological side of QoL - Arutyunjan (1980), Zakharova (2014), Shimanovskaya and Kozlovskaya (2017). The medical side is reflected in the works of Kovyneva (2006) and other authors.

Over the past decades, there has been active development of forms and methods of ensuring the QoL in its diverse manifestation in the system of qualitative and quantitative parameters. Moreover, the QoL of a modern person is increasingly determined by the ability

of society to provide him with the necessary information products and services, i.e. information quality of the society itself. That is why in recent years such new concepts as information poverty and information inequality have appeared (Balaban, 2009). Moreover, these concepts are used not only in relation to individuals but also to characterize entire countries and regions of the world (Kolin, 2010).

Thus, a generalization of the results of scientific research on issues related to the QoL allows to see that as human civilization develops, a gradual ascent from simple to complex and more mature forms and ideas that indirectly characterize certain facets of the QoL of a person and various groups of society (Glushakova, 2006). At the same time, a number of terms are used in scientific works that are closely related to the research problem and are often used by the authors to replace concepts ("standard of living", "level of living", "requirements or needs", "individual or social welfare", "social and human potential" and a number of others) (Kachestvo zhizni, 2003). This necessitates a more detailed examination of the content of the category "quality of life" and its distinctive features from the categories of "related" thereto.

1.2. Basic approaches to understanding the content of the category "quality of life"

The literature presents different definitions of quality of life, but the concept itself is usually described as multi-dimensional and individual. Disagreements in the existing researches arise due to the fact that there are various scientific approaches to the category of quality of life.

An important feature of modern approaches to the quality of life is the position that it has two sides: objective and subjective.

The first of them is determined by a combination of various statistical and regulatory characteristics, with which you can objectively evaluate the degree of satisfaction of the needs and interests of people. Table 2 presents various interpretations of the content of the category "quality of life". From its content it can be seen that the objective nature of the category can be traced in its presentation in the Methodology for assessing the quality of life used by the Ministry of Science and Technology: quality of life is a "sociological category that reflects the degree of satisfaction of physiological, material, spiritual, intellectual, cultural, aesthetic, ethical and other needs of people, this is a certain social reality that exists

in concrete historical time, within the framework of this socio-economic formation and demonstrated in the daily life of social classes, layers, groups, particular individuals" (Ministerstvo nauki i tehnologij Rossijskoj Federacii , 2000). A similar understanding of the QoL through the lens of the objective characteristics of lifestyle can be seen in the definitions given by the scientists as follows: Markovich (1998) understands the QoL as having environmentally favourable environment and democratically organized social environment; Mitroshin (2018) interprets life quality of the population as a complex category that defines the totality of conditions to meet the vital needs of people living in a particular territory); according to Kim, Komarenko (2015) the quality of life is presented as a kind of final result of the socio-economic development of society in a particular country, the state of the entire life of the individual, social groups and society as a whole. Tatarkin, Vasilieva, Chikanov (2015) describe QoL as a combination of a number of conditions characterized by the physical, psychological and socio-economic well-being of the population of the region and the development opportunities of an individual. QoL is understood by Kovineva (2006) as a combination of natural and social conditions that providing (or not providing) a complex of human health - personal and public, i.e., the conformity of the human environment to his needs. Thus, the objective side of understanding the QoL is determined by a combination of various normative and statistical characteristics, which the degree of satisfaction of scientifically based needs and interests of people can be objectively judge.

The second - the subjective side - is connected with the fact that the needs and interests of specific people are always individual. They are reflected in the subjective feelings of individuals, their personal opinions and assessments. Hence, there is a need to take into consideration the specificity of experiences of each person with the degree of satisfaction with the process and the results of his life (Todorov, 1980).

Table 2: The content of the category “quality of life” in the context of an objective, subjective and integral approach to its understanding

The content of the category	Approach for understanding the category			Authorship
	objective	subjective	integral	
The quality of life is a category that reflects the degree of satisfaction of the physiological, material, spiritual, intellectual, cultural, aesthetic, ethical and other needs of people, it is a certain social reality that exists in concrete historical time, within the framework of this socio-economic formation and manifests itself in everyday life social classes, layers, groups, individuals	+			Ministerstvo nauki i tehnologij Rossijskoj Federacii, 2000
Quality of life is the presence of an environmentally friendly environment and a democratically organized social environment	+			Markovich, 1998
Quality of life is a complex category that defines a set of conditions to meet the vital needs of the people living in a specific territory	+			Mitroshin, 2018
The quality of life is the most generalized complex criterion for the state of society. It characterizes the peculiar final result of the socio-economic development of society in a particular country, the state of the entire life of the individual, social groups and society as a whole	+			Kim, Komarenko, 2015
The quality of life is a combination of a number of conditions characterized by the physical, psychological and socio-economic well-being of the population of the region and the development opportunities of an individual	+			Tatarkin, Vasil'eva, Chichkanov, 2015
Quality of life is a combination of natural and social conditions that provide (or do not provide) a complex of human health - personal and social, that is, the correspondence of the human environment to his needs	+			Kovyneva, 2006
Quality of life means expanding a person’s opportunities for long and healthy life, acquiring knowledge, access to resources providing a decent standard of living, preserving them (resources) for future generations, ensuring their own security and equality for men and women	+			Doklad komissii po ocenke jekonomicheskih rezul'tatov i social'nogo progressa, 2011

Quality of life is the degree of satisfaction of needs with the achievement of a personality-psychological state, without an adequate assessment of which it is impossible to judge the real state of meeting the needs of people		+		Arutjunjan, 1980
The quality of life is the subjective perception by an individual of his own place in life in the context of culture and the set of values in which it exists, as well as taking into consideration own goals, aspirations and concerns		+		Leochi, 2011
The value of the quality of life is reflected in subjective sensations: in general satisfaction with life, a sense of happiness - in the main factors and determinants that determine satisfaction with human life in modern conditions		+		Zaharova, 2014
Quality of life is an integral concept characterizing the correspondence (or inconsistency) of a multicomponent system of the living environment to objective norms and subjective needs of a territorial community			+	Trofimov, 2005
Quality of life is a sociological category reflecting the degree of satisfaction of the spiritual, intellectual, cultural, aesthetic, ethical and other needs of people			+	Muzdybaev, 2005
Quality of life is a category that describes the qualitative aspect of life of the population, ie the ability and possibility to self-realization in the current (including social and economic) conditions. Moreover, the category of quality of life includes not only objective characteristics, but also an assessment of the subjective perception by the population of living conditions, the value attitude of people to these conditions			+	Ivanova, Nevolin, 2006
The quality of life is a comprehensive assessment of the degree of satisfaction of life-supporting, social and spiritual needs of a person, determined by the objectively existing within the framework of the current socio-economic system and subjectively felt characteristics of his life			+	Kapustin, 2006
The quality of life is a complex characteristic of the living conditions of the population, which is expressed in objective indicators and subjective assessments of the satisfaction of material, social and cultural needs and is associated with people's perception of their position depending on cultural characteristics, value systems and social standards existing in society			+	Beljaeva, 2009
Quality of life is a characteristic of the most significant conditions for a person to live and work, comprehensive development and the degree of satisfaction of a wide range of needs and diverse interests of the population			+	Danilina, Salin, 2015

Quality of life - it is an integral concept covering both objective and subjective aspects of human life, which takes into consideration the intentions of meaning and fullness of life and its values, including the space-time, national characteristics			+	Fofanova, 2016
Quality of life is a concept denoting an assessment of a certain set of conditions and characteristics of a person's life, usually based on his own degree of satisfaction with these conditions and characteristics. This phenomenon is more extensive than the material well (standard of living), and also includes such objective and subjective factors, such as health, life expectancy, environmental conditions, nutrition, domestic comfort, social environment, cultural and spiritual needs, psychological comfort.			+	Shimanovskaya, Kozlovskaya, 2017

Source: own researches based on the selected authors.

Subjective approaches to the QoL are focused on the consideration of value attitudes and experiences (Shuessler, Fisher, 1985). They are present in the works of many scientists who have studied the problems of quality of life. In many European works, the quality of life is often identified with the concepts of "satisfaction with life", "happiness".

The first results in this direction were obtained by N. Bradbury. In his works, he used the concept of "life satisfaction", and as his indicator, emotional balance (the sum of positive emotions - the sum of negative emotions) (Bodalev, 1988). The use of psychological criteria to determine the content of the QoL was inherent with O. Toffler. He characterized the QoL by a good mood, positive emotions, aesthetic pleasures, etc. In his work, the scientist noted that when consuming goods and services, people were focused not on their functional purpose, but on the psychological nature of satisfaction with them. Taking this statement as a basis, he argued that the transition from a quantitative economy to a "psychological" economy was peculiar for the corresponding period (Bestuzhev-Lada, Blinov 1978). In one of the first studies of subjective quality of life conducted by M. Abrams, satisfaction was described by such areas as work, housing, city, health, district, free time, standard of living, education, democratic rights, financial situation (Bestuzhev-Lada, Batygin, Grishaeva, 1978). Subsequently, the quality of life in its subjective understanding begins to be interpreted as the degree of satisfaction of needs with the achievement of a personal psychological state, without an adequate assessment of which it is impossible to judge the real state of satisfaction of people's needs (Arutjunjan, 1980); the subjective perception by an individual of his own place in life in the context of culture and the totality of values in which it exists, as well as taking into consideration own goals, aspirations and concerns (Leochi, 2011); subjective feelings, which are situated in general life satisfaction, in sense of happiness - in the major factors and determinants that determine the satisfaction of human life in modern conditions (Zaharova, 2014). Thus, in the majority of works devoted to the issues of "perceived well-being", the QoL is associated with the level of well-being achieved by society, the subjective perception of individual well-being both in life in general and in individual areas of life. The subjective side of the perception of the QoL is, therefore, related to the fact that the needs and interests of specific people are always individual and are reflected in the subjective feelings of individuals, their personal opinions and assessments. Hence, there is a need to consider the specificity of experiences of each individual person with the degree of satisfaction with the process and the results of his life" (Todorov, 1980).

In many scientific papers devoted to the problems of the QoL, the latter approach is presented as a complex of objective and subjective parameters of human life. For example, Trofimov (2005) offers the following understanding: QoL is an integral concept characterizing the compliance (or noncompliance) of a multicomponent system of the living environment with objective norms and subjective needs of a territorial community (Trofimov, 2005). According to Muzdubaev, QoL is a category that reflects the degree of satisfaction of the spiritual, intellectual, cultural, aesthetic, ethical and other needs of people (Muzdybaev, 2005). Ivanova and Nevolin note that the QoL is a category that characterizes the qualitative side of the life of the population, that is, the ability and possibility of self-realization of a person in the current (including socio-economic) conditions. Moreover, the category of QoL includes not only objective characteristics, but also an assessment of the subjective perception by the population of living conditions, the value attitude of people to these conditions (Ivanova, Nevolin, 2006). E. Kapustin presents the QoL as a comprehensive assessment of the degree of satisfaction of a human's life-supporting, social and spiritual needs, determined by objectively existing within the framework of the current socio-economic system and subjectively felt characteristics of his life (Kapustin, 2006); Beljaeva presents the QoL as an appropriate characterization of the population living conditions, which is expressed in terms of objective and subjective assessments of satisfying the material, social and cultural needs and is linked to people's perception of their position depending on the cultural characteristics, values and social standards that exist in society (Beljaeva, 2009); according to Danilina, Salin it is a characteristic of the most important living conditions and activities for a person, comprehensive development and the degree of satisfaction of a wide range of needs and diverse interests of the population (Danilina, Salin, 2015). Fofanova considers the QoL as an integral concept, covering the objective and subjective aspects of human life, taking into consideration the intentions of the meaning and completeness of life, its value orientations, including spatio-temporal, national characteristics (Fofanova, 2016); Shimanovskaya, Kozlovskaya believe it to be a concept denoting an assessment of a certain set of conditions and characteristics of a person's life, usually based on his own degree of satisfaction with these conditions and characteristics. According to scientists, this phenomenon is broader than material security (standard of living), and also includes such objective and subjective factors as health status, life expectancy, environmental conditions, nutrition, domestic comfort, social environment, cultural and spiritual needs, psychological comfort (Shimanovskaya, Kozlovskaya, 2017).

Noting the validity of the submission of QoL as an integrative characteristic of the objective and subjective perceptions of a person's life conditions, it should be noted that this category is also a comprehensive description of the socio-economic, political, cultural, ideological, ecological and other factors and conditions of existence of the person, the person's position in society (Rubanova, 2014). This can be seen in the definitions presented in Table 1.2, which reflect the correlation of the quality of life with the level of environmental pollution (Kovyneva, 2006; Markovich, 1998; Shimanovskaya, Kozlovskaya, 2017), the satisfaction of human material needs (Ministerstvo nauki i tehnologij Rossijskoj Federacii, 2000; Beljaeva, 2009; Shimanovskaya, Kozlovskaya, 2017), social conditions and population protection (Markovich, 1998; Shimanovskaya, Kozlovskaya, 2017), etc. That is, in general, the QoL can be defined as a comprehensive characteristic of the ability to meet economic, social, environmental and human security needs, determined by the objectively existing living conditions within the current socio-economic system. Thus, the main problem in determining the QoL may be studying what domains shall be included in the general definition of this concept.

The QoL has been the subject of research in many scientific fields. While in 1973 the record «QoL» displayed only 5 publications, currently they number 150,000 (Worach-Kardas, Kostrzewski, 2013), indicating that the QoL - this is an important aspect of life, worthy of attention and search for new solutions in terms of the need to improve it.

Like all complex categories, quality is in a state of constant change due to a change in scientific paradigms and a specific historical and political moment in the development of society. Today, it is a time of synthesis of science and theory, bearing applicable nature. Within the framework of this approach, not only the problem of studying quality is considered, but also a methodological apparatus is developed for its solution (Pevnev, 2019).

1.3. The main indicators for the assessment of the QoL, used in the framework of various approaches

An objective approach is the most common one. Its use makes it possible to evaluate the QoL through the parameters of the objective conditions and processes of human life. The purpose of this use is to measure the living standards of a society or a group of people as accurately as possible based on a variety of statistical information.

It should be noted that nowadays there is no single, universally accepted set of indicators for such evaluation. There is a fairly wide range of indicators, the use of which is often unreasonable and cannot reflect those phenomena that characterize the QoL of people. Depending on the level of consideration and the capabilities of the scientist in a particular study, about a thousand different kinds of such indicators can be used. Examples of the main ones are presented in Table 3.

Table 3: The main indicators of assessing the QoL used as part of an objective approach

Objective approach	**Group's content / Integral index's content**
Indicators based on income	Indicators based on the measurement of income: gross domestic product (hereinafter - GDP) and GDP per capita. They allow you to assess the level of consumption or the volume of consumer goods available to the population, and the wealth of the nation as a whole. GDP measurement does not take into consideration socio-economic aspects such as level of education, the environment, health indicators of the nation, the state of the social sphere, the level of criminality and many others. Moreover, an increase in GDP does not directly indicate an improvement in the socio-economic indicators of a country's development, but on the contrary, there is a possibility of their deterioration with a simultaneous increase in GDP (Becker, Philipson, Soares, 2005; Ajvazjan, Stepanov, Kozlova, 2006)
Indicators based on anthropometric indicators of children	It is assumed that there is possible assessment of the QoL of the population, based on anthropometric indicators of children under 6 years old, living in the considered country (Micklewright, Suraiya, 2001).
Green Net National Product, GNNP	A group of indicators to assess not only the current level of quality of life, but also the ability to maintain it in the future. The integral indicator is based on the use of information on the state of natural resources, depreciation of capital, and human capital. More indicative than GDP for comparing countries in terms of sustainable quality of life, it can be used to assess the change in real investment in the region (Vellinga, Withagen, 1996; Asheim, 2010; Asheim, Buchhold, 2004; Aronsson, 1997)
Genuine Progress Index, GPI	GPI is a measure of economic well-being. At the same time, it takes into consideration more than twenty social aspects and environmental factors ignored by GDP. During the calculation of the GPI for all economic transactions, the nature of the impact on the quality of life is determined (Talberth, Cobb, Slattery, 2007)
Index of Economic Well-Being, IEWB	The index is built as an integral indicator calculated on the basis of four main factors (per capita consumption level; total inventories; inequality component and degree of reliability of future income) and expertly determined weights for them. The disadvantages of the method include

	the subjectivity of expert estimates and the restriction of components to purely economic (Osberg, Sharpe, 2002)
Physical QoL Index, PQLI	A weighted average of several variables: literacy, infant mortality, and life expectancy. The index is quite simple in calculations and allows for a cross-country comparative assessment. The disadvantages of this index include a high correlation between statistical indicators and the highest values of the index (Estes, 2014)
Index of Social Health, ISH	The index is calculated as integral, including 16 indicators with equal weights. The indicators used characterize various age groups: the first 3 indicators characterize the child population, the next 4 - the teenage, the other 3 - the adult, the penultimate 2 - the elderly, and the last 4 - common to all groups. ISH does not describe all areas of socio-economic life. Accessible statistical information is sufficient for its calculation, and it is convenient for setting the goals of state policy and its subsequent monitoring (Sharp, 1999).
Johnston's QoL Index	The technique is unusual in that instead of determining the weight of each indicator, the comparative significance is calculated based on the analysis of time series. To calculate the index, information is needed on 21 indicators in 9 social areas. The index does not have a well-developed theoretical base and sufficient reasoning for the choice of areas and indicators (Hagertyetal, 2001)
International Index of Living Conditions	The index is subject to the annual calculation based on indicators of the following groups: economy, healthcare, culture and leisure, infrastructure, cost of living, freedom, security and risk. Each indicator is weighed, and the living conditions index is the sum of the weighted indicators (Heinz-Herbert, 2006).
Integrated Social Index of Michalos	The integrated social index is calculated on the basis of 126 social indicators, grouped in 12 areas: population structure, mortality, illness and healthcare, crime and justice, politics and organizations, science and technology, education, leisure, the environment and resources, transport and communications, housing, economics and morality and social customs. It is used to compare a number of countries, rather than any complex (Michalos, 2014)
The technique of inter-regional analysis of the QoL by Kossov V.	The construction of the index is based on dividing all processes into positive ones, the further development of which shall be fully stimulated by the regional authorities, and negative ones, against which the maximum possible efforts shall be made to neutralize and weak them. Initial data are selected from officially approved sources of statistical reporting. According to the analysis based on this indicator, all regions (regions and republics, local and municipal entities, districts) are divided into groups depending on the trends in positive and negative processes in them. The methodology is quite complicated in calculations, but it is extremely informative to establish the directions of socio-economic state policy (Ajvazjan, Stepanov, Kozlova, 2006)
Methods of integrated evaluation of the quality of life by Ayvazyan S.	The integrated indicator is based on using of synthetic (compiled from a set of simpler indicators) categories of quality of life. It allows to assess the quality of life, to monitor it, determine the dynamics of the process and the influence of individual indicators on these dynamics. Initial values of indicators are selected from registered official statistical

	sources. The analysis procedure is based on the use of indicators of five groups: population quality, population welfare, social security, environmental quality, climatic conditions. The calculation of an integral indicator involves the aggregation of a set of private indicators describing various aspects of the quality of life (Ayvazyan, 2003)
Human Development Index -HDI	The human development index is calculated as integral based on the use of life expectancy index, education index and income index, each of which has a weight coefficient. In this case, the education index is composed of two: the level of literacy and the completeness of learning coverage. This index is convenient for perception and use, it serves rather effectively the task of identifying priority areas of state policy and can be used for intertemporal comparison (Barro, 2001; Benhabib, Spiegel, 1994; Beramendi, Wibbels, 2015)
Human Poverty Index – HPI	The poverty index shows what proportion of the population of a developing country or its region is deprived in three main areas: health, education and material well-being. Compared to income poverty indicators, this index more fully measures the extent of poverty as limitations on the ability to meet basic human needs. (Chakravarty, Majumder, 2005).
Happy Planet Index – HPI	The index reflects the well-being of people and the state of the environment. It is based on the principle that most people want to live a long and full life, as countries strive to do everything possible to maximize the welfare of its citizens, intelligently using available resources and without harming the environment. To calculate the index, three indicators are used: subjective satisfaction of people with life, life expectancy and the so-called "ecological footprint" (Marks, Abdallah, Simms, Thompson, 2006)
Genuine Progress Indicator - GPI	The true progress indicator replaces GDP as an integral measure of economic progress. The GPI is based on the idea of dividing into categories of benefits and costs, and the final indicator is defined as the difference between them (Danilishin, Veklich, 2010; Lawn, 2013)
Global Peace Index	The global peace index is a comprehensive indicator that characterizes the peace of the world, measuring the level of violence in the state and the level of aggressiveness of its foreign policy. The index is compiled based on 23 qualitative and quantitative indicators, combined into three main groups: the presence and scale of conflicts in which a country is involved, and the number of victims as a result of these conflicts; level of stability and security within the state; level of militarization of the state. For each group of indicators, countries are scored (Institute for Economics and Peace, 2017; Global'nyj indeks miroljubija. Gumanitarnaja jenciklopedija, 2019)
Indicator, based on the Eurostat "8+1 dimensions of QoL	The methodology involves the addition of the traditionally used for assessing the quality of life indicator of GDP to other indicators combined into eight groups: material living conditions; production or main activity; health; education; leisure and social interactions; economic and physical security; management and fundamental rights; natural and living environment; shared life experience (Theodossiou, 1998; Korpi, 1997; Stiglitz et al. 2009)

Source: own researches based on the mentioned authors

The main difference between the subjective approach and the objective one is that, from the point of view of the first one, the quality of life is the subjective perception of various aspects of the personal life of any individual. The subjective approach is based on the fact that the true meaning of the quality of life is reflected in subjective assessments. Its use involves determining the quality of life based on sociological surveys.

Indeed, researchers quite often encounter a situation in which social groups with various objective characteristics (demographic characteristics, living conditions, level of material well-being, etc.) hardly differ from each other in assessing the quality of their life. One possible explanation for this fact is the existence of a number of mediating variables that have an indirect effect, but, nevertheless, change the effect of objective characteristics. Note that this approach presents even more methodological problems than the former. Among them are the selection of criteria by which a person shall assess the quality of his or her life, a way of summarizing the received statements and ratings; the situational problem of a feeling of satisfaction - dissatisfaction and influencing factors, etc.

Table 4 presents the main indicators of assessing the quality of life used in the framework of the subjective approach.

Table 4: The main indicators of assessing the QoL used as part of a subjective approach

Subjectivist approach	**Group's content / Integral index's content**
Assessment of QoL by Ferenc and Powers	The method involves implementation in two stages, each of which looks like a survey of the population using questionnaires, including questions on a specific list of spheres of human life: health and functioning, psychological/spiritual sphere, socio-economic sphere and family. Satisfaction with a specific group of conditions and the quality of life as a whole is assessed on a five-point scale. Importance ratings are used to weigh satisfaction responses (Ferrens, Powers, 2012).
Eurobarometer – it is a series of public opinion surveys conducted regularly on behalf of the European Commission	This method is a survey of public opinion, which includes two main questions and several additional ones. People over 15 years old are invited to answer questions about satisfaction with the life and democracy of the country. Additional questions are determined by the profile of developers based on those that were relevant at the time of the survey (Hagertyetal, 2001).
Swedish ULF-system (Undersokningar av	As a result of the research, information is collected on 120 social indicators, which are combined into 12 social dimensions or "areas of well-being" on which the Scandinavian concept of well-being is

Levnadsförhållanden) [Investigations of Living Conditions]	built: education, social mobility, employment, working conditions, income, housing, transport, leisure, entrepreneurship, health, public relations, harassment measurements (Kraus, Schmaus, 2001; Balashova, Nahatakjan, 2017)
Analysis of the QoL of the state's population	The assessment is made in the form of a telephone survey with a stratified random sample. Respondents ask questions related to the general standard of living in the state, satisfaction with family life, work, financial situation, health, education, law and order, and the environment (Ayvazyan, 2016)
Consumer Confidence Indexes – CCI	The methodology is an economic assessment of the quality of life based on the study of the opinions of citizens. The survey questionnaire includes questions about the subjective opinion of the respondent about the general economic situation and personal financial situation, about the situation in the markets for goods (services) and savings. Private indices are calculated based on the balance of respondents' ratings (in percent) on the corresponding question of the questionnaire. The balance of estimations is the difference between the number of shares (as a percentage) is definitely positive and more positive responses and the amount of shares (as a percentage) is definitely negative and more negative responses (Tanweer, Mumtaz, 2016; Zagorsky, McDonnell, 1995).
Index WHOQOL	International methodology for assessing the quality of life, comparable in different cultures. The technique allows you to evaluate the feelings of individuals in the context of their culture and system of values, as well as their personal goals, standards and interests. The WHOQOL-BREF Brief Questionnaire consists of 26 points that allow you to evaluate: physical health, psychological health, social relations and the environment (Murphy, Herrman, Hawthorne, Pinzone, Evert, 2000; (Vahedi, 2010).
Philippine Social Climate Analysis	It is a population survey in which the respondent is asked to answer two questions related to the quality of life. Based on the results of the survey, the respondents are divided into so-called socio-economic classes and types: optimists and pessimists. The survey is quite simple, its results are easy to interpret, but the level of subjectivity is too high to draw any conclusions based on the results (Cruzetal, 2017).

Source: own researches based on the mentioned authors

Researchers from around the world agree, that the use of only one of the approaches discussed above significantly limits the assessment of the quality of life of the population, and propose an attempt to link the two approaches to simultaneously consider both objective and subjective indicators and draw conclusions on the general system of the quality of life of the population. In the last decade, there are more and more supporters of an integrated, systematic approach, which includes the simultaneous monitoring of changes in the field of

economic, social indicators and changes in society. The integral approach implies that objective and subjective indicators must be regarded as equivalent.

The question of how to calculate an integral assessment remains still open, i.e. to build an index that combines both objective and subjective assessments. The main approaches to the formation of integral indices are presented in Table 5.

Table 5: The main indicators of life quality assessment used in the framework of the integrated approach

Combination of objectivist and subjectivist approaches	**Content**
Index of Social Progress, ISP	The Social Progress Index is a composite indicator of the international research project The Social Progress Imperial, which measures the achievements of the world in terms of social well-being and social progress. The index is calculated for countries for which reliable indicators are available and is based on a combination of data from opinion polls, estimates made by experts in the field of statistical information development of international organizations. In determining a country's progress in the field of social progress, more than 50 indicators are taken into consideration, grouped into three main groups: basic human needs; bases of human wellbeing; possibilities of human development. The index reflects the achievements of each country on a scale of 0 to 100 based on the data obtained in the three above-mentioned basic categories (Social Progress Index 2015; Veber, 2015)
Indicator of journal Money Magazine	The indicator contains elements of both objective and subjective analysis. At the first stage, residents shall choose more than 40 criteria of their significance when choosing a place of residence, and at the second stage a statistical analysis of information is carried out according to indicators characterizing the criteria used (Hagertyetal, 2001)
Where-to-be-born Index	The Where To Be Born index allows you to determine which country provides the best opportunity for a healthy, safe, and prosperous life in the coming years. It is based on a method that allows you to connect the results of subjective studies of life satisfaction with the objective determinants of quality of life in different countries. Estimates of life satisfaction (on a scale of 1 to 10) are associated with various factors in multivariate regression. The calculation equation for the current year can be used to calculate the index values for the past and future years, which allows comparisons over time and across countries (Kekic, 2012)
Myers Trend Indicator (Community trend method)	D. Myers assumes that it is impossible to judge the quality of life of a population solely by objective statistical indicators since much depends on personal judgments about the quality of human life. This approach is proposed for a certain number of parameters. First, statistical studies are carried out, and then the results are divided into two groups: with positive

	dynamics and negative dynamics. After that, on the basis of the survey, public opinion regarding the identified dynamics is determined (Myers, 1987).
The basic and improved QoL indexes by Diener	A two-component index that contains a base and advanced index. The extended subindex contains a subjective component. Two of the resulting 7 subindices contain indicators used to determine the quality of life. The final value of the index is calculated by adding the results of a standardized assessment of 7 indicators (Diener, Suh, 1997)
The German system of social policy decisions and indicators	The system of monitoring of social indicators, including 13 categories of measurement of quality of life. Each category can be divided into several properties and even sub-properties. Each property or subordinate property is described by certain indicators. In total, the system has about three hundred such indicators. (Noll, Heinz-Herbert, 2014)

Source: own researches based on the mentioned authors

Studies of international interest are hindered by the insufficiently developed apparatus for studying the quality of life. Some authors are of the opinion that due to the complexity of the calculations and the mathematical foundation of the index it shall not be built at all, it shall be limited only by comparing these two types of assessments. The complexity of research in this area is explained not only by theoretical and methodological miscalculations, but also by the nature of studies of perceived well-being, related both to the socio-economic and political conditions of a particular society, and to the deeply personal characteristics of the individuals themselves, with their demographic, racial and ethnic, socio-status characteristics, the scope of their subconscious, life cycle features, the value system of individuals and society as a whole. Ultimately, most scientists are inclined to believe that a synthesis of objective and subjective approaches is necessary, i.e. the creation of an integrated approach for a more comprehensive study of the quality of human life is inevitable (Kovyneva, Gerasimov, 2006).

The main problem of using indicators of QoL (regardless of what the implementation of this phenomenon includes) is the ability of government bodies to determine the general parameters of the data system that will serve for decision-making policy (which specific data are needed by the responsible authorities).

2. GOALS, OBJECTIVES AND METHODS OF RESEARCH

The chapter is devoted to determining the main characteristics of the dissertation: goals, objectives, tasks which were set in the work; methods that are used for resolving them. The theoretical and practical significance of the work is presented, which is determined by its value for the theory and practice of solving state problems of managing the process of improving the QoL of the population.

2.1. Formulation of the main goal of the research

Formulation of the goal of the research shall be based on the following key assumptions:

1. Public policy is the field of activity of public authorities aimed at improving the population's QoL.

Due to the limited resources available to government bodies (including the regional level), the foreground is the problem of identifying priority areas in the conduct of socio-economic policies, which under certain conditions provide an improvement in the QoL of the population. The most obvious criterion for choosing public policy priorities is to identify the so-called problem areas of public life and areas that most significantly affect the population's QoL. Accordingly, each factor (indicator) of the QoL of the population shall be considered from the point of view of problematicity, as well as its significance.

2. The QoL is a comprehensive characteristic of the ability to meet economic, social, ecological and human security needs, determined by the objectively existing conditions of the current socio-economic system and the subjectively felt living conditions.

Given that the QoL of the population is a complex multidimensional synthetic category, the assessment of which depends on a variety of factors, broadly understood as economic, social, ecological and security factors, the solution of the problem of managing the socio-economic development of the region requires the monitoring and accounting of a large number of factors and indicators.

At the same time, as noted by S.Ajvazyan, M.Isakin, there is a so-called threshold of complexity in human opinions, according to which he is able to give a qualitative adequate assessment of an event or phenomenon as a result of analysis at the same time not more than 7-10 characterizing their parameters (Ajvazyan, Isakin, 2006). This means that in socio-

economic management it is necessary to use formalized methods of imposing a large number of analyzed characteristics in order to transit to a relatively small number of generalized integral indicators - so-called integral indicators of the quality of life. With the optimal construction of an integral indicator of the quality of life, they can be used as criteria for the degree of achievement of the goals of administrative management in the region and, accordingly, as tools for indicative policy and identifying key areas for improving the socio-economic situation in the region.

The main goal of this study is to develop a methodology for public administration of the quality of life of the population through the development of existing scientific and methodological approaches to its assessment and the formation of a strategy for improving the quality of life of the population at the macro- and meso-level on the basis of the results of such approaches.

2.2. Determination of the objectives and main tasks of the dissertation

Achieving the goal involves solving the following objectives and tasks of the dissertation work:

- clarification of the content of the category “quality of life”;

- determination of typical parameters of the methodological apparatus (the aggregate indicator) for determining the current state of the quality of life of the population and making decisions on the need for its assessment;

- clarification of the procedure for choosing a scientific-methodological approach to assessing the quality of life within a particular country;

- the formation of a methodological apparatus (the aggregate indicator) for determining the current state of the QoL of the population, allowing a comparative assessment in the context of several countries;

- collection and analytical processing of information characterizing the QoL of the population in the countries on the basis of which the assessment is carried out;

- using the method of transforming particular indicators within the framework of a scientific-methodological approach to determining the current state of the QoL of the population, which allows a comparative assessment in the context of several countries.

- approbation of the developed approach using appropriate information;

- the formation of a strategy to improve the QoL of the population at the macro- and mesoscale based on the results of assessing the indicator of the QoL of the population in the context of various countries.

2.3. Methods used for solving research problems and tasks

The theoretical and methodological basis of the work make scientific and special methods of research, in particular:

- methods of analysis and synthesis. The first is based on the process of decomposition of the object into constituent parts, study of their properties and characteristics. The second is the combination of the analyzed parts into integral. As a result of the use of synthesis, the knowledge obtained from the use of analysis is combined into a single system. That is, the methods of analysis and synthesis in scientific work are organically interconnected and can take various forms depending on the properties of the studied object and the purpose of the study. In this dissertation thesis the definition of the content of the category „quality of life“ is based on the use of methods of analysis and synthesis, including the study of the stage of formation of knowledge about the phenomenon „quality of life“, the ideas of scientists about the essence of this category (on the basis of which its definition is formulated) of possibilities of indicative assessment of QoL within the framework of different approaches;

- the induction and deduction methods. Induction is a method of reasoning and a method of investigation in which a general conclusion is built on the basis of private assumptions. Deduction is a way of reasoning by which a private conclusion follows from the general assumptions with necessity. The use of the induction and deduction methods forms the methodological basis for the development of solutions aimed at improving the quality of life of the population at the macro- and meso-levels;

- the comparison method. It is one of the most common methods of cognition, which allows to establish the similarity and difference between objects and phenomena. In the dissertation work this method is used in comparison of objective and subjective approaches to QoL assessment, between which there is a certain commonality; the set of indicators (baseline indicators) which the aggregated indicator is based on; as well as the results of assessing the QoL in the context of various countries;

- the selective method is a statistical method for studying the general properties of a set of any objects based on the study of the properties of only a part of these objects. As a plurality of studied objects as a general set, on the basis of information on which a complex of decisions is made, this paper presents a set of statistical information for six countries of the European Union: the Czech Republic, Bulgaria, Slovakia, Romania, Poland, Hungary. On the basis of the data on the presented set of indicators (baseline indicators), an accurate description of the factors that significantly determine the QoL can be obtained and conclusions can be drawn on the need to implement them in the development of strategic directions of State policy in Ukraine. The presented sample of countries is representative, since all these countries are countries of the former Soviet bloc, in the past having traditions identical with Ukraine in planning and implementing economic decisions, using tools for managing material, labor and other resources;

- correlation analysis. The basis of this method is the establishment of the relationship between variable quantities. The relationship can be complete (i.e. functional) and incomplete when the dependence of the related quantities is distorted by the influence of extraneous, additional factors. Using this method, the dissertation defines a general set of economic, social, ecological and safety indicators, based on which an aggregate indicator of QoL can be calculated. The basis of this definition is the establishment of a close connection between statistical indicators and satisfaction with the QoL of the population.

- Fuller's method is a pairwise comparison method, which is based on the sequential comparison of a particular pair of criteria (selected sequentially from the total set) and the selection of the more significant of them.

To process economic information, build charts, figures, diagrams, tables, modern computer technologies and Microsoft Office® application software packages are used. The theoretical and informational basis of the research is theoretical developments, scientific concepts of domestic and foreign scientists on the issues of state management of QoL, informational materials of statistical, reference, periodicals; Internet resources.

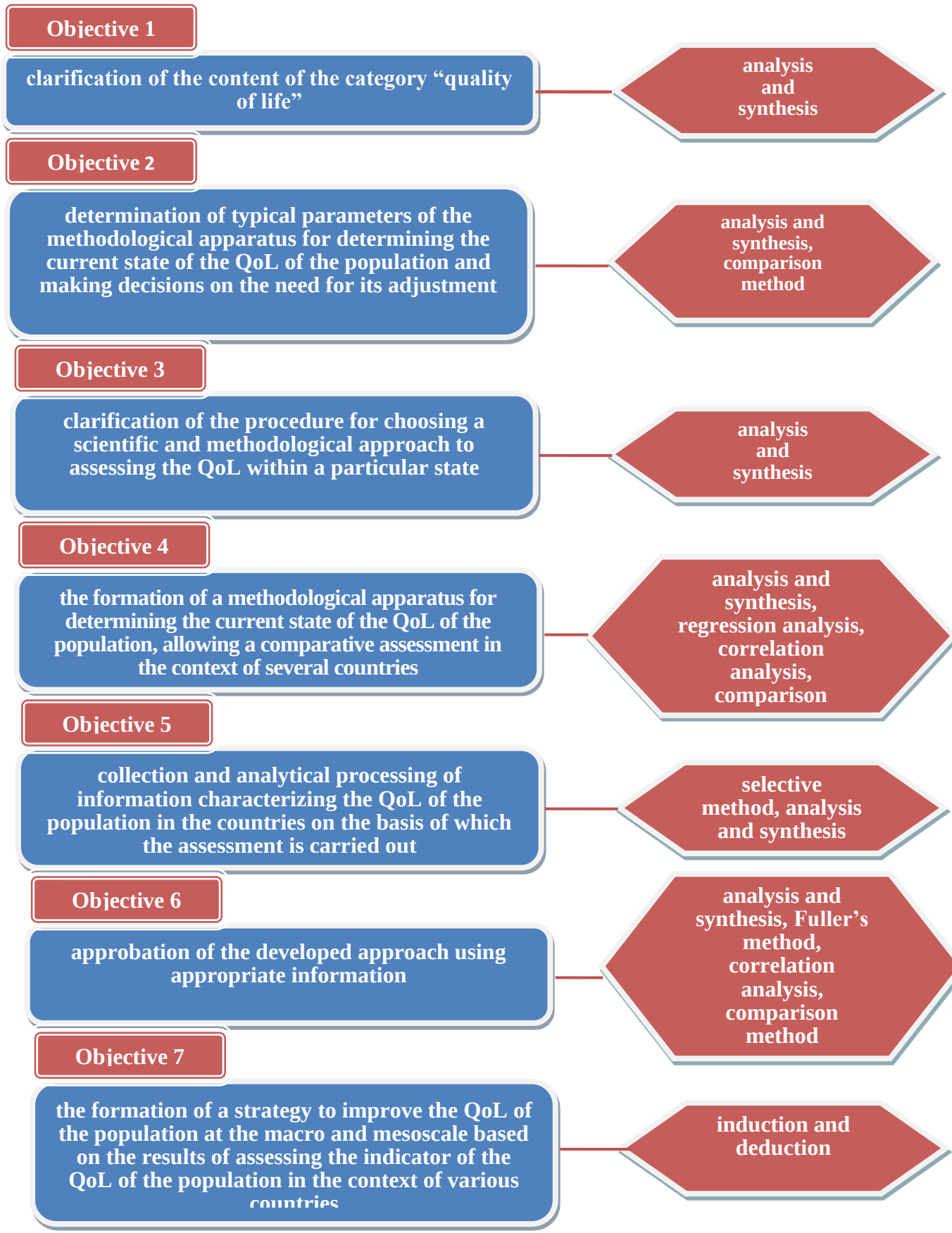


Figure 1: Theoretical and methodological basis of the dissertation thesis

Source: own research

3. METHODOLOGY FOR DETERMINING THE CURRENT STATE OF LIVING OF POPULATION (AUTHOR'S APPROACH)

The chapter is devoted to solving the problems of forming the methodological apparatus (aggregated indicator) for determining the current state of the QoL of the population, which allows to provide a comparative assessment in the context of several countries.

The methodological apparatus (aggregated indicator) for determining the QoL is a significant part of the general methodology for managing the socio-economic aspects of the activities of any country. Since the category of "quality of life" is multifaceted, it is assumed that the corresponding methodological apparatus shall be based on the use of economic, social, ecological calculation and analytical components and decision-making tools, as well as those related to the field of security. The technology of using such tools depends on the nature and multiplicity of the studied objects, tasks and research objectives.

3.1. Algorithm of formation of the scientific and methodological approach to the determination of a current state of QoL of population, allowing to carry out comparative assessment in terms of several countries

The initial stage of the procedure for determining the current state of the QoL of the population for the subsequent development of strategic directions for improving this state shall be the establishment of a research goal, the problems of which center around studying problems and prospects for improving the QoL (Figure 2).

Subsequently, refinement of the subject can be carried out. Based on the fact that the subject of the study is approaches to the formation of a QoL that would be perceived by the population as high, the subject shall be clarified on the basis of the need to study the parameters for the formation of conditions that determine the QoL in the territory of one or several countries.

In the first case (left branch of the algorithm), as further actions, the procedure involves the collection and analytical processing of information characterizing the QoL of the population in a particular country.

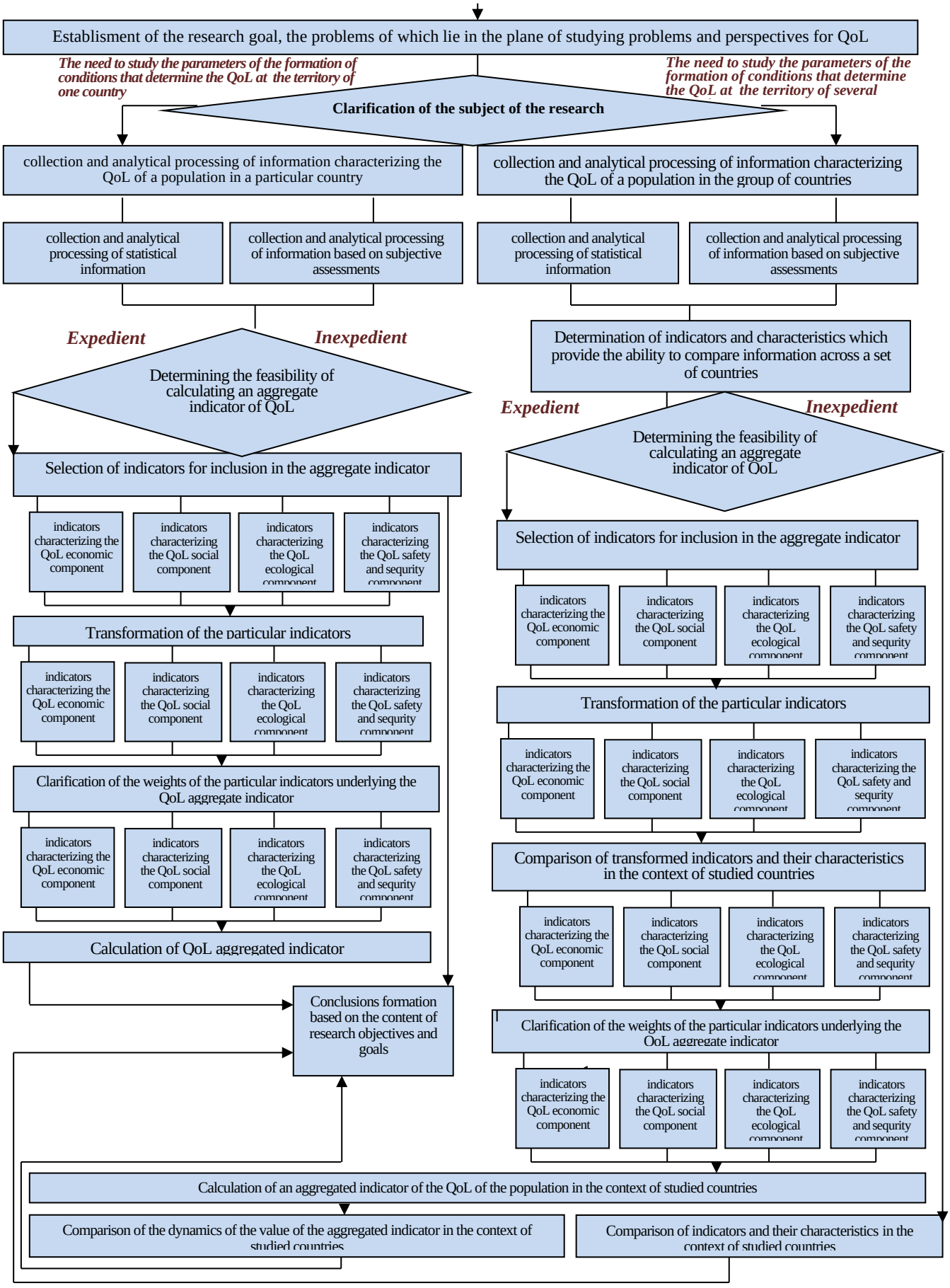


Figure 2: Structural-logical representation of the procedure for choosing a scientific and methodological approach to assessing the QoL (author's proceeding based on the own recearches)

In the second case (right branch of the algorithm), the procedure involves the QoL of the population in the group of observed countries, which will be reflected in the next chapters of the dissertation work. Moreover, in both cases, the collection and analytical processing of statistical information, as well as information based on subjective assessments are carried out.

Statistical information and information based on subjective assessments shall characterize any area of the multi-format "phenomenon" "quality of life", and can create a potential opportunity to evaluate its full manifestation. Therefore, the set of indicators used can be completely different. For example, among statistical indicators, it is advisable to use those that characterize various options for generating income (wages, pensions, scholarships, income from securities, etc.); level of housing per capita (number of square meters per inhabitant, provision with gas, water, etc.); the possibility of obtaining social security services, food security (in the context of various types of products), the level of ecology (volumes of various emissions and waste) the possibility of developing intellectual and cultural-creative potential (the number of higher educational institutions per thousand inhabitants; the number of teachers with a scientific degree); employment opportunities (number of vacancies per thousand inhabitants, long-term unemployment, etc.), conditions for maintaining and improving health (number of outpatient clinics or beds per thousand inhabitants, doctors, obstetricians, etc.), etc. Among the indicators that reflect a subjective assessment are those that characterize various groups of conditions that form the human environment (conditions for satisfying physiological needs, living conditions, employment opportunities, conditions for the formation and realization of intellectual and cultural and creative potential, conditions for self-sufficiency, health maintenance, etc.).

In the second case, when the procedure involves the collection and analytical processing of information characterizing the QoL of the population in several countries, there is a need to determine indicators and characteristics that make it possible to compare information on the totality of the selected countries. In other words, only those indicators for which the full statistics data is available shall be selected.

The next step is to determine the feasibility of calculating the aggregate indicator of life quality. As it was noted in the first chapter of the dissertation theses, a widespread approach to assessing the quality of life is the transition from a certain set of indicators (most often single ones), the values of which can be quite easily analyzed using statistical data (or

calculated using them) and expert estimates which number can be quite large, to a small number of some integral (aggregated) indicators, functionally related to the initial ones.

There are a number of reasons for the aggregation of subaggregates into a group of indicators (intermediate group), and the group of indicators - into the integral one (Figure3):

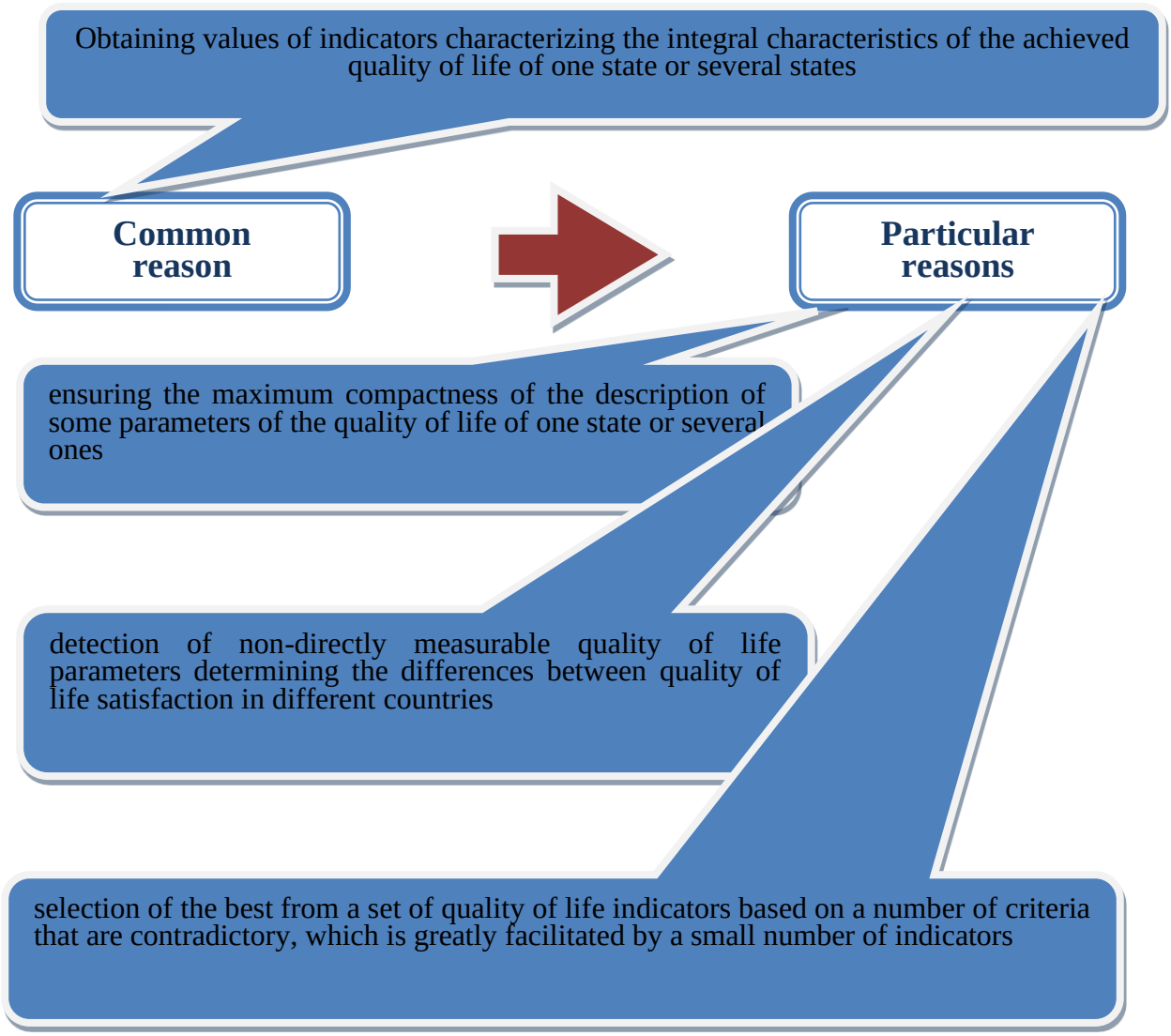


Figure 3: Possible reasons for the aggregation of particular indicators of QoL into the integral one

Source: author's proceeding based on the own recearches

1) common reason is obtaining values of indicators characterizing the integral characteristics of the achieved QoL of one or more countries;

2) particular reasons are as follows:

ensuring the maximum compactness of the description of some parameters of the QoL of one state or several ones;

detection of non-directly measurable quality of life parameters determining the differences between QoL satisfaction in different countries;

selection of the best from a set of quality of life indicators based on a number of criteria that are contradictory, which is greatly facilitated by a small number of indicators.

The integral indicator is based on groups of particular indicators (indicators characterizing the QoL economic component; indicators characterizing the QoL social component; indicators characterizing the QoL ecological component; indicators characterizing the QoL safety and security component), characterizing the most important aspects of the object in the research – subaggregates. The algorithm for constructing an integral indicator includes the following steps:

- selection of initial particular indicators (in the context of the partial groups);
- transformation of particular indicators (in the context of the relevant partial groups);
- aggregation of transformed particular indicators;
- sub-indicator weighting (giving the corresponding weights (significance) to indicators belonging to the subaggregates - characterizing the economic, social, ecologic component of the QoL and indicators characterizing the component of QoL safety and secuirity)).

In the case when a decision is made on the inappropriateness of calculating an aggregate indicator in a particular case, if necessary, to study the current (past, future) situation in different countries, indicators and characteristics are compared on a country-by-country basis. Next, the formation of conclusions depends on the content of the purpose of the study. When assessing the situation in the territory of one particular state, the stage of comparing the situation is omitted.

In case that a decision is made on the appropriateness of calculating an aggregated indicator, then particular indicators are selected for inclusion in an aggregated indicator, the type of aggregated indicator is determined, as well as the weight of each particular indicator, on the basis of which the aggregated indicator is built.

Then, the aggregated indicator is calculated for one or more countries (depending on the previously determined expediency). In the first case, based on the results of the calculation, appropriate conclusions are made, and a set of decisions is taken, aimed at improving the quality of life in the country’s territory. In the second case, formation of

conclusions is preceded by comparison of the dynamics of aggregate indicator values in terms of different countries.

Thus, this algorithm is a universal tool for determining the aggregate measure of the quality of life and decision-making and for cases where there is a need to compare the value of the aggregate indicator of one country with other countries in order to determine possible orientation in the development strategy based on the positive experience of such countries (right-hand branch of the algorithm), and for those cases when the calculation of the aggregate indicator is carried out for one country in order to determine its dynamics and make decisions on this basis (left-hand branch of the algorithm).

3.2. Justification of the procedure of selecting initial subaggregates for inclusion in the aggregate one

As noted above, an assessment of the QoL of a population can be carried out using an infinitely large number of indicators. At the same time, when they come to the formation of an aggregate indicator, there is a need to select the most important ones, allowing to capture the key aspects of QoL. Such a selection can be carried out using correlation analysis, that is, determining the relationships between factor and resultant attributes of a statistical population (causal relationship). It is proposed to use the indicator of population satisfaction with the QoL as a generalized characteristic of the subjective perception by residents of different countries of their position in the socio-ecological-economic space, characterized by a certain degree of life safety. Indicators of parameters of such space can be used as factor characteristics.

There are two methods of determining the strength of relationship between the indicators and the calculation of the correlation coefficient: squares method (Pearson), ranks method (Spearman) (Zahora, 2015; Militky and Meloun, 2000).

The most accurate is the method of squares (Pearson), in which the correlation coefficient is determined by the formula:

$$r_{xy} = \frac{\sum (d_x \times d_y)}{\sqrt{(\sum d_x^2 \times \sum d_y^2)}} \qquad (1)$$

r_{xy} — correlation coefficient between a statistical row x and y.

d_x — deviation of each of the numbers in the statistical series x (indicators of parameters of socio-ecological-economical space, characterized by a certain degree of life safety) from its arithmetic mean.

d_y — deviation of each of the numbers in the statistical row y (indicators of population satisfaction with quality of life) from its arithmetic mean.

For those cases when the distribution of the characteristic is not normal, that is, the population is sufficiently heterogeneous, it is advisable to use the Spearman method to calculate the correlation dependence (the normal distribution of the characteristic is observed in those cases when the size of the options included in the variation series is affected by many random, independent or weakly dependent factors, each of which plays a minor role in the total; the normal distribution curve is a one-vertex symmetrical bell-shaped figure, the right and left branches of which uniformly and symmetrically decrease, asymptotically approaching the abscissa).

Spearman's correlation coefficient is a statistical criterion that is most often used when processing empirical data in the economy. This criterion refers to the type of nonparametric and does not require data to be normally distributed. It is enough, if figures are presented on an ordinal scale, i.e., only the fact is taken into consideration that one component is higher than or lower than another.

To calculate the Spearman correlation coefficient during an empirical study, it is more convenient to use statistical programs. However, this criterion is not difficult to calculate manually.

The Spearman rank linear correlation coefficient is calculated by the formula:

$$r_{xy} = 1 - \frac{6 \times \sum (D^2)}{n \times (n^2 - 1)} \qquad (2)$$

n — number of ranked features;

D — the difference between the ranks of two variables

Depending on the strength of the bond and its direction, the correlation coefficient can range from 0 to 1 (-1). A correlation coefficient of 0 indicates a complete lack of connection between the indicator of population satisfaction with the QoL and the indicator of socio-ecological and economic space, characterized by a certain degree of life safety.

Correlation coefficients can take, as a rule, positive and negative values. The sign of the correlation coefficient allows you to interpret the direction of communication, and the absolute value shows the strength of the connection.

The closer is the level of the correlation coefficient to 1 or (-1), the correspondingly larger, the more closely is measured line or feedback. The value of the correlation coefficient equal to 1 or (-1) indicates a complete functional correlation between the indicators (Table 6).

Correlation analysis has its own specifics and methodology. It is important to use this method only in accordance with the preconditions for the calculation of a particular correlation coefficient. The method of correlation analysis assumes, not just the calculation of correlation coefficients, but also a mandatory check of their significance, which is based on the principle of testing statistical hypotheses, the construction of interval estimates of correlation coefficients.

Table 6: The scale for assessing the degree of correlation by correlation coefficient

Degree of correlation	The value of the correlation coefficient with:	
	Direct correlation (+)	Inversed correlation(-)
No correlation	0	0
Correlation is small (weak)	from 0 till +0,29	from 0 till –0,29
Medium (moderate) correlation	from +0,3 till +0,69	from –0,3 till –0,69
Correlation is large (strong)	from +0,7 till +1,00	from –0,7 till –1,00

Source: own researches based on Hendl, (1997; 2016)

Those indicators of satisfaction with the QoL, the relationship of which is estimated by the Spearman coefficient in the amount of at least 0.5, can be used as the basis for calculating the aggregated indicator of the QoL.

When selecting the indicators the following shall also be taken into consideration: indicator shall reflect the consideration factor; it shall be available in official statistics, shall have numerical values in one of the information databases, shall be easy to measure characteristics and provide the possibility of comparison (comparison); shall provide multidimensionality of measurement and take into consideration structural features of the studied object; shall provide the ability to construct and interpret the integral index, shall characterize the achievement of the goal. Another problem in the process of choosing indicators on which basis an aggregate indicator can be built is the method of obtaining the initial information. Statistical data from the point of view of comparability can be considered as an ideal source because they are both precise and objective. Thus, in the future, the calculation of the aggregate indicator shall be built on such indicators.

3.3. Determination of the method of baseline indicators transformation

Studying the results of scientific research in the field of integral indicators construction (Klyushnikova, Shitova, 2016; Kondrashova, Endovickaya, 2016; Matveeva et. al., 2015) allows systematizing the used methodological approaches. At the initial stage, when determining the set of the initial particular indicators, the objectivity and accuracy of their selection are of fundamental importance. The main criterion for determining their amount and a specific list is to achieve the goals of calculating the integral indicator. In addition, important points are taken into consideration, such as ensuring reliability and availability of data, quantitative measurable capacity, ability to reflect differences between objects in comparative analysis, and the possibility to build and interpret an integral indicator. As well as those that can be controlled and managed.

The transformation of particular indicators is an important stage in the processing of source data to ensure the comparability of indicators with each other.

Its need is due to the fact that the integral indicators often summarize the particular indicators measured in different units (rubles, percent, etc.). Several methods have been developed for transforming indicators that form the dimensional and substantial side of the integral indicator (Klyushnikova, Shitova, 2016; Kondrashova, Endovickaya, 2016; Matveeva, Chernova, Klimuk, 2015):

1. The simplest of these methods is a rating method, others are more complicated, but they have great advantages. In accordance with the rating method, ranking is performed

by the value of the indicator relative to its minimum (or maximum) level. The value of the first indicator in the series is taken as 1, the next one is estimated at 2 units, etc. The advantage of this method is that it is easy to use, the disadvantage is the leveling of the degree of real differentiation of the objects of study, especially in the groups of the first and last positions. The difference in rating on 1st place may be defined for indices with similar values, and for indicators, the values of which differ by several times. As a result, there is an excessive differentiation of the indices of the middle group having close values and an underestimation of the degree of polarization of the extreme values of the indicator; the method does not allow evaluating the dynamics of development in substantive completeness, only moving the ranks relative to each other.

2. Rationing of indicators. Using this method, the ratio of the value of a specific indicator to the group average is determined (or vice versa - the group average to the indicator value).

Calculation of the transformed indicator can be represented as follows:

$$\overline{X} = \frac{x}{x_{cp}} \qquad (3)$$

or

$$\overline{X} = \frac{x_{cp}}{x} \qquad (4)$$

x — indicator value;

x_{cp} — the average value of a group of objects.

Thus, the multiplicity of deviation from the average value is established. The advantage of the method is that it retains an idea of the scale and nature of the differences. The disadvantage is that the value of the integral indicator depends on the spread in the values of particular indicators, which may biased reflect the situation in the event of a significant difference in one of them. This is permissible only in relation to key indicators, but is not applicable, if it is necessary to maintain the significance of several indicators.

3.Within the framework of the “maximum - minimum” method, the minimum and maximum values are equalized for all particular indicators in order to eliminate differences

in the spread of indicator values. Calculation of the transformed indicator can be presented by means of the following formula (4,5):

$$\overline{X} = \frac{x - x_{\min}}{x_{\max} - x_{\min}} \quad (5)$$

or

$$\overline{X} = 1 - \left[\frac{x - x_{\min}}{x_{\max} - x_{\min}} \right] \quad (6)$$

where x — indicator value;

$x_{\max}$ — maximum indicator value;

$x_{\min}$ — minimum indicator value.

Two formulas are needed to transform indicators of different directions.

The advantage of this method is that the spread of the values of the indicators is preserved, i.e. the nature of differences in the studied objects according to individual indicators is reflected absolutely adequately. At the same time, despite the fact that this method eliminates the excessive influence of one particular indicator on the integral indicator, it does not allow taking into consideration serious differences between the objects of research in cases where these differences are significant.

4.Standardization of indicators. A method that is something between rationing and the maximum method. Its essence consists in the arbitrary determination by the researcher of the degree of spread between the values of the indicators taken into consideration. Calculations can be carried out both with preliminary normalization of the indicator, and without it - you can either proportionally reduce / increase the values of normalized indicators, or substitute arbitrary (rather than actual) maximum and minimum values in the maximin transformation formulas. It is possible to reduce the spread between the values of the indicator by the logarithm of the values of the indicators:

$$\overline{X} = \frac{\log x - \log x_{\min}}{\log x_{\max} - \log x_{\min}} \quad (7)$$

Using this method provides the ability to adequately take into consideration the differences between the rates of spread of the maximum and minimum values, but has a high degree of subjectivity (Klyushnikova, Shitova, 2016). As noted in the works of Zenchenko S.V., Berezhnoi V.I. (Zenchenko, Berezhnoj, 2010), if in the first three methods of transformation of indicators it is subjective only to choose the method of transformation itself, then in the case of standardization, the researcher usually makes a completely arbitrary decision on the extent of considering the extent of differences between the objects under study.

If the maximin transformation formulas are substituted not only with arbitrary indicators, but with a certain meaning, and / or the same maximum and minimum values are used for several years, this, on the contrary, increases the meaningful meaning of the obtained indicators. Based on these considerations and other advantages of the "maximum-minimum" method, it deems appropriate to use this particular method of transforming particular indicators within the framework of a scientific-methodological approach to determining the current state of the quality of life of the population, which allows a comparative assessment in the context of several countries.

3.4. Methodology for determining the weight of indicators, based on which the aggregate indicator is calculated

Each of the indicators based on which the calculation of the aggregated indicator is built has its own weight. It characterizes the degree of significance of factor influence, (the effect of which is evaluated using a particular indicator), on the formation of the overall result, the value of which is estimated using an aggregated indicator.

This dissertation work uses a pair comparison method (Fuller's method) based on using the so-called Fuller triangle to determine weights to assess the significance of QoL indicators. The essence of the principle of pair comparisons is that the process is based on a consistent comparison of a pair of criteria (selected sequentially from the total amount) and selection of a more significant one. That is, when it comes to comparing every two criteria out of the total number of criteria *k*, all combinations of two elements of the number *k* are subject to selection. In this case, the total number of comparisons is equal to:

$$N = \binom{k}{2} = \frac{k(k-1)(k-2)!}{2!(k-2)!} = \frac{k(k-1)}{2} \quad (8)$$

For greater clarity in comparison, a so-called Fuller triangle having -1 double lines was composed. The first line contains all combinations for comparison with the first criterion, in the second combination for comparison with the second criterion, except for one in the previous row, in each next line there are combinations for comparison with another criterion that is not in the previous lines. Thus, each line has 1 member less than the previous line.

After selecting the most important indicator (factor) in each pair, the number of identified importance for each indicator (n_i) shall be determined, and then the weight shall be calculated by formula (9):

$$V_i = \frac{n_i}{\sum_{i=1}^{k} n_i} = \frac{n_i}{N} \quad (9)$$

where V_i - indicator significance *i;*

N – total number of comparisons.

The reason for this method is the simplicity of the information requested by the user.

3.5. Determination of the type of aggregate indicator

At the aggregation stage, indicators are combined and consolidated by grouping them by some characteristic. Aggregation can be done by grouping, summing, or by other methods of converting particular indicators into the general ones. Description of the main aggregation methods summarized by the review of scientific research (Klyushnikova, Shitova, 2016; Matveeva, Chernova, Klimuk, 2015) can be presented as follows:

1. The method for the sum of indicators (linear model) involves the consolidation of indicators using the following formula:

$$I = \sum x_i \,, \qquad (10)$$

where x_i – value of the i-th indicator.

The advantages of this method may include simplicity in its application. When using it, it is recommended to make the list of key factors and to carry out the assessment upon indicators (it is desirable to use estimates from 1 to 10 points). These estimates are then summarized to obtain an estimate of the complex indicator. A similar procedure is carried out for other similar objects. Comparison of obtained estimates of complex indices of the investigated object and similar to it allows to detect advantage or lag of the object. With regard to disadvantages, individual indicators do not always play an equally important role for the object under study, which does not allow an objective assessment of the position of the object under study.

2. The method by the sum of the weighted average arithmetic indicators involves the summation of weighted estimates:

$$I = \sum x_i \times w_i \qquad (11)$$

where x_i – the value of the i-th indicator with the total number N;

w_i – indicator of significance (weight) of the i-th indicator. Most often in practice, normalized weights are used, that is, their sum shall be equal to one.

By taking into consideration the importance of indicators, the integral indicator more accurately reflects the efficiency of the object under study. When using expert evaluation, the values of weight indicators can vary significantly depending on the selected segment for the survey (Atanasova, Karashtranova, 2016). The solution to this problem can be an increase in the number of interviewed experts.

3. The method for multiplying the weighted average geometric group indicators involves the use of the formula:

$$I = \prod_{i=1}^{N} x_i^{w_i} \qquad (12)$$

where x_i – the value of the i-th indicator with the total number N;

w_i – indicator of significance (weight) of the i-th indicator;

Π — multiplication of arguments with numbers i = 1, 2, 3,..., N. This expression is logarithmed to a linear constraint.

The use of this method implies an objective evaluation of the weights by finding them by calculation, which makes the integral indicator the most accurate. At the same time, the method is very time-consuming due to the need to process a large amount of source information.

4. A distance method involving calculating the distance between some actual object and its ideal representation. If the ideal value is the actually achieved value of the indicator for an object that has the best characteristics, then the value of the integral criterion can be calculated by the formula:

$$I = \sqrt{\sum_{i=1}^{N} w_i (x_r - x_i)^2} \qquad (13)$$

where x_r — reference value of an indicator,

x_i — the value of the i-th indicator with the total number N;

w_i — weight of the i-th indicator.

If the value of each indicator of the standard conditional is taken as 1, the formula will be:

$$I = \sqrt{\sum_{i=1}^{N} w_i (1 - x_i)^2} \qquad (14)$$

This is the most formalized method. This technique is used as a generalized criterion because it describes the generalized distance between the current object and the object for which the comparison is made. It may or may not take into consideration the significance of the indicators. An additional procedure is to select a reference. Other disadvantages include the complexity of computation and lack of clarity of results.

All these methods are widely used in practice and represent alternative approaches to calculating the integral indicator. When using the scientific and methodological approach to assessing the QoL, it is advisable to use the method by the sum of the weighted average arithmetic indicators as one of the simplest methods, but at the same time ensuring sufficient

information. In order to improve its efficiency in determining the weight of indicators, it is proposed to use the Fuller method described in 3.4.

4. APPROBATION (TESTING) OF THE SCIENTIFIC AND METHODOLOGICAL APPROACH TO ASSESSING THE QUALITY OF LIFE OF THE POPULATION

This chapter presents the results of the tasks to collect and analyze information on the population's life quality in the countries on the basis of which the assessment is carried out; the developed approach test used the relevant information.

The scientific and methodological approach can be tested on the basis of objective and subjective indicators reflecting various aspects of the life perception as satisfactory or unsatisfactory in the post-Soviet countries: Bulgaria, Czech Republic, Poland, Hungary, Romania, Slovakia, Ukraine.

4.1. Formation of a set of baseline indicators for assessing the QoL

Sustainable development of each country is the development that guarantees the maximum possible, equal starting conditions for the representatives of this and the next generations to manifest their abilities and meet life needs. Sustainable development is based on an economy that combines with the principles of environmental safety and social justice in a democratic society that respects human rights. The key themes of sustainable development are poverty alleviation, citizenship, peace, democracy and governance, justice, security, human rights, healthcare, gender equality, cultural diversity, rural and urban development, economics, environmental protection, natural resource management. Addressing these diverse topics within the framework of sustainable development requires a holistic approach. Sustainable development can be briefly characterized as the desire to achieve consensus (at best) or compromise (at worst) between economic, environmental and social development priorities. The following interrelated aspects of sustainable development can be distinguished:

- environmental aspect - the transition to equilibrium (balanced) nature management, where all components of the interaction of man and nature are brought into line with the ability of natural ecosystems to bear anthropogenic pressure;

- socio-economic aspect - ensuring economic growth coupled with a socially equitable distribution of incomes, poverty eradication and employment, maximum social integration;

- political aspect - the formation of civil society. Development of democratic institutions, respect for human rights;

- demographic aspect - establishing control over the growth of the planet's population;

- spiritual and cultural aspect - the formation of mentality in keeping with the principles of the sustainable development concept. Preservation of ethnocultural diversity of the Earth's population. Establishing a connection between the ideology of world religions and the new development paradigm. Formation of a culture of temperance.

The interconnectedness and interdependence of a number of the above aspects of sustainability with individual basic components of the manifestation of the category "quality of life", reflected in the definitions presented in the first section of the dissertation, are obvious. The coincidence of the content of such components shall become the basis for the selection of groups of baseline indicators, which the aggregate indicator will be based on (Figure 6).

Thus, Figure 4 shows that the four main components of the manifestation of the category "quality of life" correspond to the main aspects of sustainable development. This determines the feasibility of further selection of private indicators for assessing the quality of life as characteristics of economic, socio-demographic, environmental and safety conditions for human life.

In addition to the content of these groups and, accordingly, the indicators themselves, the limiting factor is the availability of relevant statistical information in each of those countries, on which basic testing shall be carried out.

Another, but not the least in terms of significance, selection principle shall be the establishment of the relationship of the selected indicators with the effective factor in the formation of a set of conditions. The presence of a relationship between influence factors and the resulting indicator is an important basis for including indicators in the list of baseline indicators for calculating the aggregate indicator.

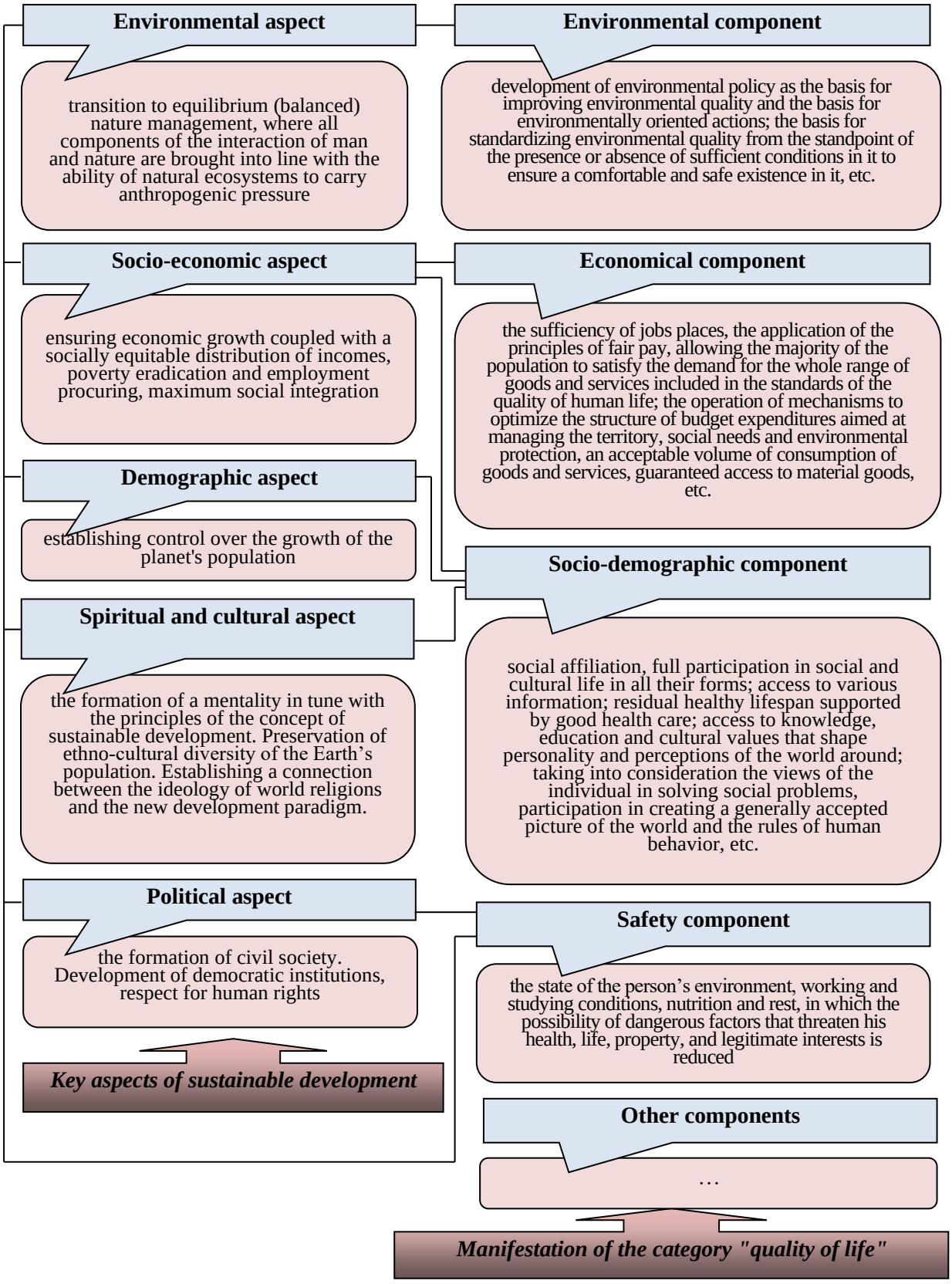


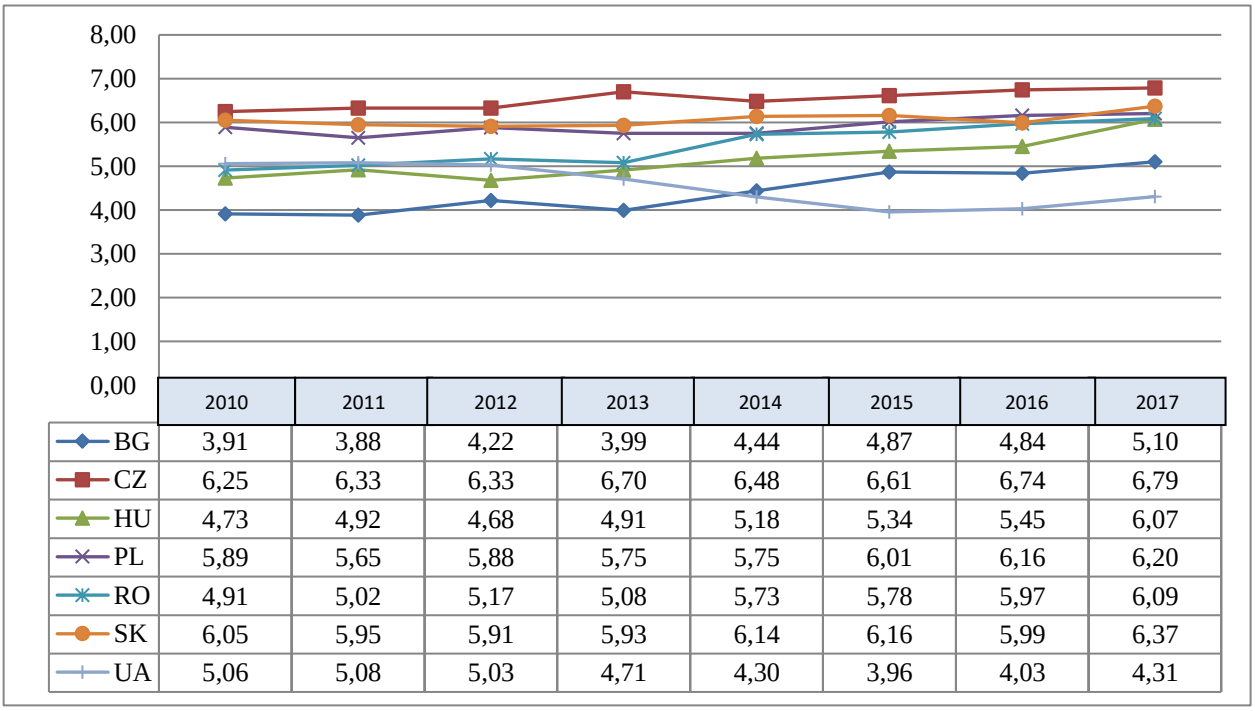
Figure 4: Compliance of the basic components of the category "quality of life" manifestation with main aspects of sustainable development

Source: own researches based on United Nations Development Programme, (2016); Kapuria, (2016); Diener, Suh, (1997); Michalos, (2014).

As a result, the indicator “life satisfaction” was selected, which was presented in the annual World Happiness Report, which is a well-known source of cross-country data and studies on self-assessment of life satisfaction. The fundamental source of happiness ratings in the "Report on the World Happiness" is a global survey of Gallup - a set of nationally representative surveys conducted in more than 160 countries (Ortiz-Ospina, Roser, 2019).

The works of many scientists (Inglehart, Foa, Peterson and Welzel, 2008; Dutta, Foster, 2013; Clark, Frijters, Shields, 2008; Becchetti, Massari Naticchioni, 2014) confirm the inclusion of the subjectivity factor in assessing the QoL using this indicator, which determines the feasibility of its use in the process of testing the scientific and methodological approach, based on the implementation of the principle of combining subjective-objective assessments.

Figure 5 shows the dynamics of the scoring of life satisfaction.



	2010	2011	2012	2013	2014	2015	2016	2017
BG	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10
CZ	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79
HU	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07
PL	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20
RO	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09
SK	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37
UA	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31

Figure 5: Dynamics of the “life satisfaction” indicator, points

Source: author’s proceeding based on the own recearches

According to Figure 5, the Czech Republic takes first place in life satisfaction from the represented countries, second place is occupied by Slovakia, the third place belongs to Romania, the fourth one is occupied Hungary, and the fifth is taken by Bulgaria. Ukraine takes the place, which leads to the need to find opportunities to improve this satisfaction.

To determine the feasibility of including the indicator "GDP per capita" in the list of baseline indicators, the correlation between this indicator and the "life satisfaction" indicator in the context of the presented countries is calculated (Appendix A). This indicator determines the gross domestic product (GDP) or the value of all manufactured goods and rendered services in the country in a given year. National GDP at purchasing power parity currencies (PPP) is the value of the sum of all goods and services rendered produced in a country, valued at prices that exist in the United States this year. That is, this is an indicator of the country's development, which most economists take into consideration when assessing welfare per capita and comparing living conditions or using the country's resources.

Table 7: GDP per capita, PPP (current international dollar)

Indicator's name	**GDP per capita, PPP**		
Unit	PPP (current international dollar)		
Indicator's content	It reflects the availability of consumer goods for the population. GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current international dollars based on the 2011 ICP round.		
Source	WORLD BANK GROUP, 2019a.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,93	Strong
	CZ	0,922	Strong
	HU	0,88	Strong
	PL	0,684	Average
	RO	0,98	Strong
	SK	0,57	Average
	UA	-0,21	Weak
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data: (full / recalculated):	Full		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max		

Source: author's proceeding based on the own recearches

Comparing the correlation results between “life satisfaction” and “GDP per capita” (Table 7, Appendix A) with the correlation dependency scale shows that five countries have a strong direct correlation (Czech Republic, Bulgaria, Poland, Hungary, Romania), which makes it expedient to include the indicator "GDP per capita in the list of baseline indicators for the calculation of the aggregate indicator. Slovakia is characterized by average dependence. Ukraine has a weak inverse correlation, which is due to the manifestation of a number of political factors affecting the overall situation of satisfaction with life in the country.

Salary is one of the types of income, the value of which forms the purchasing power of the population (Table 10).

Table 8 and Appendix A contain the results of determining the relation between the indicators “life satisfaction” and “average monthly net salary”. Their correlation with the scale presented in Table 6 allows noting the presence of close direct correlation dependence of indicators in Slovakia, average direct dependence in Bulgaria, Czech Republic, Poland, Ukraine. Weak correlation is observed in Romania and Hungary.

Table 8: Average monthly net salary (transferred to dollar)

Indicator’s name	**Average monthly net salary (transferred to dollar)**		
Unit	US dollar		
Indicator’s content	It is a macroeconomic indicator calculated as the arithmetic average of the wages of a certain group of workers (for example, by enterprise, industry, region). It is calculated on the basis of the wage fund for employees (including part-time wages), bonuses, allowances, bonuses based on annual results and one-time incentives. % of active population aged 15-74. That indicator reflects the ability of the population to finance the satisfaction of basic and other needs.		
Source	TRADING ECONOMICS, 2019 NATIONAL STATISTICAL INSTITUTE, 2020 MINFIN, 2019.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,619	Average
	CZ	0,637	Average
	HU	0,143	Weak
	PL	0,637	Average
	RO	0,024	Weak
	SK	0,857	Strong
	UA	0,310	Average
Possibility to use the particular indicator as a base for the integral	YES		

one, based on the correlation results	
Statistical data: (full / recalculated / recalculated methodology):	Recalculated methodology: Initially, the data were found in national currencies of each country separately. Then, for each country, the corresponding exchange rates were found for each year (2010-2017, on January 1 of each year). As a result, all the data were converted into one - the American dollar.
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max

Source: author's proceeding based on the own recearches

However, if the necessary statistics were available, it would be useful to take into consideration including an indicator reflecting the total income of the population. It can be assumed that the correlation between "life satisfaction" and "total income of the population" is stronger than between the indicators mentioned above. But as long as each of the countries does not have relevant statistics in its arsenal, these assumptions remain an unverified hypothesis.

A significant characteristic of the QoL on the territory of a state is long-term unemployment - unemployment over a relatively long period of time, for example, one year or more. This type of unemployment causes more serious problems compared to short-term unemployment in terms of both the financial situation and the moral condition of the unemployed and their families, therefore it is used as a statistical indicator by most countries of the world. Table 9 and Appendix A present the results of calculating the correlation of the indicators "life satisfaction" and "long-term unemployment".

According to calculations and comparison of their results with a scale that allow clarifying the degree of correlation of indicators, an inversed relationship is observed for all countries. A high value of the correlation coefficient is typical for Poland and Slovakia. Bulgaria, the Czech Republic and Ukraine are characterized by an average correlation of indicators. The exception is Romania, the correlation between "life satisfaction" and "long-term unemployment" is -0.0516. In general, "long-term unemployment" can be selected for inclusion in the list of baseline indicators.

Table 9: Long-term unemployment

Indicator's name	**Long-term unemployment**		
Unit	%		
Indicator's content	The long-term unemployment rate is the number of persons unemployed for 12 months or longer as a percentage of the labour force (i.e. economically active population). The unemployment rate is the number of unemployed persons as a percentage of the labour force (the total number of people employed and unemployed) based on the International Labour Office (ILO) definition. Unemployed persons comprise persons aged 15 to 74 who fulfil all the three following conditions: are without work during the reference week; are available to start work within the next two weeks and have been actively seeking work in the past four weeks or have already found a job to start within the next three months. That indicator reflects the potential of employment opportunities.		
Source	EUROSTAT 2019a. DERZHAVNA SLUZHBA STATYSTYKY UKRAYINY, 2019a.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	-0,48	Average
	CZ	-0,667	Average
	HU	-0,88	Strong
	PL	-0,788	Strong
	RO	-0,0516	Weak
	SK	-0,709	Strong
	UA	-0,57	Average
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data: (full / recalculated / recalculated methodology):	Full		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ min		

Source: author's proceeding based on the own recearches

Investing in pension funds and private pension systems is an opportunity to form a decent standard of living when a person retires. A non-state pension fund allows you to accumulate capital for retirement. At the same time, pension contributions are invested in securities and other financial instruments. Upon retirement, a member of a non-state pension fund receives his savings and investment income received with the help of this savings. Table

10 and Appendix A present the results of calculating the correlation coefficient between the indicators “life satisfaction” and “total investment in pension funds and private pension systems”.

Table 10: Total investment of providers of funded and private pension arrangements

Indicator’s name	**Total investment of providers of funded and private pension arrangements**		
Unit	Thousands USD per capita		
Indicator’s content	All forms of investment with a value associated with a pension plan over which ownership rights are enforced by institutional units, individually or collectively. That indicator reflects the ability of the population to form potential sources of financing needs in the future.		
Source	OECD, 2019		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,93	Strong
	CZ	0,934	Strong
	HU	0,14	Weak
	PL	-0,459	Average
	RO	0,98	Strong
	SK	0,98	Strong
	UA	-0,5	Average
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data: (full / recalculated / recalculated methodology):	Recalculated methodology: The initial data were taken “Total investment of providers of funded and private pension arrangements, in millions of USD”, to conduct a comparative characteristic between the countries, the indicator “Total investment of providers of funded and private pension arrangements, in thousands USD per capita” was calculated using statistics of Number of total population of each of the countries. And also a few data were not enough in Ukraine, a logarithmic function is used to supplement the missing data.		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max		

Source: author’s proceeding based on the own recearches

The dynamics of consumption expenditures as the cost of products and services used to meet the needs of households also significantly characterize the QoL of the population. The results of determining the correlation between the indicators “life satisfaction” and “household spending on final consumption” are presented in Appendix A and Table 11.

Table 11: Household spending on final consumption

Indicator's name	**Household spending on final consumption**		
Unit	% of GDP		
Indicator's content	Household final consumption expenditure (formerly private consumption) is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers), purchased by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses. Here, household consumption expenditure includes the expenditures of non-profit institutions serving households, even when reported separately by the country. This item also includes any statistical discrepancy in the use of resources relative to the supply of resources. That indicator reflects the cost of products and services used to meet household needs.		
Source	WORLD BANK GROUP, 2019b.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	-0,38	Weak
	CZ	-0,412	Weak
	HU	-0,86	Strong
	PL	-0,507	Average
	RO	-0,19	Weak
	SK	-0,52	Average
	UA	-0,12	Weak
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	NO		
Statistical data: (full / recalculated / recalculated methodology):	Full		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ min		

Source: author's proceeding based on the own recearches

As can be seen from Table 11, a high degree of correlation is observed between the indicators of Hungary. In Bulgaria, the Czech Republic, Poland and Slovakia, the correlation is average. For Romania and Ukraine, the relation is low and inversed. Most of the values have dimensions less than 0, 5, therefore the indicator "consumption expenditure" cannot be selected as part of the set of indicators used for calculating the aggregate indicator.

Socio-demographic indicators occupy a separate place in the composition of the basic indicators on which the calculation of the aggregate indicator is based. Some of them reflect

the expenses of the state to ensure the operation of social facilities. Appendix A and Table 12 present the results of the correlation between "life satisfaction" and "government expenditure on education".

Table 12: Government expenditure on education, total

Indicator's name	**Government expenditure on education, total**		
Unit	% of GDP		
Indicator's content	General government expenditure on education (current, capital, and transfers) is expressed as a percentage of GDP. It includes expenditure funded by transfers from international sources to government. General government usually refers to local, regional and central governments. That indicator reflects the economic component of the formation of the possibility of increasing the intellectual potential of the population.		
Source	WORLD BANK GROUP, 2019c.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,219	Weak
	CZ	0,517	Average
	HU	0,4	Weak
	PL	-0,228	Weak
	RO	0,85	Strong
	SK	0,84	Strong
	UA	0,74	Strong
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data: (full / recalculated / recalculated methodology):	Full		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max		

Source: author's proceeding based on the own recearches

According to the data of Table 12, a high correlation between these indicators is observed for Ukraine, Romania and Slovakia; medium - for the Czech Republic. Low dependence on life satisfaction on state funding for education is observed in Hungary and Poland. Moreover, in Poland there is even an inversed correlation, that is, with an increase in funding for education, life satisfaction decreases. In general, the results of the correlation analysis indicate that the indicator "government spending on education" can be included in

the list of baseline indicators, since the large majority of the values of the correlation coefficient is more than 0.5.

Table 13: Government health expenditure

Indicator's name	**Government health expenditure**		
Unit	% of GDP		
Indicator's content	The level of current health expenditure expressed as a percentage of GDP. Estimates of current health expenditures include healthcare goods and services consumed during each year. This indicator does not include capital health expenditures such as buildings, machinery, IT and stocks of vaccines for emergencis or outbreaks. That indicator reflects the economic component of the formation of the ability to maintain and promote health.		
Source	WORLD BANK GROUP, 2019d.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,79	Strong
	CZ	0,588	Average
	HU	-0,4	Average
	PL	-0,602	Average
	RO	0,803	Strong
	SK	0,79	Strong
	UA	0,81	Strong
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data: (full / recalculated / recalculated methodology):	Full		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max		

Source: author's proceeding based on the own recearches

A similar meaning (with a difference in the sectoral affiliation of the financed objects) has the indicator "government health expenditure". The results of calculating a correlation dependence between this indicator and the "life satisfaction" indicator are presented in Appendix A and Table 13.

Financing of health needs predetermines the possibility of maintaining health, improving it, obtaining timely psychological assistance. According to Table 13, for four

states (Bulgaria, Romania, Slovakia and Ukraine), there is a strong direct correlation between these indicators. The average dependence (multidirectional) is typical for the Czech Republic (direct), Hungary (inversed), Poland (inversed). Since the values of most correlation coefficients have a value greater than 0.5 (this boundary is accepted as critical when selecting indicators as basic), the indicator "government health expenditure" can be included as a basic indicator of the aggregate one.

Table 14: Research and development expenditure

Indicator's name	**Research and development expenditure**		
Unit	% of GDP		
Indicator's content	The policy of financing research and development is aimed at forming the scientific basis for the development of production and increasing the intellectual potential of society. Appendix A and Table 14 present the results of correlation determination between the satisfaction of the population of different countries with the standard of living and the level of such funding. Gross domestic expenditures on research and development (R&D), expressed as a percent of GDP. They include both capital and current expenditures in the four main sectors: Business enterprise, Government, Higher education and private non-profit. R&D covers basic research, applied research, and experimental development. This indicator reflects the economic component of the formation of the scientific basis for the development of production and increases the intellectual potential of society.		
Source	WORLD BANK GROUP, 2019f.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,81	Strong
	CZ	0,434	Weak
	HU	0,255	Weak
	PL	0,695	Average
	RO	0,308	Weak
	SK	0,529	Average
	UA	0,67	Average
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data: (full / recalculated / recalculated methodology):	Full		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max		

Source: author's proceeding based on the own recearches

According to its data correlation coefficient according to Bulgaria has a high value, which allows making a close direct connection between these indicators in this country. For the Czech Republic, Poland, Romania, Slovakia and Ukraine, the correlation coefficient is at an average level. Hungary is characterized by a low dependence of indicators on each other. In each of the cases examined, a direct correlation is observed. These results allow us to conclude that this indicator can be included in the list of baseline indicators, which serve for calculation of the QoL aggregated indicator.

Life expectancy at birth characterizes the quality of health care. The Table in Appendix A and Table 15 presents the results of determining the correlation between the indicators “life satisfaction” and “life expectancy at birth”. According to its data, the Czech Republic, Hungary, Romania and Ukraine are characterized by a close direct correlation between the indicators. For Ukraine, this correlation is inversed. The average value of the correlation coefficient is typical for Bulgaria, Poland, and Slovakia. In general, the results of the analysis allow us to state the possibility of including the indicator "life expectancy" in the list of baseline indicators which the aggregated indicator is based on.

Table 15: Life expectancy at birth, total

Indicator’s name	**Life expectancy at birth, total**		
Unit	years		
Indicator’s content	United Nations Population Division. World Population Prospects: 2019 Revision, or derived from male and female life expectancy at birth from sources such as: Census reports and other statistical publications from national statistical offices, Eurostat: Demographic Statistics, United Nations Statistical Division. This indicator reflects the quality of the healthcare system.		
Source	WORLD BANK GROUP, 2019g.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,576	Average
	CZ	0,898	Strong
	HU	0,819	Strong
	PL	0,593	Average
	RO	0,831	Strong
	SK	0,505	Average
	UA	-0,781	Strong
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data:			

(full / recalculated / recalculated methodology):	Full
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max

Source: author's proceeding based on the own recearches

Europe is at the forefront of international efforts to tackle climate change, establish protected areas and reduce air pollution, and yet the impact on the environment in the region remains disproportionately high. Despite some progress in reducing the environmental burden caused by economic growth, most of Europe uses resources at an unacceptable level. Comprehensive legislation helps to improve the rational organization of waste management, but waste volumes continue to increase throughout the region. Quantitative data indicate that Europe is still not a society that successfully solves the problem of waste processing. At the same time, the lack of data on the state of the environment, the lack of resources allocated by public and private investors to solve basic environmental problems, combined with the persistence of traditional consumption-oriented economic policies, may be obstacles to further progress in Europe.

Table Appendix A and Table 16 present the results of the correlation between "life satisfaction" and "public expenditures on the environmental protection".

According to Table 16 data, a high value of the correlation coefficient, reflecting the average dependence between these indicators, is characterized for the Czech Republic, Poland, Romania. For each of these countries, the correlation between the indicators is inversed. Ukraine is characterized by an inversed average correlation. The low value of the correlation coefficient is typical for Bulgaria (direct), Slovakia (inversed), Hungary (inversed), Ukraine (direct). In general, the results of the analysis raise the possibility of including the indicator "public expenditure on environmental protection" into the list of baseline indicators.

Table 16: Public expenditures on the environmental protection

Indicator's name	**Public expenditures on the environmental protection**		
Unit	% of GDP		
Indicator's content	That indicator reflects the economic component of a favorable environment		
Source	EUROSTAT 2019b. UKRSTAT, 2018.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,0278	Weak
	CZ	-0,625	Average
	HU	-0,252	Weak
	PL	-0,578	Average
	RO	-0,591	Average
	SK	0,0784	Weak
	UA	0,0397	Weak
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	NO		
Statistical data: (full / recalculated / recalculated methodology):	Recalculated methodology: In Ukraine, the initial statistics were "Public expenditures on the environmental protection", measured in million dollars. This was the reason for the recalculation of units "millions of dollars" in "% of GDP" by finding the exchange rate for each year. Further, the indicator was divided on the corresponding exchange rate, as a result the initial data transferred to "Public expenditures on the environmental protection", measured in % of GDP.		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max		

Source: author's proceeding based on the own recearches

Thus, according to the results of the analysis, in comparison with the scale, the following conclusion is made. It is not appropriate to use this indicator as a basic indicator for the calculation of an aggregated QoL indicator.

Nowadays, an increase in the concentration of carbon dioxide in the atmosphere can be traced around the world due to the appearance of new artificial and natural sources. This means that the planet's climate will change. The main source in many countries is industry and transport, which emits artificial carbon dioxide into the atmosphere. Appendix A and Table 17 present the results of determining the relation between the indicators "life satisfaction" and "Air and GHG emissions - Carbon dioxide (CO2)".

Table 17: Air and GHG emissions - Carbon dioxide (CO2)

Indicator's name	**Air and GHG emissions - Carbon dioxide (CO2)**		
Unit	Tonnes per capita		
Indicator's content	Greenhouse gases refer to the sum of seven gases that have direct effects on climate change: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3). The data are expressed in CO2 equivalents and refer to gross direct emissions from human activities. CO2 refers to gross direct emissions from fuel combustion only and data are provided by the International Energy Agency. That indicator reflects atmospheric carbon dioxide.		
Source	OECD, 2020a.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	-0,0488	Weak
	CZ	-0,5855	Average
	HU	-0,252	Weak
	PL	0,19278	Weak
	RO	-0,4636	Weak
	SK	-0,25303	Weak
	UA	0,81439	Strong
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	NO		
Statistical data: (full / recalculated / recalculated methodology):	Full		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ min		

Source: author's proceeding based on the own recearches

According to Table 17, high dependence of indicators can be traced only for Ukraine. The average inversed correlation is for the Czech Republic and Romania, the weak is for Bulgaria (reverse), Slovakia (reverse), Hungary (direct) and Poland (direct). In general, the results of the analysis allow stating the impossibility of including this indicator reflecting the emission of carbon dioxide into the atmosphere into the list of baseline indicators.

Appendix A and Table 18 present the results of determining the correlation between the indicators "life satisfaction" and another indicator reflecting the quality of the environment – "Air pollution exposure, Exposure to PM2.5, Micrograms per cubic meter"

Table 18: Air pollution exposure, Exposure to PM2.5

Indicator's name	**Air pollution exposure, Exposure to PM2.5**		
Unit	Micrograms per cubic metr		
Indicator's content	Fine particulate matter (PM2.5) is the air pollutant that poses the greatest risk to health globally, affecting more people than any other pollutant. Chronic exposure to PM2.5 considerably increases the risk of respiratory and cardiovascular diseases in particular. Data refer to population exposure to more than 10 micrograms/m3 and are expressed as annual averages. That indicator reflects air pollution.		
Source	OECD, 2020b.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	-0,8571	Strong
	CZ	-0,8982	Strong
	HU	-0,7711	Strong
	PL	-0,6108	Average
	RO	-0,9222	Strong
	SK	0,5302	Average
	UA	0,8144	Strong
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data: (full / recalculated / recalculated methodology):	Full		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ min		

Source: author's proceeding based on the own recearches

As can be seen from Table 18, strong inversed correlation is observed in Bulgaria, the Czech Republic, Hungary, Romania, strong direct one is in Ukraine (rather as an exception). The average inversed correlation is in Poland, the average direct one is in Slovakia. Since the values of the majority of the correlation coefficients are more than 0.5 (this limit accepted as critical in the selection of indicators as basics) the indicator "Air pollution exposure, exposure to PM2.5" can be included as a basic indicator in the aggregate one.

Areas occupied by forests significantly affects the perception of the ecological situation and overall satisfaction with life. Appendix A and Table 19 present the results of

determining the relation of indicators “life satisfaction” and “forest area”, part of the total country’s territory.

According to its data, the average direct correlation of these indicators is observed in the Czech Republic, Romania, Slovakia, Hungary, the weak direct is in Bulgaria, a weak inversed is in Poland and Ukraine. Since whatsoever of the countries has a correlation coefficient riches value of 0.5, this indicator cannot be included in the set of the basic indicators.

Table 19: Forest area

Indicator’s name	**Forest area**		
Unit	Share		
Indicator’s content	Forest area is land under natural or planted stands of trees of at least 5 meters in situ, whether productive or not, and excludes tree stands in agricultural production systems (for example, in fruit plantations and agroforestry systems) and trees in urban parks and gardens. This indicator reflects the availability of forest resources.		
Source	WORLD BANK GROUP, 2019h.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,0833	Weak
	CZ	0,362	Weak
	HU	0,417	Weak
	PL	-0,197	Weak
	RO	0,366	Weak
	SK	0,417	Weak
	UA	-0,0119	Weak
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	NO		
Statistical data: (full / recalculated / recalculated methodology):	Recalculated methodology: There was not enough data for 2017 year in all countries. Missing data was calculated using a linear function		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max		

Source: author’s proceeding based on the own recearches

One of the components of the perception of the QoL of the population is the financing of the defense complex. The amount of government spending intended for maintenance and

updating the armed forces of the state can also be considered as a basic indicator. Appendix A and Table 20 present the results of determining the relation between "life satisfaction" and "military spending" indicators, pointing to the fact that most of the studied countries (Bulgaria, Czech Republic, Ukraine (inversed); Poland, Romania (direct) has close correlation between these indicators. Slovakia is characterized by an average direct dependence, for Hungary the inverse is insignificant. Thus, the results of the analysis allow us to state the possibility of including the "military expenditure" indicator into the list of baseline indicators which the aggregated indicator reflecting the QoL for a particular country is based on.

Table 20: Military expenditure

Indicator's name	**Military expenditure**		
Unit	% of GDP		
Indicator's content	Military expenditures data from SIPRI are derived from the NATO definition, which includes all current and capital expenditures on the armed forces, including peacekeeping forces; defense ministries and other government agencies engaged in defense projects; paramilitary forces, if these are judged to be trained and equipped for military operations; and military space activities. Such expenditures include military and civil personnel, including retirement pensions of military personnel and social services for personnel; operation and maintenance; procurement; military research and development; and military aid (in the military expenditures of the donor country). Excluded are civil defense and current expenditures for previous military activities, such as for veterans' benefits, demobilization, conversion, and destruction of weapons. This definition cannot be applied for all countries, however, since that would require much more detailed information than is available about what is included in military budgets and off-budget military expenditure items. (For example, military budgets might or might not cover civil defense, reserves and auxiliary forces, police and paramilitary forces, dual-purpose forces such as military and civilian police, military grants in kind, pensions for military personnel, and social security contributions).This indicator reflects the economic component of defense against a military threat.		
Source	WORLD BANK GROUP, 2019e. The Global Economy, 2019.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	-0,709	Strong
	CZ	-0,669	Strong
	HU	-0,0258	Weak
	PL	0,706	Strong
	RO	0,81	Strong
	SK	0,4	Weak
	UA	-0,9	Strong

Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES
Statistical data: (full / recalculated / recalculated methodology):	Full
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ min

Source: author's proceeding based on the own recearches

The public expenditures on public order and safety is a characteristic of the economic component of the formation of the public order perception. Appendix A and Table 21 shows the results of determination of correlation of that indicator with the indicator "life satisfaction".

Table 21: Public expenditures on public order and safety

Indicator's name	**Public expenditures on public order and safety**		
Unit	% of GDP		
Indicator's content	It reflects the economic component of the formation of public order.		
Source	EUROSTAT, 2019c. Global Economy, 2019.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,386	Weak
	CZ	-0,217	Weak
	HU	0,799	Strong
	PL	-0,381	Weak
	RO	-0,678	Average
	SK	0,233	Weak
	UA	-0,81	Strong
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	NO		
Statistical data: (full / recalculated / recalculated methodology):	Full		

Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max

Source: author's proceeding based on the own recearches

The data show that Hungary has a strong close correlation (direct) between indicators, for Romania there is an average inversed correlation. For other countries, the correlation coefficient reflects a weak connection. The predominance of countries with a weak tight correlation between the indicators makes it impossible to include the indicator "Public expenditures on public order and safety" into the list of baseline indicators.

Appendix A and Table 22 present the results of the determination of the relation between the indicators "life satisfaction" and "Traffic accidents per 1000 population". The latter indicator reflects the life safety of the population as a participant in road transport relations. According to the Table, there is a strong correlation between these indicators in Bulgaria, Hungary, Poland, Romania, Ukraine (in Poland is the inversed one). Slovakia is characterized by a weak direct dependence.

Table 22: Traffic accidents per 1000 population

Indicator's name	Traffic accidents per 1000 population		
Unit	Units		
Indicator's content	Road accidents are measured in terms of the number of persons injured and deaths due to road accidents, whether immediate or within 30 days of the accident, and excluding suicides involving the use of road motor vehicles. A road motor vehicle is a road vehicle fitted with an engine as the sole means of propulsion and one that is normally used to carry people or goods, or for towing, on the road. This includes buses, coaches, trolleys, tramways (streetcars) and road vehicles used to transport goods and to transport passengers. Road motor vehicles are attributed to the countries where they are registered, while deaths are attributed to the countries in which they occur. This indicator is measured in the number of accidents, the number of persons, per million inhabitants and million vehicles. This indicator reflects a citizen safety as a road user.		
Source	OECD, 2020c.		
Correlation results (according to Spearman)	Country	Correlation coefficient	Tightness of correlation
	BG	0,758	Strong
	CZ	0,617	Average
	HU	0,826	Strong
	PL	-0,745	Strong
	RO	0,74	Strong
	SK	0,35	Weak

	UA	0,945	Strong
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data: (full / recalculated / recalculated methodology):	Recalculated to "Traffic accidents per 1000 population" from „Traffic accidents, number" with the help of data set of „Total population in each of the countries"		
Orientation (striving for maximum / striving for minimum)	⟶ min		

Source: author's proceeding based on the own recearches

This situation makes it possible to include this indicator in the list of baseline indicators, which will serve for the calculation of the aggregate one.

Appendix A and Table 23 present the results of determining the correlation between the indicators "life satisfaction" and "Corruption Perception Index". The latter is a composite indicator calculated on the basis of data obtained from expert sources provided by international organizations. All sources measure the overall prevalence of corruption in the public and economic sectors.

Table 23: Corruption Perception Index

Indicator's name	**Corruption Perception Index**		
Unit	Units		
Indicator's content	The Corruption Perception Index scores countries on a scale of 0-100, where 0 means that a country is perceived as a highly corrupt and 100 means that a country is perceived as very clean. The indicator is representative of expert opinion, as it is constructed by taking the averages of various standardized expert surveys, including those from the Bertelsmann Foundation, the World Economic Forum, the World Bank, and many others. Corruption Perception Index has been estimated since 1995. This indicator reflects the perception of the corruption component of the life of the population.		
Source	Ortiz-Ospina and Roser, 2020.		
Correlation results (according to Spearman)	**Country**	**Correlation coefficient**	**Tightness of correlation**
	BG	0,616	Average
	CZ	0,712	Strong
	HU	-0,764	Strong
	PL	0,449	Weak
	RO	0,864	Strong

	SK	0,574	Average
	UA	-0,704	Strong
Possibility to use the particular indicator as a base for the integral one, based on the correlation results	YES		
Statistical data: (full / recalculated / recalculated methodology):	Full		
Orientation (striving for maximum / striving for minimum)	$\longrightarrow$ max		

Source: author's proceeding based on the own recearches

As can be seen from Table 23, a high correlation value is typical for the Czech Republic (direct dependence), Hungary (inversed), Romania (direct), Ukraine (inversed). The average value is peculiar for the indicators characterizing the situation with regard to the perception of corruption and its impact on life satisfaction in Poland (direct), Bulgaria (direct), Slovakia (direct).

The general situation, characterized by the predominance of the number of the countries with a high correlation coefficient between the indicators "life satisfaction" and "corruption perception index" over those with an average value and the absence of the countries with a low correlation coefficient value, makes it possible to conclude that it is possible to include a "corruption perception index" into the list of baseline indicators.

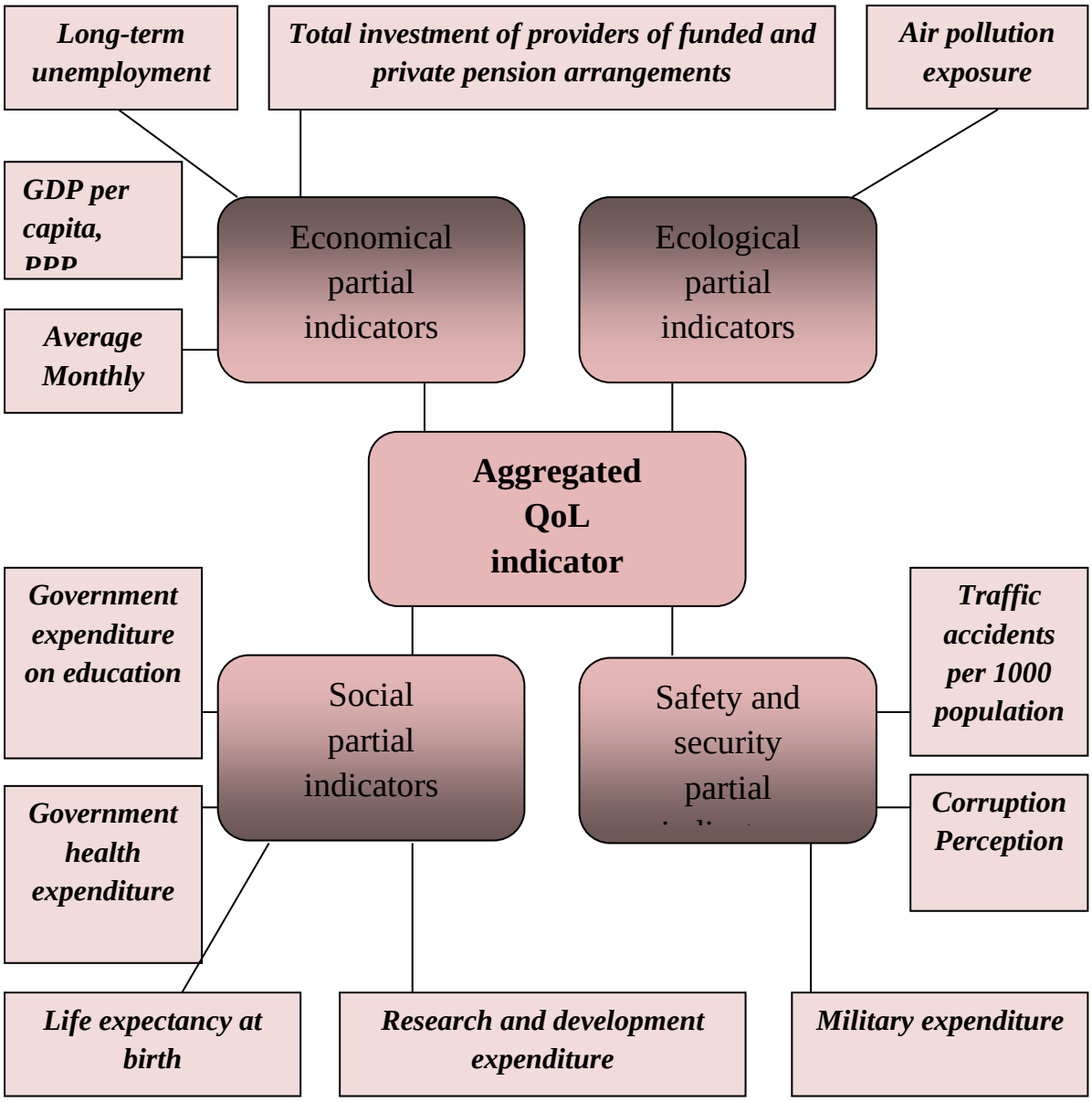


Figure 6: Components of an aggregated indicator of QoL

Source: own researches

Thus, the aggregate indicator consists of the following baseline indicators: Gross domestic product per capita; Average monthly net salary; Long-term unemployment; Total investment of providers of funded and private pension arrangements; Government expenditure on education; Government health expenditure; Research and development expenditure; Life expectancy at birth; Air pollution exposure, Exposure to PM2.5; Military expenditures; Number of traffic accidents per thousand citizens; Corruption perception index (Figure 6).

4.2. Weight determination of the baseline indicators of QoL (based on the rating of the Ukrainian expert)

To determine the weight of the particular indicators selected above (paragraph 4.1), the Fuller method described in paragraph 3.4 is used.

GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC
AMS	LUE	TIPF	GEE	GEH	LEB	RDE	APE	ME	TA	CPI
AMS	AMS	AMS	AMS	AMS	AMS	AMS	AMS	AMS	AMS	
LUE	TIPF	GEE	GEH	LEB	RDE	APE	ME	TA	CPI	
LUE	LUE	LUE	LUE	LUE	LUE	LUE	LUE	LUE		
TIPF	GEE	GEH	LEB	RDE	APE	ME	TA	CPI		
TIPF	TIPF	TIPF	TIPF	TIPF	TIPF	TIPF	TIPF			
GEE	GEH	LEB	RDE	APE	ME	TA	CPI			
GEE	GEE	GEE	GEE	GEE	GEE	GEE				
GEH	LEB	RDE	APE	ME	TA	CPI				
GEH	GEH	GEH	GEH	GEH	GEH					
LEB	RDE	APE	ME	TA	CPI					
LEB	LEB	LEB	LEB	LEB						
RDE	APE	ME	TA	CPI						
RDE	RDE	RDE	RDE							
APE	ME	TA	CPI							
APE	APE	APE								
ME	TA	CPI								
ME	ME									
TA	CPI									
TA										
CPI										

Legend:

GDPPC – GDP per capita, PPP
AMS- Average monthly salary
LUE - Long-term unemployment
TIPF - Total investment of providers of funded and private pension arrangements
GEE - Government expenditure on education
GEH - Government health expenditure
LEB - Life expectancy at birth
RDE - Research and development expenditure
APE - Air pollution exposure
ME - Military expenditure
TA - Traffic accidents per 1000 population
CPI - Corruption Perception Index
- more important criterion in pairwise comparison

Figure 7: The construction of the Fuller triangle in determining the weight of particular indicators of QoL (based on the ratings of the Ukrainian expert)

Figure 7 shows the results of the pairwise comparison of indicators in the form of the so-called Fuller triangle. Weights were determined with the help of the Ukrainian expert.

The first line contains all combinations for comparison with the “GDP per capita, PPP” indicator, the second contains combinations for comparison with the “Average Monthly Salary” criterion, except for one in the previous row. Further similarly, in each next line combinations are presented for comparison with another criterion that is not in the previous lines.

As a result of the selection, determining the number of identified importance for each indicator, the weight of the indicators can be calculated using formula (9). The calculation results are presented in Table 24.

Table 24: The results of determining the weight of particular indicators of QoL

Indicators	Number of identified importance	Weight
GDP per capita, PPP	9	0,14
Average monthly net salary	9	0,14
Long-term unemployment	7	0,11
Total investment of providers of funded and private pension arrangements	4	0,06
Government expenditure on education	4	0,06
Government health expenditure	9	0,14
Life expectancy at birth	9	0,14
Research and development expenditure	3	0,05
Air pollution exposure	8	0,12
Military expenditure	1	0,02
Traffic accidents per 1000 population	1	0,02
Corruption Perception Index	2	0,03
SUMM	66	1,00

Source: own researches

Thus, the most significant indicators are the “GDP per capita”, “Average Monthly Salary”, “Government health expenditure”, “Life expectancy at birth” indicators. This fact, on the one hand, points to the importance of the financial side of life satisfaction, since, in the absence of adequate financial capacity, a person cannot meet even basic needs for food, housing and clothing. On the other hand, it shows the importance of having the opportunity to maintain a certain standard of living and extend it. In support of the latter, the fact that such an indicator as “Air pollution exposure” takes second place in terms of importance. The “Long-term unemployment” indicator holds third place in terms of importance, as it determines the importance of having the opportunity to build the potential for financing basic needs, expanding the ability to acquire property, and enhancing a person’s cultural, creative and other potential. Other indicators are of less importance.

4.3. Weight determination of the baseline indicators of QoL (based on the rating of the Czech expert)

Figure 8 shows the results of the pairwise comparison of indicators in the form of the so-called Fuller triangle. Weights were determined with the help of the Czech expert.

According to the same methodology, described above, the first line contains all combinations for comparison with the “GDP per capita, PPP” indicator, the second contains combinations for comparison with the “Average Monthly Salary” criterion, except for one in the previous row. Further similarly, in each next line combinations are presented for comparison with another criterion that is not in the previous lines.

As a result of the selection, determining the number of identified importance for each indicator, the weight of the indicators is calculated using formula (9). The calculation results are presented in Table 25.

GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC	GDPPC
AMS	LUE	TIPF	GEE	GEH	LEB	RDE	APE	ME	TA	CPI
AMS	AMS	AMS	AMS	AMS	AMS	AMS	AMS	AMS	AMS	
LUE	TIPF	GEE	GEH	LEB	RDE	APE	ME	TA	CPI	
LUE	LUE	LUE	LUE	LUE	LUE	LUE	LUE	LUE		
TIPF	GEE	GEH	LEB	RDE	APE	ME	TA	CPI		
TIPF	TIPF	TIPF	TIPF	TIPF	TIPF	TIPF	TIPF			
GEE	GEH	LEB	RDE	APE	ME	TA	CPI			
GEE	GEE	GEE	GEE	GEE	GEE	GEE				
GEH	LEB	RDE	APE	ME	TA	CPI				
GEH	GEH	GEH	GEH	GEH	GEH					
LEB	RDE	APE	ME	TA	CPI					
LEB	LEB	LEB	LEB	LEB						
RDE	APE	ME	TA	CPI						
RDE	RDE	RDE	RDE							
APE	ME	TA	CPI							
APE	APE	APE								
ME	TA	CPI								
ME	ME									
TA	CPI									
TA										
CPI										

Legend:

GDPPC - GDP per capita, PPP
AMS- Average monthly salary
LUE - Long-term unemployment
TIPF - Total investment of providers of funded and private pension arrangements
GEE - Government expenditure on education
GEH - Government health expenditure
LEB - Life expectancy at birth
RDE - Research and development expenditure
APE - Air pollution exposure
ME - Military expenditure
TA - Traffic accidents per 1000 population
CPI - Corruption Perception Index
- more important criterion in pairwise comparison

Figure 8: The construction of the Fuller triangle in determining the weight of particular indicators of QoL (based on the ratings of the Czech expert)

Source: own researches

Table 25: The results of determining the weight of particular indicators of QoL

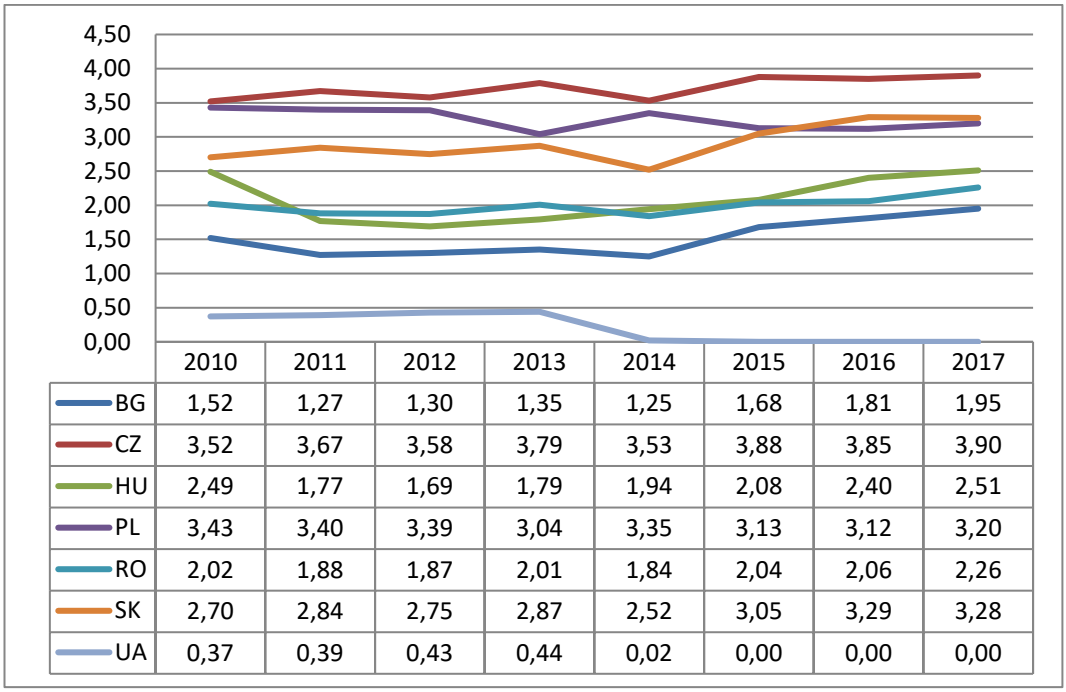
Indicators	Number of identified importance	Weight
GDP per capita, PPP	9	0,14
Average monthly net salary	10	0,17
Long-term unemployment	8	0,12
Total investment of providers of funded and private pension arrangements	4	0,06
Government expenditure on education	6	0,09
Government health expenditure	8	0,12
Life expectancy at birth	10	0,15
Research and development expenditure	5	0,06
Air pollution exposure	2	0,03
Military expenditure	1	0,02
Traffic accidents per 1000 population	1	0,02
Corruption Perception	2	0,03
SUMM	66	1,00

Source: own researches

Thus, according to Czech experts, “GDP per capita”, “Average monthly salary”, “Government health expenditure”, “Life expectancy at birth” indicators are also of great importance. It’s a testament to the fact that the financial side is very important for a sense of satisfaction with life because without adequate financial opportunities a person can not meet even basic needs for food, shelter and clothing. Moreover, it is important to be able to maintain a certain standard of living and extend it. This is supported by the fact that indicators such as “Long-term non-employment” and “Government health experience” are the second most important indicators for the expert from the Czech Republic. The third most important indicator is “Government opportunity on education”, which reflects potential opportunities for further employment, increase of cultural, creative and another potential of an individual. Other indicators are less significant.

4.4. Standardization and calculation of an aggregated indicator of QoL, not determining the baseline indicator significance

The results of the transformation of particular indicators carried out by the use of the maximum method, the content of which is described in paragraph 3.3 are presented in Appendix B. Using this method makes it possible to determine the parameters that characterize the four major components of the display category "quality of life", corresponding to the main aspects of sustainable development. The dynamics of such indicators in the context of the Czech Republic, Bulgaria, Hungary, Romania, Poland, Moldova and Ukraine are presented in Figures 9 - 12.



	2010	2011	2012	2013	2014	2015	2016	2017
BG	1,52	1,27	1,30	1,35	1,25	1,68	1,81	1,95
CZ	3,52	3,67	3,58	3,79	3,53	3,88	3,85	3,90
HU	2,49	1,77	1,69	1,79	1,94	2,08	2,40	2,51
PL	3,43	3,40	3,39	3,04	3,35	3,13	3,12	3,20
RO	2,02	1,88	1,87	2,01	1,84	2,04	2,06	2,26
SK	2,70	2,84	2,75	2,87	2,52	3,05	3,29	3,28
UA	0,37	0,39	0,43	0,44	0,02	0,00	0,00	0,00

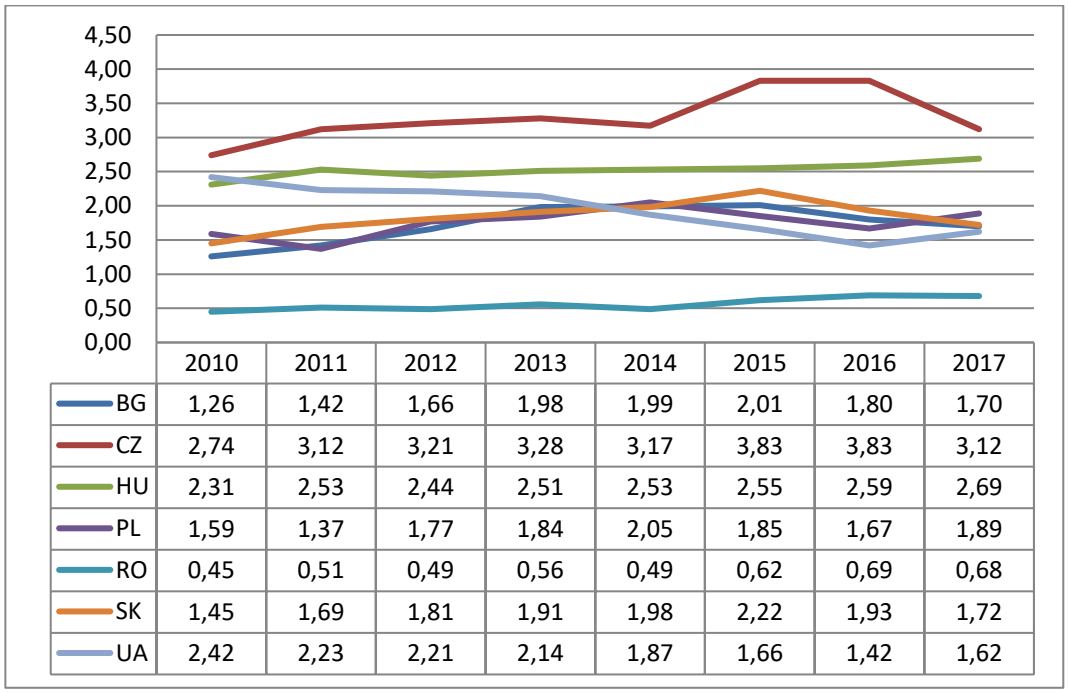
Figure 9: Dynamics of the economic subaggregates characterizing the manifestation of the category "quality of life"

Source: author's proceeding based on the own recearches

According to Figure 9, the leading position in the formation of the economic component of the QoL of the population is occupied by the Czech Republic. The values of the standardized values of the four particular indicators, based on which a general idea of the economic subaggregates is formed, allowed the Czech Republic to occupy a leading position throughout the entire period from 2010 to 2017. Second place until 2015 was

steadily occupied by Poland, which was “ahead” of Slovakia. Hungary and Romania shared fourth and fifth places at different stages. Bulgaria steadily occupied the penultimate place, Ukraine took the last. Thus, in the formation of the economic component of the QoL in Ukraine, it may be advisable to use the experience of all countries with priority in using the experience of the Czech Republic, Poland and Slovakia.

As can be seen from Figure 10, the social component of the quality of life is mostly formed in the Czech Republic. Hungary has been second since 2011.



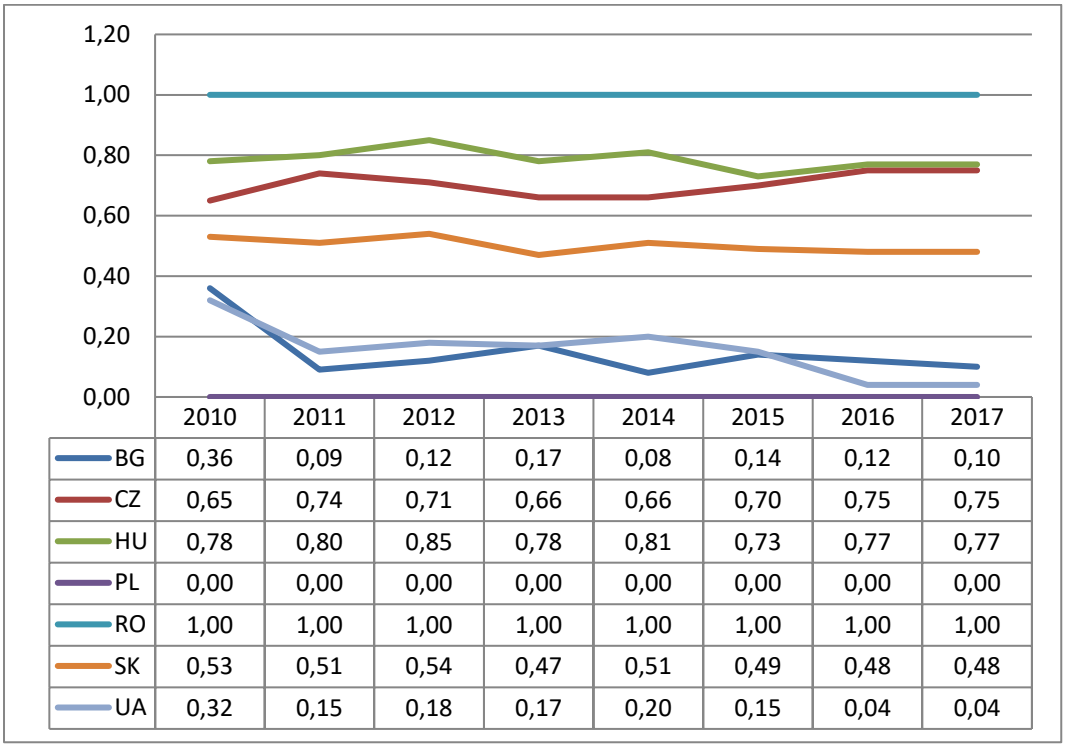
	2010	2011	2012	2013	2014	2015	2016	2017
BG	1,26	1,42	1,66	1,98	1,99	2,01	1,80	1,70
CZ	2,74	3,12	3,21	3,28	3,17	3,83	3,83	3,12
HU	2,31	2,53	2,44	2,51	2,53	2,55	2,59	2,69
PL	1,59	1,37	1,77	1,84	2,05	1,85	1,67	1,89
RO	0,45	0,51	0,49	0,56	0,49	0,62	0,69	0,68
SK	1,45	1,69	1,81	1,91	1,98	2,22	1,93	1,72
UA	2,42	2,23	2,21	2,14	1,87	1,66	1,42	1,62

Figure 10: Dynamics of the social subaggregates characterizing the manifestation of the category “quality of life”

Source: author’s proceeding based on the own recearches

As for Ukraine, Slovakia, Poland and Bulgaria, their places in the general hierarchy on the quality of economic conditions have been changed at different time intervals of the study period. Since 2014 the above-mentioned countries have been ahead of Ukraine in the hierarchy of countries in terms of the social component. Romania was steadily in last place. Thus, the experience of the Czech Republic, Hungary, Poland, Slovakia and Bulgaria can be used in determining strategic directions for the formation of a social subaggregates of the QoL for Ukraine.

According to Figure 11, Romania was the first according to the state of an ecological component of the quality of life during 2010 - 2017. Hungary was in second place. The Czech Republic and Slovakia ranked third and fourth, respectively.



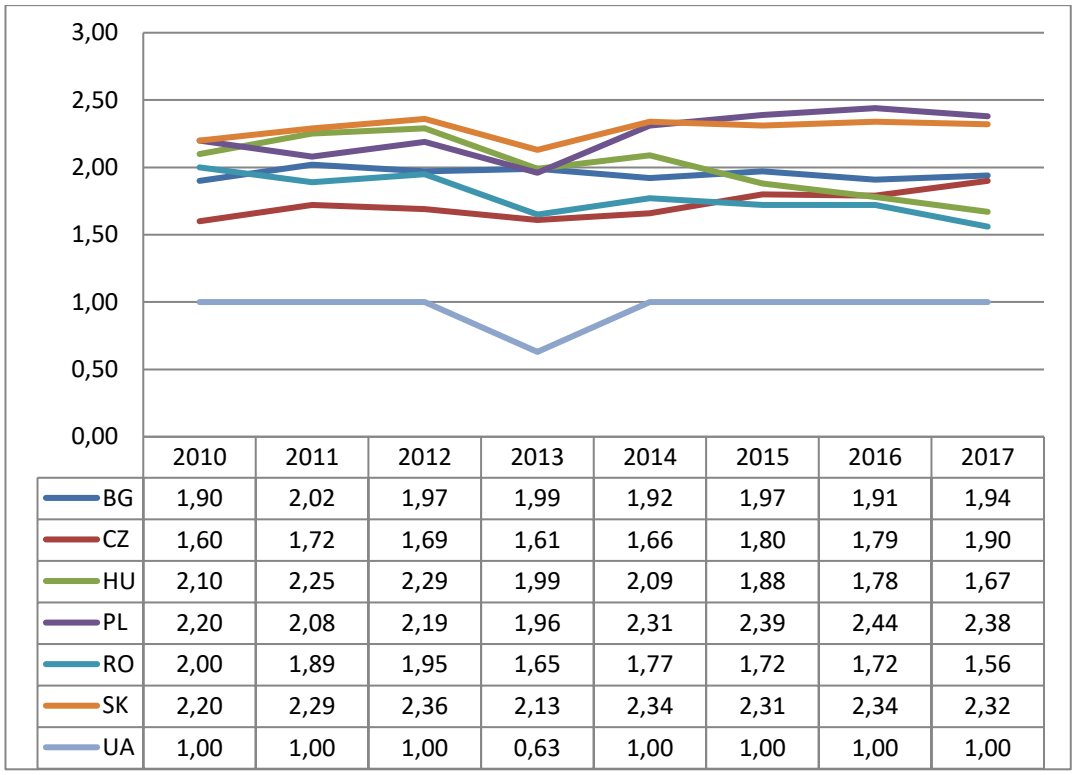
	2010	2011	2012	2013	2014	2015	2016	2017
BG	0,36	0,09	0,12	0,17	0,08	0,14	0,12	0,10
CZ	0,65	0,74	0,71	0,66	0,66	0,70	0,75	0,75
HU	0,78	0,80	0,85	0,78	0,81	0,73	0,77	0,77
PL	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
RO	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
SK	0,53	0,51	0,54	0,47	0,51	0,49	0,48	0,48
UA	0,32	0,15	0,18	0,17	0,20	0,15	0,04	0,04

Figure 11: Dynamics of the ecological subaggregates characterizing the manifestation of the category “quality of life”

Source: author’s proceeding based on the own recearches

Ukraine and Bulgaria shared fifth and sixth places at different moments in time. Poland was in last place. In general, since the general ecological indicator is based on the one single indicator, it is quite difficult to judge the general formation of the ecological component of the QoL. With regard to air pollution management, Ukraine could take into consideration the experience of Romania, the Czech Republic, Hungary and Slovakia.

As can be seen from Figure 12, safety and security, as QoL, is mostly formed in Poland. Before that it was in Slovakia. Beginning from 2015 Slovakia moved to second place. Bulgaria has been in third place in terms of security conditions since 2015. Accordingly, the experience of these countries shall be used in the development of a QoL management strategy in Ukraine.

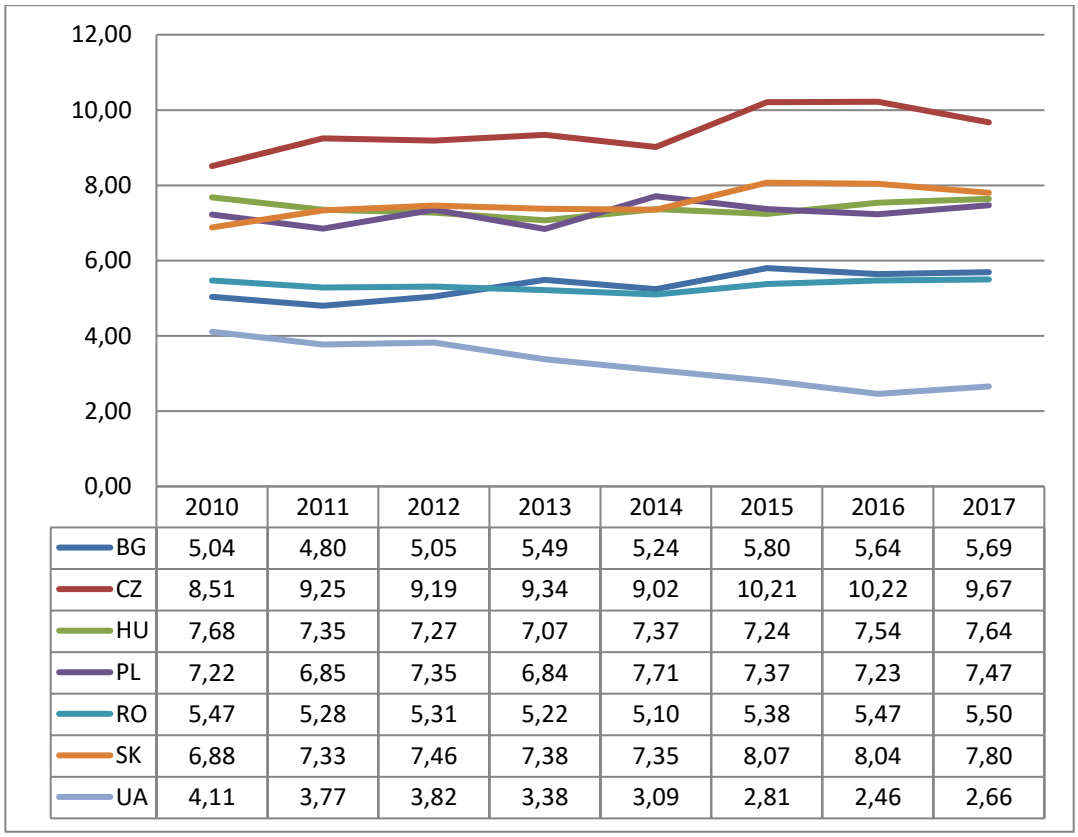


	2010	2011	2012	2013	2014	2015	2016	2017
BG	1,90	2,02	1,97	1,99	1,92	1,97	1,91	1,94
CZ	1,60	1,72	1,69	1,61	1,66	1,80	1,79	1,90
HU	2,10	2,25	2,29	1,99	2,09	1,88	1,78	1,67
PL	2,20	2,08	2,19	1,96	2,31	2,39	2,44	2,38
RO	2,00	1,89	1,95	1,65	1,77	1,72	1,72	1,56
SK	2,20	2,29	2,36	2,13	2,34	2,31	2,34	2,32
UA	1,00	1,00	1,00	0,63	1,00	1,00	1,00	1,00

Figure 12: Dynamics of the safety and security subaggregates characterizing the manifestation of the category "quality of life"

Source: author's proceeding based on the own recearches

The integral indicator gives the general idea of the combination of the four components of the QoL (four subaggregates) without taking into consideration the weight of factors. Its dynamics during the all evaluated period are presented in Figure 13. As can be seen from that Figure, the leader in the sum of factors determining the QoL of the population is the Czech Republic. Second and third places in different periods are shared by Slovakia, Hungary and Poland.



	2010	2011	2012	2013	2014	2015	2016	2017
BG	5,04	4,80	5,05	5,49	5,24	5,80	5,64	5,69
CZ	8,51	9,25	9,19	9,34	9,02	10,21	10,22	9,67
HU	7,68	7,35	7,27	7,07	7,37	7,24	7,54	7,64
PL	7,22	6,85	7,35	6,84	7,71	7,37	7,23	7,47
RO	5,47	5,28	5,31	5,22	5,10	5,38	5,47	5,50
SK	6,88	7,33	7,46	7,38	7,35	8,07	8,04	7,80
UA	4,11	3,77	3,82	3,38	3,09	2,81	2,46	2,66

Figure 13: Dynamics of the aggregated QoL indicator (not determining the baseline indicator significance).

Source: author's proceeding based on the own recearches

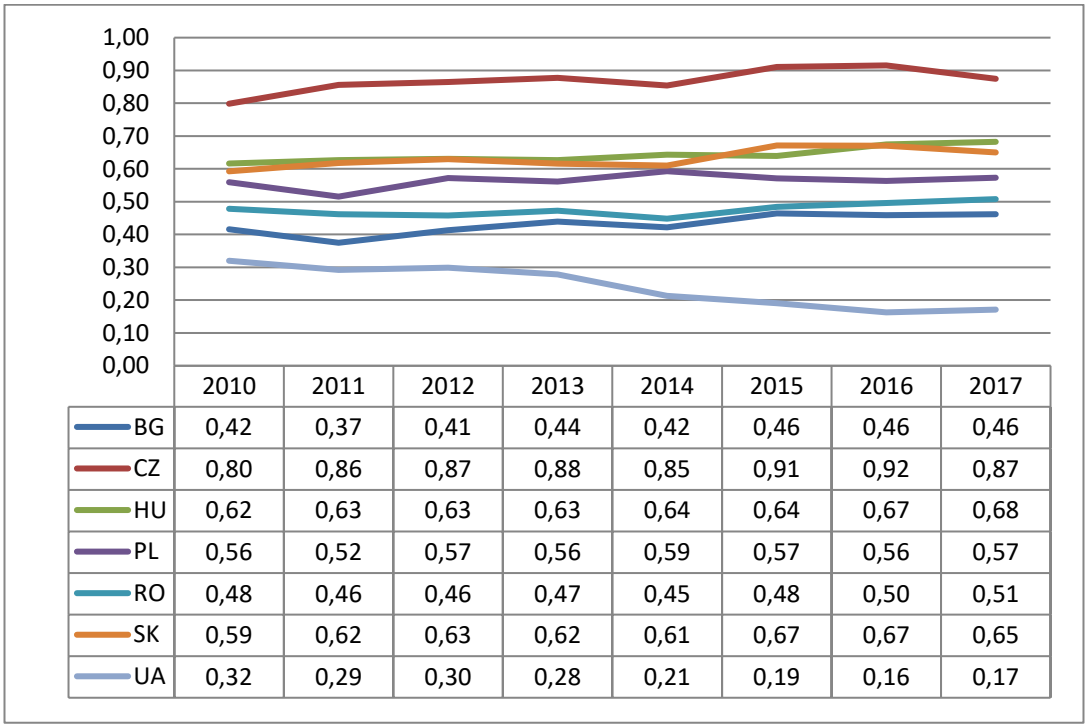
4.5. Standardization and calculation of the aggregated indicator of QoL, where the significance of the baseline indicators takes place

Based on the calculated standardized values and the weights of the baseline indicators, standardized values can be calculated taking into consideration the indicator's significance (Appendix C), as well as the corresponding subaggeregates (four groups) and aggregated indicator of the QoL.

Appendix E presents the dynamics of the corresponding subaggregates taking into consideration the weights of the baseline indicators of the Ukrainian expert. It is similar to the dynamics of the subaggregates without taking into consideration the relevant weight, which confirms the feasibility of using the experience of all countries with priority in using the experience of the Czech Republic, Poland and Slovakia in determining the strategy for Ukraine. The situation with the social, ecological and safety and security subaggregates does

not change either with the implementation of the weights of the baseline indicators (Appendix E).

The aggregated indicator, taking into consideration the weight of the baseline indicators, evaluated by the Ukrainian expert, has similar dynamics (Figure 14).



	2010	2011	2012	2013	2014	2015	2016	2017
BG	0,42	0,37	0,41	0,44	0,42	0,46	0,46	0,46
CZ	0,80	0,86	0,87	0,88	0,85	0,91	0,92	0,87
HU	0,62	0,63	0,63	0,63	0,64	0,64	0,67	0,68
PL	0,56	0,52	0,57	0,56	0,59	0,57	0,56	0,57
RO	0,48	0,46	0,46	0,47	0,45	0,48	0,50	0,51
SK	0,59	0,62	0,63	0,62	0,61	0,67	0,67	0,65
UA	0,32	0,29	0,30	0,28	0,21	0,19	0,16	0,17

Figure 14: Dynamics of the aggregated QoL indicator (where the significance of the basic indicators takes place (based on the ratings of the Ukrainian representative expert)

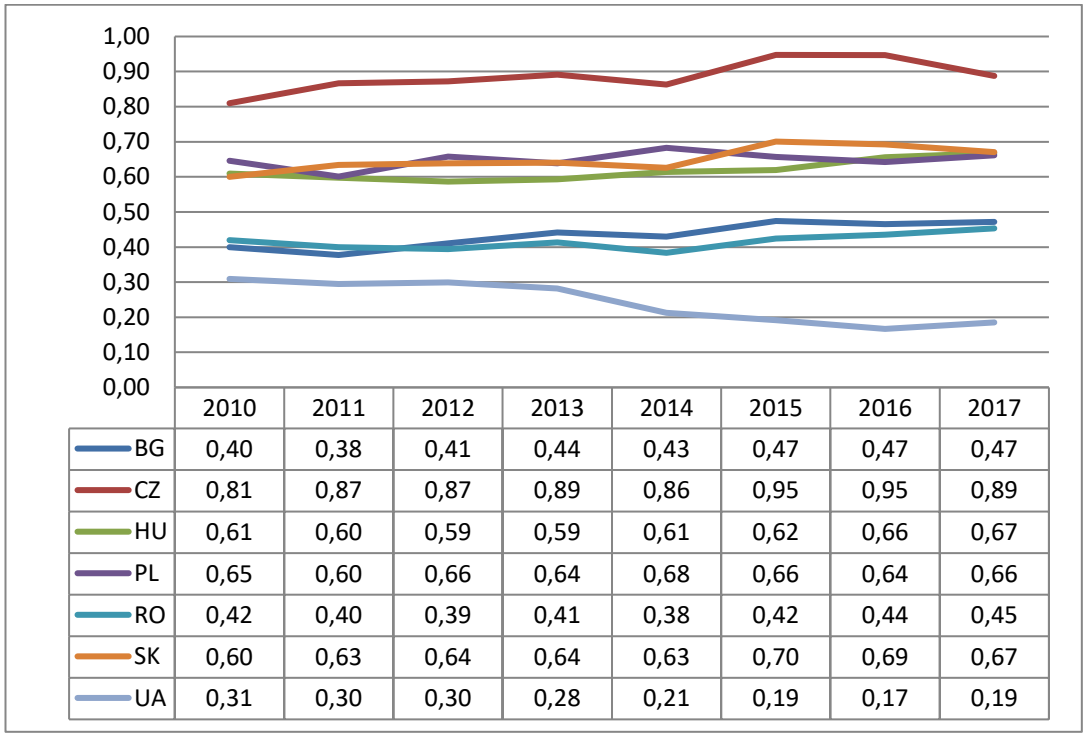
Source: author's proceeding based on the own recearches

Based on the calculated standardized values and weights of the baseline indicators obtained using the results of an assessment by the Czechian expert, a similar calculation of the standardized values can be carried out taking into consideration the significance of the indicator (Appendix D), as well as the corresponding subaggregates and aggregated indicator of the life quality.

Appendix F shows the dynamics of the corresponding subaggregates taking into consideration the weights of the baseline indicators, evaluated by the Czech Republic expert. Just like in the case of the weight calculation based on the Czechian expert's estimates, it is similar to the dynamics of the economic subaggregates without the relevant weight, which confirms the feasibility of using the experience of all countries with priority in using the experience of the Czech Republic, Poland and Slovakia in determining the strategy for

Ukraine. The situation with social, ecological and safety and security subaggregates does not change when using weights of the baseline indicators (Appendixes F).

The aggregate indicator, taking into consideration the weights of the baseline indicators, evaluated by the Czech Republic expert, has similar dynamics (Figure 15).



	2010	2011	2012	2013	2014	2015	2016	2017
BG	0,40	0,38	0,41	0,44	0,43	0,47	0,47	0,47
CZ	0,81	0,87	0,87	0,89	0,86	0,95	0,95	0,89
HU	0,61	0,60	0,59	0,59	0,61	0,62	0,66	0,67
PL	0,65	0,60	0,66	0,64	0,68	0,66	0,64	0,66
RO	0,42	0,40	0,39	0,41	0,38	0,42	0,44	0,45
SK	0,60	0,63	0,64	0,64	0,63	0,70	0,69	0,67
UA	0,31	0,30	0,30	0,28	0,21	0,19	0,17	0,19

Figure 15. Dynamics of the aggregated QoL indicator, where significance of the baseline indicators takes place (based on the ratings of the Czech Republic representative expert)

Source: author's proceeding based on the own recearches

The study of aggregated indicators' magnitude and dynamics formed in the light of the weightlessness determined by the Ukrainian and Czechian experts' opinion, makes it possible to note that the significance of weightlessness indicators is demonstrated only in the values of indicators, but does not change general picture representing their ratio in dynamics.

5. POSSIBILITIES OF IMPROVING THE QUALITY OF LIFE IN UKRAINE WITH EXPERIENCE OF OTHER COUNTRIES

When considering the general economic indicator, it is obvious that its value for Ukraine is less than for any other country. The most important fact is that the social and economic processes implemented in Ukraine are carried out in a politically volatile environment and under conditions of military conflict in many regions. Based on this fact, GDP growth is not primarily an increase in economic potential but a return to political stability and resumption of many suspended industries. This will help to increase output, reduce unemployment, increase wages, provide the population with the opportunity to invest funds, etc.

At the same time, although Ukraine is now in a political and economic crisis, some foreign experience can be used to develop a strategy for its economic evolution. It shall be focused on the Czech Republic, Poland and Slovakia (countries that have hold 1^{st}-3^{rd} places throughout the observed period). Before the historical moment of the beginning of the transformation, these countries were characterized by the similarity of social, economic and political systems, that caused the similarity of the state and regulation of employment therein.

With regard to the employment trends, it should be noted that the best position (based on the results of determining long-term unemployment) is occupied by the Czech Republic (in the period 2011-2017 it took first place in providing with employment opportunities), Romania (in 2010 took first place, during the periods 2012 to 2014, 2016 to 2017 it held third place, in 2015 shared second-third places with Poland), Poland (in 2010 shared second-third places with the Czech Republic, from 2011 to 2014 it took third place, during the period of 2016 to 2017 it was in second place, in 2015 shared second-third places with Romania). The similarity of trends and patterns of unemployment in the above countries allows us to talk about the existence of general patterns of its regulation. At the beginning of the transition processes, sufficient passive assistance to the unemployed was introduced in almost all countries. This was due to the low unemployment rate and attempts to adopt the positive experience of countries with socially-oriented market economies (especially the Scandinavian ones). However, with a further increase in unemployment, the payments to the unemployed became quite burdensome for the budget, which partially contributed to the growth of the tax press on business entities. Therefore, in the future, transition economies

went in various ways: either by tightening the rules for registering unemployed people and the appointment of benefits (Hungary) or by reducing assistance to the unemployed (Poland, Romania, Bulgaria). The most advanced countries in transformation make significant efforts to pursue an active labor market policy: retraining system, stimulating the mobility of human capital, public work programs, presenting vouchers to school graduates and those who have lost jobs, subsidies to wages, creation of new jobs). For example, in the Czech Republic, the main direction of active labor market policy is the creation of new jobs and the development of public works at the local level, in Poland, retraining and public works at local levels. Significant conclusions arising from the experience of regulating employment in countries that have been chosen as a guide for the development of Ukraine are as follows:

- the unemployment rate largely depends on the ratio of active and passive assistance to the unemployed;

- conditions for the passive assistance shall not be too soft to stimulate long-term unemployment, but also shall not be excessively rigid, otherwise, the main flows of the unemployed will go beyond the officially controlled labor market;

- an active policy shall be aimed at developing labor market infrastructure;

- the implementation of public works is more effective at the local (regional) level;

- subsidies for job creation shall be targeted not at loss-making public enterprises but new, private enterprises (for economic restructuring);

- promotion of labor mobility (especially at young ages);

- the need to improve the employment efficiency of the unemployed;

- the employment of long-term unemployed shall be focused on employment regulation since long-term unemployment is quite high, is constantly increasing and contributing to the marginalization of the persons covered by it.

Special attention in Ukraine shall be given to the possibility of improving the social parameters of life quality. For financing education, Ukraine occupied the leading position almost for the entire period of study (during 2010 - 2014 and in 2017 it took first place), except 2015 and 2016, when the aggravation of the political situation affected the education sector (in these years Ukraine took second place in terms of education financing).

One of the important aspects of the social sphere is the situation in the health sector, where medical social insurance is underdeveloped, in recent years insufficient funds have been allocated both at the state level and at the regional level for health care development. At the same time, almost all strategically important decisions are made by the state, and the

situation with public health at local is taken into consideration extremely poorly. In this regard, it is advisable to consider the use of experience of Bulgaria, which occupied third place in terms of health financing in the period from 2010 to 2011, in 2012 it held second place, and from 2013 to 2017 it took first place among the countries selected for study; Hungary which occupied in 2010 second place, and from 2012 to 2017 it was in third place; the Czech Republic (from 2013 to 2015 it took second place, and in the period from 2016 to 2017 it was in third place), where not only the Ministry of Health but also the regional (local) authorities are responsible for creating a network of medical institutions. The local government within the framework of its competence establishes health care institutions in its territories and administrates them (except for large hospitals). It makes decisions on registration (or denial thereof) of non-state medical institutions.

Special attention in Ukraine may be paid to the experience of the Czech Republic in implementing programs aimed at the health care development. To create and maintain the material base, as well as to improve the intangible resources of healthcare, programs are created to determine the needs, required financial support, and deadlines. The state budget finances programs either using targeted payments (individual subsidies, general subsidies, financial assistance to reimbursement) or by providing with a state guarantee on loans. The degree of state participation in program financing is determined, having evaluated its documentation.

Despite the considerable remoteness of the curves characterizing the change in the social component of the life quality in the Czech Republic and Hungary, experience in managing healthcare in Hungary, including experience in solving financial problems, is quite indicative and can also be used in Ukraine. The result of reforms that have been introduced in Hungary over the past 20 years is a new healthcare system characterized by more efficient allocation and the use of resources while maintaining the availability of basic health services. Further implementation of health care reforms is a priority for the Government of Hungary. At the same time, public funding for health remains a topical prospect. The share of the private sector in health insurance is rising due to an increase in co-payments and the volume of voluntary health insurance. The Hungarian Constitution guarantees full medical care for all citizens; the Central Government defines health policy. The health care budget of Hungary consists of three parts: the budget of the Health Insurance Fund, state and local budgets. The main providers of medical services are local authorities, which are responsible

for the majority of medical institutions, including the finance of hospitals, clinics, and primary health care centers.

Local authorities are responsible for financing and depreciation expenses of their medical facilities and social services. The government provides substantial assistance through targeted subsidies, makes the largest part of capital investments, pays some of the current expenses and covers the costs of exempting the poor from surcharges; finances health education, medical research, and development. The health insurance fund has local (territorial) branches that conclude contracts with health care institutions and reimburse their expenses according to uniform state prices.

The Czech Republic and Hungary experience in financing health care needs can not only raise healthcare in Ukraine to a higher level but also improve the population's expectations of life expectancy. The study of the value of life expectancy indicator shows that the best situation regarding such expectations is typical for the Czech Republic (it took first place throughout the research period), Poland (second place), Slovakia (in 2010, from 2012 to 2017 it took third place) and Hungary (third place in 2011). The lack of evaluation of this factor is a consequence of negative expectations of the population due to the low level of health care, the lack of political stability, environmental factors in large industrial centers.

The most compelling and well-known environmental health effects are air pollution, water quality, and poor sanitation. Many pollutants in the air, water, and soil that are known for their significant health effects are gradually monitored (for example, Clean Air for Europe (CAFE); European Union Regulation on the Registration, Evaluation and Authorization of Chemicals (REACH).

Despite comprehensive international and national legislative measures and a significant reduction in some of the most common pollutants, poor air quality in Europe causes thousands of premature deaths annually, damages crop yields and negatively affects ecosystems. In all regions, fine particulate matter has a greater risk to human health than other air pollutants. Far more people die for this reason each year than in car accidents. The ecological component of the life quality is best represented in Romania (the air pollution situation was better throughout the study period), Hungary and the Czech Republic (they took second and the third places). At the same time, it should be noted that in some of them (in Romania, for example) this situation is not due to the completeness of measures taken to reduce emissions, but to the fact that industrial production in the country is less developed than in other countries.

One of the modern tasks for Ukraine is to optimize ecological quality standards, namely, to ensure effective monitoring of substances regulated by legislation and to develop realistic standards based on risk factors and internationally recognized standards.

A particular place in the group of indicators that characterizes the life quality in terms of social aspects is taken by funding research and development. According to the calculation results presented in Appendices B and C, when making decisions in this direction, Ukraine shall be guided by the Czech Republic experience (throughout the research period it occupied first place in terms of funding research and development), Hungary (second place), Poland (third place) and other countries. In these countries, a model with a predominance of state funding for research is preserved. However, national research and development financial models are gradually being transformed into a model with the private sector-dominated, which, as the world's experience shows, provides with the great innovative activity of economic entities and the absorptive capacity of economics to innovate.

The tendency to narrow government sources of research funding is forcing developers, universities and other research centers to look for new opportunities to raise funds to finance scientific research. As a result, the relations between universities and independent laboratories the private companies are being significantly expanded and strengthened.

Despite the differences in details, the general principles for building innovation systems in developed countries suggest that the role of the private sector is to create technologies based on our research and development, as well as to market innovations. The role of the state is to promote the production of basic knowledge and a range of strategic technologies (especially in universities, public and semi-public laboratories), as well as to create infrastructure and a favourable innovation climate for the innovative activities of private companies.

Despite the decrease in the budgetary funding for research, the state in developed countries retains in its hands a wide range of flexible forms of regulation. They include tax incentives, soft loans, targeted support for small and medium innovative businesses, venture financing, etc. Thus, the legislation of almost all EU countries gives the right to individual enterprises to form special innovative funds that are not taxed.

One of the elements of the state support system for research in developed countries is the public credit schemes, which are implemented through specially created guarantee funds. In many European countries (Poland, Hungary), a network of loan guarantee funds is

created, initiated by local governments and business associations. These funds provide services to the private sector by giving guarantees for the repayment of a bank loan, subject to the use of a loan to finance innovative research.

A small group of researchers and individual implementers who are spearheading research initiatives play a great role in financing research in many developed countries. Such support is awarded in the form of grants by special funds based on a competitive selection of the projects submitted. In European countries, for example, there is a large number of such foundations, based on parliamentary decisions but formally being independent organizations. The funds have numerous staff, invite third-party experts (such as industrialists, officials, prominent scientists of the university community, foreign experts) to evaluate projects, based on rational criteria, provide with competitive selection and financial support for promising research results at the very early stage of the innovation process. The main recipients of these funds are representatives of universities, state and parastatal laboratories and research centres, scientific and technical organizations of industry (including private ones). However, there are differences in the distribution of these funds in different countries.

The strong scientific potential of universities, with great financial public support and the close cooperation of universities, make the universities to be an integral part of the national innovation systems of developed countries. An effective form of partnership between business, government, and universities is the co-financing of research and development (joint budget and private financing). In recent decades, it has gained recognition in several European countries, primarily the Czech Republic and Hungary. This form of financing ensures the integration of the customers' and executives' interests, allows them to promote researchers financially; moreover, it limits the waste of public, private, and other borrowed funds, and rationally shares the risk between co-investors of the innovation project. At the same time, private investors receive a state guarantee of investment return pending future income from the implementation of projects.

Venture financing becomes an effective way to enhance innovative research and development in many countries of the world. What is meant here is the accumulation of budgetary and extra-budgetary funds to finance risky (venture) projects. The main objects of venture financing are companies of dynamically developing industries based on high technologies. About 3/4 of all funds from venture funds are received by companies working

in the field of information technology, biotechnology, environmental and medical technology.

In general, the experience of the Czech Republic, Hungary, and other countries shows that in an innovative economy the structure of public-private partnership can be considered as a matrix in which the executive and legislative institutions (vertically) and private business structures (horizontally) integrate the resources at their disposal and interact to achieve synergies. An important function of the state in this interaction is to balance the interests of business with the national priorities, short-term tactical tasks with the long-term development prospects of the society. In other words, state "interference" in the innovation sphere shall be aimed at organizing the rational functioning of the total capital of society. At the same time, market mechanisms for coordinating private sector innovation in the direction of achieving public results shall be combined with a shift from ineffective administrative technologies of state regulation to flexible innovative methods of interventionism, requiring deep professional knowledge, possession of modern economic instruments.

The research of this component of the life quality as “safety and security” based on the process statistical data allows to suggest the possibility of using the experience of Bulgaria (during 2010 - 2012 it took second place in road safety, in 2013 it was in first place, in 2014 - 2017 it shared third place with Slovakia), Poland (in the period 2014–2017 it took second place, in 2010 it was in third place, in 2011 - 2012 it shared it with Slovakia), Slovakia (during 2011 - 2017 shared third place with Poland or Slovak Republic) in the formation of an improvement strategy to Ukraine life quality. The research of this experience from the above countries shows that to improve the road safety situation, it is necessary to invest sufficient resources in safer transport systems. This may require an increase in road safety budgets, as well as the reallocation of resources to the most cost-effective measures. To obtain the appropriate support in Ukraine is more likely to be forthcoming if it is based on a financial and economic analysis of the costs and effectiveness of the proposed measures. To compete successfully with other government programs for limited resources, a road safety project must be based on reliable economic arguments and accompanied by a strong economic case for investment.

Reducing the number of accidents can provide significant savings for society, because the costs of accidents are insignificant, but still affect the country’s GDP, as well as a burden on health and other utilities. There is strong evidence of the cost-effectiveness of investments in road safety improvements based on cost-benefit analysis in different

countries. Public budget expenditures on improving road safety shall be supported by contributions from the private sector, such as insurance companies.

Ukraine can use the following traffic safety approaches tested in Poland, the Czech Republic, and other countries:

- to identify and provide speed limits corresponding to the types of roads and their functions, which can immediately improve safety in terms of reducing the number of accidents and the severity of injuries.

- to improve the infrastructure for managing speed and influencing the behaviour of traffic participants;

- to identify and repair objects and sections of roads concerning increased risk. Road assessment, for example, the International Road Assessment Program (iRAP) system, is a valuable tool to identify areas requiring action and the most appropriate measures. In the longer term, a systematic approach to design and upgrade the road infrastructure is needed;

- to improve vehicle safety. Technical improvement of passive (accident protection) and active (accident prevention) systems increases the safety of vehicles. These improvements shall be made;

- to reduce the risk concerning young drivers. Young and inexperienced drivers occupy a disproportionately large place in accident statistics in all countries. Carefully regulated driving training, testing and licensing methods, as well as category licensing systems, shall be introduced.

Although governments shall initiate policies to implement measures for improving road safety, a safe system approach requires that all parts of society take responsibility for improving safety in their area of influence. Improving road safety shall be integrated into all relevant decision-making processes that go beyond the narrow framework of road transport. For example, land-use planning decisions, such as the allocation of land for the construction of a school, shall take into consideration the safety of users by incorporating safe access into the planning system. Road users are required to comply with regulations and take measures to reduce risks, such as the use of seat belts and helmets, and to comply with speed limits. The private sector shall have a corporate responsibility to audit its operations and to make road safety as a key objective.

One of the indicators that affect the life quality in each state is the corruption index. In the fight against corruption Poland took the first place in security (anti-corruption component) during 2010 - 2017, from Hungary and the Czech Republic (from 2010 to 2014,

which took second and the third places according to the corresponding indicator) and Slovakia, which in 2016 and 2017 occupied third place among other countries. For example, corruption-related offenses in Poland are dealt with diligently and effectively. Much attention is paid to the prevention of corrupt behaviour. And just some 20-40 years ago, this country was famous for widespread bribery. The situation has changed radically after joining the EU.

The first step to eliminate corruption in Poland was the work of public authorities and the implementation of European standards in the legal system. First of all, a transparent system of state orders was formed. Two years after joining the EU, the Central Anti-corruption Bureau, an organization independent of the local security forces, was launched. The detection of corruption-related offenses and the prevention of corrupt behaviour is actively promoted by the media and non-governmental organizations, including the anti-corruption movement "Transparency International". The phenomenon of domestic corruption has practically disappeared from the life of the country. Today, there is no need to bribe petty officials to resolve personal issues. The system is built in such a way that citizen is guaranteed to receive the necessary service or documents. The work of state structures with the population is regulated by law and regulation. Such a massive and systematic fight against corruption does not pursue obscure idealistic goals, but material state interests. The fact is that investors pay attention to different indicators. The determining factor is the level of corruption. At the beginning of the 21st century, Poland showed significant success in this direction. So, investors are willing to invest their capital in the economy. Poland's experience can be used in Ukraine as well.

CONCLUSIONS

In the process of developing the theoretical, methodological, scientific and practical foundations of the population's life quality research and ways to improve it, the following results have been obtained:

1. While conducting a meaningful genesis analysis of the approaches formation to understanding the category “life quality”, it is established that as human civilization develops, there is a gradual ascent from simple to complex and more mature forms and ideas, that indirectly characterize certain facets of individuals' and various social groups' life quality.

2. The solution to the problem of systematizing theoretical and methodological approaches to understanding the category “life quality” allowed to note that various definitions of life quality were presented in scientific literature, but the concept itself was usually described as multi-dimensional and individual. The theoretical analysis of the work showed that the differences in research arise due to the various scientific life quality approaches. An important feature of modern life quality approaches is that it has two sides: objective and subjective.

3. By studying and systematizing the manifestations of each of them, it can be concluded that the life quality is a comprehensive description of the ability to meet economic, social, ecological and human safety and security needs, determined by existing social and economic systems objectively and perceived living conditions subjectively. Thus, the main problem in determining life quality is to consider which domains shall be included in the general definition of this concept.

4. The task of refining the main indicators for measuring the life quality, used in different approaches, has led to the conclusion that there is no single, generally accepted set of indicators for measuring life quality. There is a fairly wide range of indicators, the use of which is often unreasonable and cannot reflect the phenomena which characterize the people's life quality. The main problem with the usage of life quality indicators (regardless of what this phenomenon involves) is the ability of public authorities to determine the general parameters of the data system to be used for decision-making (what specific data the responsible authorities need).

5. The methodological apparatus for determining life quality is a significant part of the general methodology for managing the socio-economic aspects of the activities of any

state. So far, improving it is one of the most important scientific tasks. Since the category of “life quality” is multidimensional, an obvious conclusion offers itself that the relevant methodological apparatus shall be based on the usage of economic, social, ecological and analytical components and decision-making tools, related to security. The technology of using such tools depends on the nature and multiplicity of the objects, tasks and research objectives.

6. As one of the elements of scientific novelty to solve this problem, it is offered to use an algorithm for forming a scientific and methodical approach to determining the current state of the population's life quality. This algorithm is a universal tool for determining an aggregated life quality indicator and making decisions in cases when there is a need to compare the aggregated indicator of one country with others to determine the possible development strategy orientations based on the positive experiences of such countries, and in cases when the aggregated indicator is calculated for one country to determine its dynamics and make decisions on this basis. Its application shall be based on the choice of initial private indicators, their transformation, aggregation of transformed private indicators; weighing of sub-indicators (assignment of indicators values related to indicators groups characterizing the economic, social, ecological life quality component and indicators characterizing the safety component), the corresponding weight (significance).

7. The scientific and methodological approach to the population's life quality assessment has been tested based on the objective and subjective indicators reflecting various aspects of the life perception as satisfactory or unsatisfactory in the post-Soviet countries: Bulgaria, Czech Republic, Poland, Hungary, Romania, Slovakia, Ukraine. During the testing process, it was established that the core of baseline indicators which the aggregated indicator was based on, could include Gross domestic product per capita; Average monthly net salary; Long-term unemployment; Total investment of providers of funded and private pension arrangements; Government expenditure on education; Government health expenditure; Research and development expenditure; Life expectancy at birth; Air pollution exposure, Exposure to PM2.5; Military expenditures; Number of traffic accidents per thousand citizens; Corruption perception index.

8. The analysis carried out both without regard to the significance of these factors and in their consideration (the latter was based on the Ukrainian and Czechian experts' opinion of the using the Fuller method) showed that the Czech Republic is the leader in the

set of factors determining the population's life quality. Slovakia, Hungary and Poland share second and third places in different periods.

9. Based on the definition of leading countries according to conditions determining the population's life quality, some recommendations have been made to improve Ukraine's life quality using the experience of other countries. Among them are to ensure the principle of proportionality in providing active and passive assistance to the unemployed; to develop labor market infrastructure; to implement public works more effective at the local (regional) level; to promote labor mobility (especially, at a young age); to implement programs aimed at developing health care, ensuring proportionality in the allocation of funds for these programs at various levels, including regional; to optimize environmental quality standards; to establish a state system support for research; to implement a systematic approach to road infrastructure design and upgrading; to implement the European standards in the legal system, including the establishment of a transparent system of state orders, etc.

REFERENCE LIST

1. ABBEY, A., ANDREWS, F., (1985). Modeling the Psychological Determinants of Life Quality. In *Social Indicators Research*, vol. 16, pp. 1-34. DOI: 10.1007/BF00317657
2. ABRAMOV, A., (2017). Social and Economic Indicators of the Standard of Living: World and Russian Ratings. In *Scientific Journal «Discourse»*, no. 9(11), pp. 47-59.
3. ACKERMAN, N., PAOLUCCI, B., (1983). Objective and subjective income adequacy: Their relationship to perceived life quality measures. In *Social Indicators Research*, vol.12, pp.25-48. DOI 10.1007/BF00428859
4. AJVAZJAN, S., (2012). *Analiz kachestva i obraza zhizni naselenija (jekonometricheskij podhod)*. Moskva: Nauka. ISBN 978-5-02-037968-8
5. ANAN'EV, B., (2001). *O problemah sovremennogo chelovekoznanija*. Sankt-Peterburg: Piter. ISBN 5-272-00289-X
6. ARISTOTEL', (1978). *Organon.* Moscow: Mysl'
7. ARUTJUNJAN, L., (1980). *Socialisticheskij obraz zhizni. Metodologicheskie problemy socialisticheskogo izuchenija*. Erevan: Izdatelstvo Erevanskogo univerzita
8. ATANASOVA, I., KARASHTRANOVA, E., (2016). A Novel Approach for Quality of Life Evaluation: Rule-Based Expert System. *Social Indicators Research*. 128(2), p.722. DOI: 10.1007/s11205-015-1052-0. ISSN 0303-8300.
9. BALABAN, M., (2009). Global inequality as a global threat. In: *Czech Republic - trends, threats, opportunities.* 1st ed. Prague: Karolinum, pp. 51-58. ISBN 978-80-246-1655-1.
10. BECCHETTI, L., MASSARI, R., NATICCHIONI, P., (2014). The drivers of happiness inequality: suggestions for promoting social cohesion. In *Oxford Economic Papers*, no. 66, pp. 419-442.
11. BECKER, G., PHILIPSON, T., SOARES, R., (2005). The Quantity and Quality of Life and the Evolution of World Inequality. In *American Economic Review*, vol. 95(1), pp. 277-291. DOI: 10.1257/0002828053828563
12. BELJAEVA, L., (2009). Uroven i kachestvo zhizni: problemy izmerenija i interpretacii. In *Sociologicheskie issledovanija*, iss. 1, pp. 33-42.
13. BELL, D., (2004). *Gryadushchee postindustrial'noe obshchestvo: opyt social'nogo prognozirovaniya*. Moskva: Academia. ISBN 5-87444-203-0
14. BERVENO O., BRONICKAJA, V., (2016). Kachestvo zhizni v sisteme upravlenija obshhestvennym vosproizvodstvom. In *Scientific Bulletin of Poltava University of Economics and Trade*, no. 4 (76), pp. 178-185.
15. BESLEROVA, S., DZURICKOVA, J., (2014). Quality of life measurements in EU countries. In *Procedia Economics and Finance*, vol. 12, pp. 37-47. DOI: 10.1016/S2212-5671(14)00318-9
16. BESTUZHEV-LADA, I., (1978). Metodologicheskie problem issledovanija kachestva, urovnjai obraza zhizni, In *Sovremennye koncepcii urovnja, kachestva i obraza zhizni*. Moskva: ISI AN SSSR, pp. 20-21.
17. BESTUZHEV-LADA, I., (1984). *Poiskovoe social'noe prognozirovanie: perspektivnye problem obshhestva*. Moskva: Nauka. DOI: 10.2307/2498136
18. BESTUZHEV-LADA, I., et al. (1978). Kategorija «kachestva zhizni» v sovremennoj zapadnoj sociologii. In *Sovremennye koncepcii urovnja, kachestva i obraza zhizni*, pp. 151-159.
19. BODALEV, A., (1988). *Psihologija lichnosti*. Moskva: Izd-vo Mosk. un-ta

20. BRAZEVICH, S., et al., (2004). Yuvenologiya i yuvenal'naya politika v XXI veke: opyt kompleksnogo mezhdisciplinarnogo issledovaniya. - SPb.: Znanie. ISBN 5-7320-0761-X

21. CAMPBELL, A., CONVERSE, P., RODGERS, W. (1976). *The quality of American life: perceptions, evaluations, and satisfactions*. New-York: Russel Sage Foundation

22. CAMPBELL, A., (1981). *The sense of well-being in America: Recent patterns and trends*. New York: Mcgraw-Hill.

23. CANADIAN POLICY RESEARCH NETWORKS, (2001). *Indicators of Quality of Life in Canada: A Citizens' Prototype. Quality of Life Indicators Project*. [online]. [cit. 15. 2. 2016]. Available at: https://uwaterloo.ca/canadian-index-wellbeing/sites/ca.canadian-index-wellbeing/files/uploads/files/Indicators_of_Quality_of_Life_in_Canada.sflb__0.pdf

24. CLARK, A., FRIJTERS, P., SHIELDS, M., (2008). Relative Income, Happiness and Utility: An Explanation for the Easterlin Paradox and Other Puzzles. In *Journal of Economic Literature,* no. 46, pp. 95-144. DOI: 10.1257/jel.46.1.95

25. CLARK, J. (1888). The Limits of Competition, The Modern Distributive Process. The Limits of Competition. In: Clark, J. B., Giddings, F. H. *The modern distributive process.* Boston: Ginn & Co, pp. 2-17.

26. DANILINA, L., SALIN, V., (2015). Analiz podhodov k izmereniju kachestva zhizni. In *Statistika i jekonomika*, no. 4, pp. 111-114.

27. DERZHAVNA SLUZHBA STATYSTYKY UKRAYINY, (2019a). *Bezrobittya naselennya (za metodolohiyeyu MOP)*. [online]. [cit. 15. 3. 2019]. Available at: http://www.ukrstat.gov.ua

28. DIENER, E., FUJITA, F., (1995). Methodological pitfalls and solutions in satisfaction research. In *A. C. Samli & M. J. Sirgy (Eds.). New dimensions in marketing/quality-of-life research*, Westport, CT: Greenwood Press, pp. 27-46.

29. DIENER, E., et al. (2012). Purpose, mood, and pleasure in prediction satisfaction judgements. In *Social Indicators Research*, vol. 105(3), pp. 333-341. ISSN 0303-8300.

30. DIENER, E.; SUH, E., (1997). Measuring Quality Of Life: Economic, Social, And Subjective Indicators. Springer. In *Social Indicators Research*, vol. 40(1-2),pp.189–216. DOI: 10.1023/A:1006859511756.

31. Doklad komissii po ocenke jekonomicheskih rezul'tatov i social'nogo progressa, (2011). In *Voprosy statistiki*, no. 2, pp. 3-41.

32. DRUKER, P., (1999). Postkapitalisticheskoe obshhestvo. In *Novaja postindustrial'naja volna na Zapade: antologija*, Moskva: Academia, pp. 52-125.

33. DUBSON, B., (1979). *Burzhuaznaja doktrina «Kachestvo zhizni».* Moscow: Znanie.

34. DUTTA, I., FOSTER, J., (2013). Inequality of Happiness in the US: 1972-2010. In *Review of Income and Wealth*, no. 59, pp. 393-415. DOI 10.1111/j.1475-4991.2012.00527.x

35. EUROPEAN COMMISSION, (2010). *Europe 2020. A strategy for smart, sustainable and inclusive growth. COM/2010/2020 final* [online]. [cit. 6. 2. 2018]. Available on www: http://eur-lex.europa.eu

36. EUROPEAN COMMISSION. (2014). *Regional Policy: General presentation on proposals for Cohesion Policy 2014-2020* [online]. [cit. 2017-09-02]. Available on:

http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/pdf/2014/proposals/regulation2014_leaflet_en.pdf.

37. EUROPEAN COMMISSION, (2015). *The European Agenda on Security. COM/20180/185 final* [online]. [cit. 2018-02-06]. Available on WWW: http://eur-lex.europa.eu

38. EUROSTAT, (2013). *Quality of life indicators - economic and physical safety*. [online]. [cit. 2019-18-02]. Available from: http://ec.europa.eu/eurostat/statistics-explained/index.php/Quality_of_life_indicators_-_economic_and_physical_safety

39. EUROSTAT, (2018). *Recorded offences by offence category - police data*. [online]. [cit. 16. 2. 2018]. Available on www: http://ec.europa.eu/eurostat/

40. EUROSTAT, (2019a). *EU Labour Force Survey (EU LFS). Long-term unemployment rate, % of active population aged 15-74*. [online]. [cit. 15. 3. 2019]. Available at: https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tipslm70&plugin=1

41. EUROSTAT, (2019b). *Government expenditure on environmental protection*. [online]. [cit. 15. 12. 2019]. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Government_expenditure_on_environmental_protection

42. EUROSTAT, (2019c). *Government expenditure on public order and safety*. [online]. [cit. 15.1 2. 2019]. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Government_expenditure_on_public_order_and_safety

43. FOFANOVA, K.V. (2016), "Metodologicheskie voprosy izmerenija kachestva zhizni regiona", Regionologija, pp. 127-139.

44. GAJSINA, S., (2017). Kachestvo zhizni naselenija v uslovijah social'noj modernizacii. In *Obshhestvo i jekonomika*, no. 9, pp. 189-201.

45. GALBRAITH, J., (1958). *The affluent society*. Boston: Houghton Mifflin Company.

46. GELBREJT, DZH., (1975). *Jekonomicheskie teorii i celi obshhestva*. Moscow: Progress

47. GERASIKOVA, E., (2019). Regional'nye aspekty upravlenija kachestvom zhizni naselenija v Rossii. In *Universum: Jekonomikai j urisprudencija*, no. 1(58). ISSN 2311-4282

48. GLUSHAKOVA, O., (2006). Jevoljucija metodologii i teorii kachestva zhizni v koncepcijah zarubezhnyh i otechestvennyh nauchnyh shkol. In *Vestnik Kuzbasskogo gosudarstvennogo tehnicheskogo universiteta*, pp. 141-147.

49. GORODNOVA, N., SAMARSKAJA, N., (2019). Povyshenie kachestva zhizni naselenija v sovremennyh jekonomicheskih uslovijah Rossii. In *Diskussija*, vol. 94, pp. 48-58. ISSN 2077-7639.

50. HEINTZELMAN, S., DIENER, E., (2018). Subjective well-being, social interpretation, and relationship thriving, In *Journal of Research in Personality*, pp. 93-105.

51. HENDL, J. (1997). Methodological triangulation in empirical research. In *Čs. Kinanthropology*, No. 2, p.75-88.

52. HENDL, J. (2016). *Qualitative research: Basic theories, methods and applications. Fourth, revised and expanded edition*. Prague: Portal. ISBN 978-80-262-0982-9

53. HERZOG, A., RODGERS, W., WOODWORTH, J., (1982). *Subjective well-being among different age groups*. Ann Arbor, Mich: Survey Research Center, Institute for Social Research, University of Michigan.

54. HLOUSKOVA, R., (2016). Threat of poverty or social exclusion in the less developed regions of the EU. In *XIX International Colloquium on Regional Sciences. Proceedings*. pp. 461 – 467. ISBN 978-80-210-8272-4. DOI: 10.5817/CZ.MUNI.P210-8273-2016-59

55. HORKA, L., (2012). Regional disparities and convergence in the context of EU cohesion policy. In *XV. international colloquium on regional sciences*. Proceedings. pp. 28-35. ISBN 978-80-210-5875-0.

56. INGLEHART, R., RABIER, J., (1986). Aspirations Adapt to Situations - But why are the Belgians much Happier than the French? In *Andrews, F.M. (Eds.). Research on the Quality of Life.* USA: Ann Arbor, pp. 1-56. ISBN 0879443081

57. INGLEHART, RONALD F., FOA, R., PETERSON, C., WELZEL, C., (2008). "Development, Freedom, and Rising Happiness: A Global Perspective (1981–2007). In *Perspectives on Psychological Science*, no. 3, pp. 264-285. DOI 10.1111/j.1745-6924.2008.00078.x

58. IVANOVA, M., NEVOLIN, A., (2006). Ocenka kachestva zhizni naselenija kak osnova formirovanija social'no-jekonomicheskoj politiki v regione (na primere Murmanskoj oblasti). In *Vestnik MGTU*, vol. 9. no. 4, pp. 694-699.

59. IVANOVA, O., (2016). *Sociologicheskie problem garmonizacii obshhestvennoj zhizni*. Krasnojarsk: Nauchno-innovacionnyj centr.

60. Kachestvo zhizni (2003). In *Sociologicheskaja enciklopedija*. Moskva :Mysl'.

61. Kachestvo zhizni (2006). *Rus. med. Obozrenie* [online]. [cit. 2020-05-01]. Dostupné z: http//www.ruscience.newmail.ru/mbooks/gol.htm

62. KALININA, G., (2007). Quality of life as a phenomenon of social development. In *Bulletin of Chuvash University. Humanitarian sciences*, no. 7, pp. 67-79.

63. KAPURIA, S., (2016). Human Well-Being Perspective to the Measurement of Quality of Life: Findings From the City of Delhi. In *Applied Research Quality Life*, vol. 11(1), pp. 125–145. ISSN 1871-2584DOI 10.1007/s11482-014-9358-7

64. KAPUSTIN, E., (2006). *Uroven', kachestvo i obraz zhizni naselenija Rossii*. Moskva: Nauka.

65. KIM, M., KOMARENKO, O., (2015). Uroven' i kachestvo zhizni: teoreticheskij analiz, sostojanie i faktory v Ukraine. In *Social'naja jekonomika*, no. 1, pp. 85-94.

66. KLYUSHNIKOVA, E., SHITOVA, E. (2016). Metodicheskie podhody k raschetu integral'nogo pokazatelya, metody ranzhirovaniya. In *Elektronnyj nauchnoprakticheskij zhurnal «InnoCentr»*, no. 1(10), pp. 4-18.

67. KOLIN, K., (2010). Kachestvo zhizni v informacionnom obshhestve. In *Chelovek i trud*, no. 1, pp. 39-43.

68. KONDRASHOVA, N., ENDOVICKAYA, E., (2016). Nauchnye osnovy postroeniya sistemy analiticheskih pokazatelej. In *Social'no-ekonomicheskie yavleniya i processy*, vol. 11, no.9, pp. 34-39.

69. KOSINSKIJ, P., HARITONOV, A., (2017). Vzaimosvjaz' kachestva pitanija i kachestva zhizni naselenija: regional'nyj aspect. In *Mezhdunarodnyj zhurnal prikladnyh i fundamental'nyh issledovanij*, no. 7-1, pp. 130-133. ISSN 1996-3955.

70. KOVYNEVA, O., GERASIMOV, B., (2006). *Managing the quality of life of the population*. Tambov: Publisher Tambov State Technical University.

71. KOVYNEVA, O., GERASIMOV, B., (2006). *Upravlenie kachestvom zhizni naselenija.* Tambov: Izd-vo Tamb. gos. tehn. un-ta.

72. KRYS, K., et al. (2018). Open Society fosters satisfaction: Explanation to why individualism associates with country level measures of satisfaction. In *The Journal of Positive Psychology*. DOI: 10.1080/17439760.2018.1557243.

73. KRUPKA, J. et al. (2011). Quality of Life Modeling at the Regional Level. In *Environmental Modeling for Sustainable Regional Development: System Approaches and Advanced Methods.* 392-415. DOI:10.4018/978-1-60960-156-0.ch019

74. KULAJKIN, V., (2012*).Social'no-psihologicheskie osnovy i metody izmereniya kachestva zhizni na urovne lichnosti i social'nyh grupp.* Moskva: Pero. ISBN 978-5-91940-450-7.

75. LEOCHI, P., (2011). Kachestvo zhizni, ustojchivoe razvitie i okruzhajushhaja sreda. In *Mir novoj jekonomiki*, no. 2 (12), pp. 4-21.

76. LIGA, M.B. (2013). Social'naja bezopasnost' i kachestvo zhizni: konceptual'nyj analiz. In *Uchenye zapiski Zabajkal'skogo gosudarstvennogo universiteta*, no. 4(51), pp.170-177.

77. LOGINOVA, N., SEMINA, I., FEDOTOV JU., (2014). Kachestvo zhizni naselenija regionov. In *Nauka i mir*, vol. 2, no. 3, pp. 180-182.

78. MARKOVICH, D.ZH., (1998). Global'nye problemy i kachestvo zhizni. In *Sociologicheskie issledovanija*, no. 4, pp. 129-132.

79. MARX, K., (1961). *Economic & Philosophic Manuscripts of 1844.* Moscow: Foreign Languages Pub. House. ISBN 0-486-45561-0.

80. MATVEEVA, L., CHERNOVA, O., KLIMUK, V., (2015). Ocenka effektivnosti politiki importozameshcheniya v promyshlennosti: metodicheskij instrumentarij. In *Izvestiya DVFU. Ekonomika i upravlenie*, no. 3, pp. 3-13.

81. MCCALL, S., (1975). Quality of life. In *Social Indicators Research: An International and Interdisciplinary Journal for Quality-of-Life Measurement*, vol. 2(2), pp. 229-248. DOI: 10.1007/BF00300538.

82. MEDOUZ, D., et al. (1991). *Predely rosta. Doklad po proektu Rimskogo kluba «Slozhnoe polozhenie chelovechestva».* Moscow: Izd-vo Mosk. un-ta. ISBN 5-211-02014-6

83. MICHALOS, A., (1982). The satisfaction and happiness of some senior citizens in rural Ontario. In *Social Indicators Research*, vol.11, pp.1-30. DOI 10.1007/BF00353590

84. MICHALOS, A., (2014). *Encyclopedia of Quality of Life and Well-Being Research*. Netherlands: SpringeR. ISBN 978-94-007-0752-8.

85. MILITKY, J., MELOUN, M. (2000). Correlation, its use and abuse. In Proceedings of the conference ENSURING THE QUALITY OF ANALYTICAL RESULTS, pp. 66 - 84. ISBN 80-86380-02-5

86. MINFIN, (2019). *Srednyaya zarabotnaya plata v Ukraine*. [online]. [cit. 15. 2. 2019]. Available at: https://index.minfin.com.ua/labour/salary/average/2010

87. MINISTERSTVO NAUKI I TEHNOLOGIJ ROSSIJSKOJ FEDERACII, (2000). *Metodika ocenki kachestva zhizni* [online]. [cit. 2020-05-01]. Dostupné z: http://economy-lib.com/faktory-formirovaniya-sistemy-kachestva-zhizni-naseleniya#ixzz68B3k0fbd.

88. MITIN, M., (1977). Socialist way of life, the rule of law and ideological struggle In *XXV Congress of the CPSU: problems of the socialist way of life and strengthening the rule of law*. *Materials of the scientific conference*. Moscow: RIO Akad. USSR Ministry of Internal Affairs, pp. 62-69.

89. MITROSHIN, A., (2018). *Metody ocenki kachestva zhizni naselenija i social'no-jekonomicheskoj differenciacii territorij*. Moskva: INFRA-M.

90. MOSKALENKO, A., SERZHANTOV, V., (1984). *Lichnost' kak predmet filosofskogo poznanija: filosofskaja teorija lichnosti i ejo psihologicheskie i biologicheskie osnovanija*. Novosibirsk: Nauka, Sib.otd-nie.

91. MULLIGAN, G., CARRUTHERS, J., (2011). *Amenities, Quality of Life, and Regional Development. Investigating Quality of Urban Life*. Netherlands: Springer.

92. MUZDYBAEV, K., (2005). *Kachestvo zhizni naselenija Peterburga: 1990-2004 gody*. Sankt-Peterburg: GUP Mezhdunarodnyj centr social'no-jekonomicheskih issledovanij «Leont'evskij centr».

93. NATIONAL STATISTICAL INSTITUTE, (2020). *Statistical data. Average Monthly Wages and Salaries – total*. [online]. [cit. 15. 2. 2019]. Available at: http://www.nsi.bg/en/content/6410/total.

94. OECD, 2019. *Pension Markets In: Focus No.16, 2019.108p*. [online]. [cit. 25. 2. 2019]. Available at: http://www.oecd.org/daf/fin/private-pensions/Pension-Markets-in-Focus-2019.pdf.

95. OECD (2020a). *Air and GHG emissions (indicator).* [online]. [cit. 15. 2. 2019]. Available at: https://data.oecd.org/air/air-and-ghg-emissions.htm#indicator-chart. DOI 10.1787/93d10cf7-en.

96. OECD (2020b). *Air pollution exposure (indicator)*. [online]. [cit. 15.1 2. 2019]. Available at: https://data.oecd.org/air/air-pollution-exposure.htm. DOI 10.1787/8d9dcc33-en.

97. OECD (2020c). *Road accidents (indicator).* [online]. [cit. 15.1 2. 2019]. Available at: https://data.oecd.org/transport/road-accidents.htm/ DOI 10.1787/2fe1b899-en.

98. OKULICZ-KOZARYN, A., VALENTE R., (2018). Livability and Subjective Well-Being Across European Cities, Applied Research in Quality of Life. In *The Official Journal of the International Society for Quality-of-Life Studies*. ISSN: 1871-2576. DOI:10.1007/s11482-017-9587-7.

99. ORTIZ-OSPINA, E., ROSER, M., (2019). *Happiness and Life Satisfaction*. [online]. [cit. 2019-04-01]. Dostupné z: https://ourworldindata.org/happiness-and-life-satisfaction'.

100. ORTIZ-OSPINA E., ROSER, M. (2020). *"Corruption". Published online at OurWorldInData.org*. [online]. [cit. 15.1 2. 2019]. Available from: https://ourworldindata.org/corruption.

101. OTOIU, A., TITAN, E, (2015). Socio-economic Convergence in the EU at National and Regional Level. In *Procedia Economics and Finance*, vol. 23, pp. 1090-1095. ISSN 22125671. DOI 10.1016/S2212-5671(15)00333-0.

102. PAYNE, L., et al. (2018). Psychological well-being in individuals living in the community with traumatic brain injury. In *Brain Injury*, no. 32(8), pp. 980-985. DOI: 10.1080/02699052.2018.1468573.

103. PECHCHEI, A. (1981). *One hundred pages for the future: reflections of the president of the Club of Rome*. New York: «Pergamon Press». ISBN 0-08-028110-9.

104. PEVNEV, V., (2019). Dualizm kategorii kachestva zhizni. In *Vestnik SGSJeU*, no. 2 (76), pp. 94-97.

105. PHILLIPS, D., (2006). Quality of Life: Concept, Policy and Practice. London: Routledge.

106. PIGOU, A. (1927). Industrial Fluctuations. *Journal of Economics,* vol. 42, no. 4, pp. 669-677. DOI: 10.2307/1882538.

107. PIGOU, A., (1932). *Economics of Welfare*. London: Macmillan.

108. PIGOU, A., (1985). *Jekonomicheskaja teorija blagososto*janija. Moscow: Progress.

109. POLJAKOVA, N., (2004). *XX vek v sociologicheskih teorijah obshhestva*. Moskva: Logos. ISBN: 5-8163-0060-1.

110. POPOV, S., (1977). *Problema kachestva zhizni v sovremennoj ideologicheskoj bor'be*. Moskva: Politizdat.

111. PORTER, L., (1961). A Study of Perceived Need Satisfaction in Bottom and Middle Management Job. In *Journal of Applied Psychology*, vol. 45, pp. 1-10. DOI: 10.1037/h0043121.

112. RABKINA, N., RIMASHEVSKAJA, N., (1972). *Osnovy differenciacii zarabotnoj platy i dohodov naseleniya: metody ekonomiko-matematicheskogo modelirovaniya*. Moskva: Ekonomika.

113. ROKICKA, E., (2014). The Concept of Quality of Life in the Context of Economic Performance and Social Progress. In *Welfare state at risk: Rising inequality in Europe*, vol. 40(1), pp.189-216. DOI 10.1007/978-3-319-01481-4_2.

114. ROSTOU, U., (1973). *Politika i stadia rosta*, Moskva: Progress.

115. RUBANOVA, E., (2014). Teoreticheskie aspekty kachestva zhizni v kontekste psihologii zdorov'ja. In *Jelektronnoe nauchnoe izdanie «Uchenye zametki TOGU»*, vol. 5, no. 3, pp.108-115.

116. SAHAROV, A., (1990). *Mir, progress, prava cheloveka: Stat'i i vystupleniya*. Leningrad: Sov. pisatel'. ISBN 5-265-01645-7.

117. SCHWAB, D. (2018). *The Global Competitiveness Report*. [online]. [cit. 2018-05-02]. Available on: http://www3.weforum.org/docs/GCR20172018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf.

118. SEN, A., (1992). *Inequality Reexamined*. Cambridge: Harvard University Press.

119. SEY, B., (1828). *Nachalnyie osnovaniya politicheskoy ekonomii ili druzheskie besedyi o proizvodstve, razdelenii i potreblenii bogatstv v obschestve*. Moscow: Tip-fiya S. Selivanovskogo.

120. SHABASHEV, V., LEVANOV, A. AND SHHERBAKOVA, L., (2004), *Kachestvo zhizni naselenija regiona: teorija i sistema upravlenija*. Kemerovo: Kuzbassvuzizdat. ISBN 5-202-00762-0.

121. SHIMANOVSKAYA, YA., KOZLOVSKAYA, S., (2017). Istoricheskie predposylki formirovaniya ponyatiya «kachestvo zhizni» naseleniya [Historical background of the formation of the concept of "quality of life" of the population]. In *CITISE*, no. 2(11), p. 3.

122. SHUESSLER, K., FISHER, G., (1985). Quality of life research and sociology. In *Annual Review of Sociology*, vol. 11, pp. 129-149.

123. SMITH, A., (1976). Theory of Moral Sentiments. Indianapolis: Liberty Classics. ISBN 9780913966136.

124. SMITH, A., (1977). *An Inquiry into the Nature and Causes of the Wealth of Nations*. Chicago:University of Chicago Press. ISBN 97802267637434.

125. SMITH, D.M., (1973). *The Geography of Social Well-Being in the United States: An Introduction to Territorial Social Indicators*. NY: McGraw Hill Text; 1st Edition edition. ISBN-10: 0070585512. ISBN-13: 978-0070585515.

126. SOBOL', T., (2018). Sovremennyj uroven' i kachestvo zhizni naselenija. In *Vestnik Moskovskogo universiteta imeni S. Ju. Vitte*. Serija 1: Jekonomika i upravlenie, no. 2 (25), pp. 7-14. ISSN: 2587-554X. DOI: 10.21777/2587-554X-2018-2-7-14.

127. SOWELL, T., (1972). Sismondi: A Neglected Pioneer. *History of Political Economy*. Duke University Press, pp. 62-88. DOI 10.1215/00182702-4-1-62.

128. SUBETTO, A., (2017). *Samosozidanie cherez nauchnoe poznanie (opyt avtognoseurgii)*. Sankt-Peterburg: Asterion.

129. SUBETTO, A.I. (2019). Noosferizm kak strategiya spaseniya chelovechestva ot ekologicheskoj gibeli i osnova gumanitarnogo dialoga civilizacij na puti k Miru bez Vojn i Nasiliya: konceptual'nyj doklad na zasedanii akademicheskogo teoreticheskogo seminara «Marksovskie chteniya» v Institute filosofii RAN 27 sentyabrya 2019 goda (Moskva) i proekt rezolyucii po etomu dokladu. Sankt-Peterburg: Asterion. ISBN 978-5-00045-761-0.

130. SYROVATKA, M., (2008). How (not) to measure quality of life: Critical perspectives on the Human Development Index. In *International relations*. vol. 43(1), pp. 9-37.

131. TATARKIN, A., VASIL'EVA, E., CHICHKANOV, V., (2015). Karta vybora mehanizma upravlenija kachestvom zhizni naselenija regiona. In *Regional'naja jekonomika. Teorija i praktika*, no. 42, p. 2-14. ISSN 1996-0522.

132. TAVOKIN, E., (2001). Social'naja statistika. Moskva: RAGS. ISBN 5-7729-0081-1.

133. THE GLOBAL ECONOMY, (2019). *Stockholm International Peace Research Institute (SIPRI), Yearbook: Armaments, Disarmament and International Security.* [online]. [cit. 15.1 2. 2019]. Available at: https://www.theglobaleconomy.com/Ukraine/mil_spend_gdp.

134. TODOROV, A., (1980). *Kachestvo zhizni: kriticheskij analiz burzhuaznyh koncepcij*. Moskva: Progress.

135. TOFFLER, JE., (1999). *Tret'ja volna.* Moskva: OOO "Firma "Izdatet'stvo ACT".

136. TRADING ECONOMICS, (2019*). Bulgaria Average Monthly Wages 1997-2019 Data*. [online]. [cit. 15. 2. 2019]. Available at: https://tradingeconomics.com/bulgaria/wages.

137. TROFIMOV, A., (2005). Ocenka kachestva zhizni naselenija kak forma izuchenija social'no-geograficheskogo prostranstva. In *Geograficheskij vestnik*, no. 1-2, pp. 36-43.

138. TURKINA, N., (2007). The quality and standard of living of the rural population of the Irkutsk region. In *Geography and natural resources*, vol. 4, pp. 153-164.

139. UKRSTAT, (2018). *State Statistics Service of Ukraine documents publishing. Current expenditures on environmental protection, by type of environmental domain*. [online]. [cit. 15. 12. 2019]. Available at: https://ukrstat.org/en/operativ/operativ2016/ns_rik/ns_rik_reg/onps_e/pvonps_e.htm.

140. UNITED NATIONS DEVELOPMENT PROGRAMME (2016). Human Development Report 2016. Human Development for Everyone. New York: One United Nations Plaza.

141. UNIVERSAL DECLARATION OF HUMAN RIGHTS, (2020). *Vseobshchaya deklaratsiya prav cheloveka*, December 10, 1948. [online]. [cit. 2019-28-12]. Available from: https://online.zakon.kz/Document/?doc_id=30218586#pos=0;0

142. VADUROVA, H., MUHLPACHR, P., (2005). *Quality of life: theoretical and methodological basis.* Brno: Masaryk University.

143. VORONINA, N., (2012). *Kachestvo zhizni naselenija: grani problem v fokuse preobrazovanij*. Saratov: KUBiK.

144. WEIJERS, D., (2014). An interview with Alex C. Michalos. In *International Journal of Wellbeing*, vol. 4(1), pp.106-110. DOI:10.5502/ijw.v4i1.7.

145. WINGO, L., (1973). The Quality of Life: Toward a micro-economic definition. In *Urban Studies*, vol. 10, pp. 3-8.

146. WORLD BANK GROUP, (2019a). *International Comparison Program database. GDP per capita, PPP (current international $)*. [online]. [cit. 15. 2. 2019]. Available at: https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?name_desc=false.

147. WORLD BANK GROUP, (2019b). *International Comparison Program database. Households and NPISHs final consumption expenditure (% of GDP).* [online]. [cit. 25. 2. 2019]. Available at: https://data.worldbank.org/indicator/NE.CON.PRVT.ZS.

148. WORLD BANK GROUP, (2019c). *International Comparison Program database. Government expenditure on education, total (% of GDP)*. [online]. [cit. 25. 12. 2019]. Available at: https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS.

149. WORLD BANK GROUP, (2019d). *International Comparison Program database. Current health expenditure (% of GDP)*. [online]. [cit. 15. 12. 2019]. Available at: https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS.

150. WORLD BANK GROUP, (2019f). *International Comparison Program database. Research and development expenditure (% of GDP).* [online]. [cit. 15. 2. 2019]. Available at: https://data.worldbank.org/topic/science-and-technology?locations=TO

151. WORLD BANK GROUP, (2019g). *International Comparison Program database. Life expectancy at birth, total (years)*. [online]. [cit. 15. 12. 2019]. Available at: https://data.worldbank.org/indicator/SP.DYN.LE00.IN.

152. WORLD BANK GROUP, (2019h). *International Comparison Program database Forest area (sq. km)*. [online]. [cit. 15.1 2. 2019]. Available at: https://data.worldbank.org/indicator/AG.LND.FRST.K2?view=chart.

153. WORLD BANK GROUP, (2019e). *International Comparison Program database. Military expenditure (% of GDP).* [online]. [cit. 15.1 2. 2019]. Available at: https://data.worldbank.org/indicator/MS.MIL.XPND.GD.ZS.

154. ZAHAROVA, A., (2014). Mezhdisciplinarnaja problema kachestva zhizni v kontekste sovremennyh nauchnyh issledovanij. In *Vestnik psihiatriii psihologii Chuvashii*, no. 10, pp. 141-160. ISSN 1993-1298.

155. ZAHORA, J. (2015). *Statistics textbook.* Prague: Charles University in Prague . ISBN:978-80-88176-00-8.

156. ZENCHENKO, S., BEREZHNOJ, V. (2010). Sistema integral'noj ocenki finansovogo potenciala regiona i metodika ee formirovaniya. In *Regional'nye problemy preobrazovaniya ekonomiki*, no. 2(15), pp. 22-30.

157. ZHDANOVA, O. (2011). The role of innovation in the modern economy. In: *Economics, management, finance: materials of the International scientific conference*, pp. 38-40.

APPENDIX

APPENDIX A: The formation of a set of particular indicators for QoL assessment

APPENDIX B: Standardization and calculation of an aggregated indicator of QoL, not determining the baseline indicator's significance

APPENDIX C: Standardization and calculation of an aggregated indicator of QoL, where significance of the baseline indicators takes place (based on the Ukrainian expert's rating)

APPENDIX D: Standardization and calculation of an aggregated indicator of QoL, where significance of the baseline indicators takes place (based on the Czech Republic expert's rating)

APPENDIX E: Dynamics of the corresponding subaggregates taking into consideration the weights of the baseline indicators of the Ukrainian expert

APPENDIX F: Dynamics of the corresponding subaggregates taking into consideration the weights of the baseline indicators of the Czech Republic expert

APPENDIX A. The formation of a set of particular indicators for QoL assessment

Table A.1: Results of determining the correlation between the indicators "life satisfaction" and "GDP per capita"

Country	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10	11	12
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,93	Direct
	GDP per capita, USD dollars per person	14934,13	15676,13	16208,22	16571,03	17534,3	18186,49	19500,33	20948,19		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,922	Direct
	GDP per capita, USD dollars per person	27667,43	28797,42	29047,25	30485,71	32263,32	33691,42	35230,52	38019,58		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,88	Direct
	GDP per capita, USD dollars per person	21569,89	22894,35	23148,13	24498,18	25604,99	26668,04	27171,16	29159,13		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	0,684	Direct
	GDP per capita, USD dollars per person	21048,33	22850,64	23833,21	24719,25	25612,26	26856,04	27735,35	29922,2		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,98	Direct
	GDP per capita, USD dollars per person	16966,46	17907,67	18931,53	19797,38	20623,32	21631,77	23868,07	26631,88		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,57	Direct
	GDP per capita, USD dollars per person	25152,76	26049,79	26933,42	27967,17	28991,57	29924,12	30824,6	32243,85		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	-0,21	Inversed
	GDP per capita, USD dollars per person	7664,397	8281,867	8481,78	8647,99	8710,749	7972,436	8289,707	8693,694		

Table A.2: The results of determining the correlation between the indicators "life satisfaction" and "average monthly net salary"

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10	11	12
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,619	Direct
	Average monthly net salary, USD	443,44	434,52	506,52	540,60	597,54	520,33	501,05	547,25		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,637	Direct
	Average monthly net salary, USD	1130,48	1138,20	1137,56	1125,55	1149,12	1180,60	1228,57	1281,15		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,143	Direct
	Average monthly net salary, USD	984,35	983,73	949,49	951,59	944,96	920,00	961,35	1042,20		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	0,637	Direct
	Average monthly net salary, USD	976,95	977,03	968,41	979,46	999,40	1021,30	1070,91	1119,22		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,024	Direct
	Average monthly net salary, USD	697,55	639,36	600,30	656,70	588,12	616,56	652,32	772,56		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,857	Direct
	Average monthly net salary, USD	1124,19	1114,20	1101,92	1110,25	1131,79	1173,67	1213,18	1240,04		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	0,310	Direct
	Average monthly net salary, USD	229,92	344,24	364,92	373,84	382,60	222,72	222,80	222,30		

Table A.3: The results of determining the correlation between the indicators "life satisfaction" and "long-term unemployment"

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10	11	12
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	-0,48	Inversed
	Long-term unemployment, %	4,70	6,30	6,80	7,40	6,90	5,60	4,50	3,40		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	-0,667	Inversed
	Long-term unemployment, %	3,00	2,70	3,00	3,00	2,70	2,40	1,70	1,00		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	-0,88	Inversed
	Long-term unemployment, %	11,20	11,00	10,90	10,10	7,40	6,90	5,10	4,20		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,788	Inversed
	Long-term unemployment, %	3,00	3,60	4,10	4,40	3,80	3,00	2,20	1,50		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	-0,0516	Inversed
	Long-term unemployment, %	2,40	2,90	3,00	3,20	2,80	3,00	3,00	2,00		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	-0,709	Inversed
	Long-term unemployment, %	9,20	9,20	9,40	10,00	9,30	7,60	5,80	5,10		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	-0,57	Inversed
	Long-term unemployment, %	7,90	7,80	7,50	7,00	9,20	9,00	9,40	9,60		

Table A.4: The results of determining the correlation between the indicators "life satisfaction" and "total investment of providers of funded and private pension arrangements"

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10	11	12
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,93	Direct
	Total investment of providers of funded and private pension arrangements, USD mil.	0,37	0,41	0,53	0,66	0,70	0,73	0,82	1,10		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,934	Direct
	Total investment of providers of funded and private pension arrangements, USD mil.	1,18	1,18	1,36	1,42	1,41	1,43	1,48	1,97		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,14	Direct
	Total investment of providers of funded and private pension arrangements, USD mil.	1,90	0,44	0,51	0,56	0,51	0,49	0,72	0,90		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,459	Inversed
	Total investment of providers of funded and private pension arrangements, USD mil.	1,99	1,78	2,34	2,71	1,24	1,07	1,08	1,52		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,98	Direct
	Total investment of providers of funded and private pension arrangements, USD mil.	0,07	0,10	0,15	0,23	0,27	0,32	0,39	0,55		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,98	Direct
	Total investment of providers of funded and private pension arrangements, USD mil.	1,21	1,39	1,66	1,83	1,78	1,61	1,75	2,2		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	-0,5	Inversed
	Total investment of providers of funded and private pension arrangements, USD mil.	0,0031	0,0038	0,0021	0,0027	0,0033	0,0039	0,0046	0,0052		

Table A.5: The results of determining the correlation between the indicators "life satisfaction" and "household spending on final consumption"

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10	11	12
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	-0,38	Inversed
	Household spending on final consumption (% of GDP)	63,80	62,31	65,42	62,08	62,64	62,53	60,89	61,57		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	-0,412	Inversed
	Household spending on final consumption (% of GDP)	48,96	49,05	49,21	49,41	48,07	46,83	46,96	47,36		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	-0,86	Inversed
	Household spending on final consumption (% of GDP)	52,53	52,79	53,86	52,31	50,34	49,42	49,89	49,57		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,507	Inversed
	Household spending on final consumption (% of GDP)	61,57	61,47	61,52	60,94	60,04	58,44	58,50	58,52		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	-0,19	Inversed
	Household spending on final consumption (% of GDP)	63,03	62,63	63,15	60,98	61,66	61,81	62,69	62,57		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	-0,52	Inversed
	Household spending on final consumption (% of GDP)	57,85	57,17	57,21	56,38	55,66	54,81	54,54	54,70		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	-0,12	Inversed
	Household spending on final consumption (% of GDP)	63,02	66,07	67,65	71,46	70,63	66,23	64,53	65,17		

Table A.6: The results of determining the correlation between the indicators “life satisfaction” and “government expenditure on education”

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10		
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,219	Direct
	Government expenditure on education (% of GDP)	3,86	3,56	3,5	4,08	3,96	3,7	3,87	3,87		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,517	Direct
	Government expenditure on education (% of GDP)	4,06	4,27	4,25	4,09	3,99	5,79	5,59	4,38		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,4	Direct
	Government expenditure on education (% of GDP)	4,77	4,6	4,17	4,2	4,63	4,57	4,71	4,68		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,228	Inversed
	Government expenditure on education (% of GDP)	5,07	4,82	4,81	4,94	4,91	4,82	4,64	4,89		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,85	Direct
	Government expenditure on education (% of GDP)	3,5	3,06	2,95	3,02	3,13	3,11	3,31	3,43		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,84	Direct
	Government expenditure on education (% of GDP)	4,12	3,96	3,91	4,09	4,23	4,64	3,9	3,99		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	0,74	Direct
	Government expenditure on education (% of GDP)	7,32	6,16	6,69	6,67	5,87	5,56	5,01	5,41		

Table A.7: The results of determining the correlation between the indicators “life satisfaction” and “government health expenditure”

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10		
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,79	Direct
	Government health expenditure (% of GDP)	7,11	7,13	7,59	7,85	8,51	8,2	8,23	8,3		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,588	Direct
	Government health expenditure (% of GDP)	6,93	6,98	7,03	7,81	7,65	7,24	7,15	7,05		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	-0,4	Inversed
	Government health expenditure (% of GDP)	7,52	7,54	7,47	7,26	7,09	7,12	7,36	7,29		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,602	Inversed
	Government health expenditure (% of GDP)	2,11	2,29	2,67	3	3,61	2,51	1,98	2,25		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,803	Direct
	Government health expenditure (% of GDP)	1,79	1,6	1,75	2,08	2,42	3,1	3,08	3,08		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,79	Direct
	Government health expenditure (% of GDP)	5,55	5,39	5,34	5,49	5,63	6,71	6,06	6,01		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	0,81	Direct
	Government health expenditure (% of GDP)	10,52	8,92	7,89	7,22	6,7	6,33	6,17	6,01		

Table A.8: The results of determining the correlation between the indicators “life satisfaction” and “research and development expenditure”

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10	11	12
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,81	Direct
	Research and development expenditure (% of GDP)	0,56	0,53	0,6	0,63	0,79	0,96	0,78	0,77		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,434	Direct
	Research and development expenditure (% of GDP)	1,34	1,56	1,78	1,9	1,97	1,92	1,68	1,79		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,255	Direct
	Research and development expenditure (% of GDP)	1,14	1,19	1,26	1,39	1,35	1,36	1,21	1,35		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	0,695	Direct
	Research and development expenditure (% of GDP)	0,72	0,75	0,88	0,87	0,94	1	0,97	1,04		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,308	Direct
	Research and development expenditure (% of GDP)	0,46	0,5	0,48	0,39	0,38	0,49	0,48	0,5		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,529	Direct
	Research and development expenditure (% of GDP)	0,62	0,66	0,8	0,82	0,88	1,17	0,79	0,88		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	0,67	Direct
	Research and development expenditure (% of GDP)	0,83	0,74	0,75	0,76	0,65	0,61	0,48	0,45		

Table A.9: The results of determining the correlation between the indicators “life satisfaction” and “life expectancy at birth”

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10	11	12
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,576	Direct
	Life expectancy at birth, total (years)	73,51	74,16	74,31	74,86	74,47	74,61	74,81	74,81		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,898	Direct
	Life expectancy at birth, total (years)	77,42	77,87	78,08	78,18	78,82	78,58	79,03	79,48		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,819	Direct
	Life expectancy at birth, total (years)	74,21	74,86	75,06	75,57	75,76	75,57	76,06	76,06		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	0,593	Direct
	Life expectancy at birth, total (years)	76,25	76,7	76,75	77	77,6	77,45	77,85	77,85		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,831	Direct
	Life expectancy at birth, total (years)	73,46	74,41	74,41	75,06	74,91	75,01	75,31	75,31		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,505	Direct
	Life expectancy at birth, total (years)	75,11	75,96	76,11	76,41	76,81	76,56	77,17	77,17		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	-0,781	Inversed
	Life expectancy at birth, total (years)	70,27	70,81	70,94	71,16	71,19	71,19	71,48	71,78		

Table A.10: The results of determining the correlation between the indicators “life satisfaction” and “public expenditures on the environmental protection”

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10		
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,0278	Direct
	Public expenditures on the environmental protection (% GDP)	0,7	0,7	0,7	0,9	0,7	0,8	0,6	0,7		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	-0,625	Inversed
	Public expenditures on the environmental protection (% GDP)	1,0	1,3	1,3	1,0	1,0	1,1	0,7	0,8		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	-0,252	Inversed
	Public expenditures on the environmental protection (% GDP)	0,6	0,7	0,7	0,9	1,2	1,2	0,5	0,4		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,578	Inversed
	Public expenditures on the environmental protection (% GDP)	0,7	0,7	0,6	0,6	0,6	0,6	0,4	0,4		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	-0,591	Inversed
	Public expenditures on the environmental protection (% GDP)	0,8	0,9	0,8	0,8	0,8	0,8	0,6	0,5		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,0784	Direct
	Public expenditures on the environmental protection (% GDP)	0,9	0,8	0,8	0,8	0,8	1,0	0,7	0,7		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	0,0397	Direct
	Public expenditures on the environmental protection (% GDP)	0,1	0,1	0,1	0,1	0,1	0,1	0,2	0,1		

Table A.11: The results of determining the correlation between the indicators “life satisfaction” and “air and GHG emissions - carbon dioxide (CO2)”, tons per capita

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10		
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	-0,0488	Inversed
	Air and GHG emissions - Carbon dioxide (CO2), tons per capita	6,0	6,7	6,1	5,4	5,8	6,1	5,7	6,1		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	-0,5855	Inversed
	Air and GHG emissions - Carbon dioxide (CO2), tons per capita	10,7	10,4	10,1	9,6	9,3	9,4	9,6	9,6		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,2061	Direct
	Air and GHG emissions - Carbon dioxide (CO2), tons per capita	4,7	4,6	4,3	4,1	4,1	4,3	4,5	4,7		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	0,19278	Direct
	Air and GHG emissions - Carbon dioxide (CO2), tons per capita	8,0	7,9	7,7	7,6	7,3	7,4	7,6	8,0		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	-0,4636	Inversed
	Air and GHG emissions - Carbon dioxide (CO2), tons per capita	3,7	4,0	3,9	3,5	3,4	3,5	3,5	3,6		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	-0,25303	Inversed
	Air and GHG emissions - Carbon dioxide (CO2), tons per capita	6,4	6,1	5,8	5,9	5,4	5,4	5,6	5,9		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	0,81439	Direct
	Air and GHG emissions - Carbon dioxide (CO2), tons per capita	5,8	6,1	6,0	5,8	5,2	4,2	4,4	3,8		

Table A.12: The results of determining the correlation between the indicators “life satisfaction” and “ air pollution exposure, exposure to PM2.5” micrograms per cubic meter

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10		
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	-0,8571	Inversed
	Air pollution exposure, Exposure to PM2.5, micrograms per cubic meter	0,7	0,7	0,7	0,9	0,7	0,8	0,6	0,7		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	-0,8982	Inversed
	Air pollution exposure, Exposure to PM2.5, micrograms per cubic meter	1,0	1,3	1,3	1,0	1,0	1,1	0,7	0,8		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	-0,7711	Inversed
	Air pollution exposure, Exposure to PM2.5, micrograms per cubic meter	0,6	0,7	0,7	0,9	1,2	1,2	0,5	0,4		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,6108	Inversed
	Air pollution exposure, Exposure to PM2.5, micrograms per cubic meter	0,7	0,7	0,6	0,6	0,6	0,6	0,4	0,4		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	-0,9222	Inversed
	Air pollution exposure, Exposure to PM2.5, micrograms per cubic meter	0,8	0,9	0,8	0,8	0,8	0,8	0,6	0,5		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,5302	Direct
	Air pollution exposure, Exposure to PM2.5, micrograms per cubic meter	0,9	0,8	0,8	0,8	0,8	1,0	0,7	0,7		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	0,8144	Direct
	Air pollution exposure, Exposure to PM2.5	0,1	0,1	0,1	0,1	0,1	0,1	0,2	0,1		

Table A.13: The results of determining the relationship between the indicators “life satisfaction” and “forest area”, part of the total territory of the country

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10	11	12
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,0833	Direct
	Forest area, part of the total territory of the country	0,34	0,35	0,35	0,35	0,35	0,35	0,35	0,34		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,362	Direct
	Forest area, part of the total territory of the country	0,34	0,34	0,34	0,34	0,35	0,35	0,35	0,34		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,417	Direct
	Forest area, part of the total territory of the country	0,23	0,23	0,23	0,23	0,23	0,23	0,23	0,23		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,197	Inversed
	Forest area, part of the total territory of the country	0,30	0,31	0,31	0,31	0,31	0,31	0,31	0,30		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,366	Direct
	Forest area, part of the total territory of the country	0,28	0,29	0,29	0,29	0,30	0,30	0,30	0,28		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,417	Direct
	Forest area, part of the total territory of the country	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	-0,0119	Inversed
	Forest area, part of the total territory of the country	0,16	0,17	0,17	0,17	0,17	0,17	0,17	0,16		

Table A.14: The results of determining the correlation between the indicators “life satisfaction” and “military expenditure”

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10		
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	-0,709	Inversed
	Military expenditure (% of GDP)	1,77	1,44	1,50	1,62	1,47	1,32	1,42	1,42		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	-0,669	Inversed
	Military expenditure (% of GDP)	1,20	1,09	1,07	1,03	0,97	0,95	1,00	0,97		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	-0,0258	Inversed
	Military expenditure (% of GDP)	1,03	1,05	1,03	0,95	0,86	0,92	1,02	1,05		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	0,706	Direct
	Military expenditure (% of GDP)	1,83	1,79	1,80	1,77	1,90	2,14	1,94	1,90		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,81	Direct
	Military expenditure (% of GDP)	1,26	1,30	1,23	1,28	1,35	1,45	1,40	1,72		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,4	Direct
	Military expenditure (% of GDP)	1,27	1,08	1,09	0,98	1,00	1,12	1,12	1,10		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	-0,9	Inversed
	Military expenditure (% of GDP)	2,74	2,26	2,35	2,39	3,02	3,97	3,67	3,24		

Table A.15: The results of determining the correlation between the indicators “life satisfaction” and “public expenditures on public order and safety”

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10		
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,386	Direct
	Public expenditures on public order and safety (% GDP)	2,50	2,30	2,20	2,60	2,70	2,80	2,40	2,50		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	-0,217	Inversed
	Public expenditures on public order and safety (% GDP)	2,00	1,80	1,70	1,70	1,70	1,80	1,70	1,80		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,799	Direct
	Public expenditures on public order and safety (% GDP)	1,80	1,90	1,90	2,00	1,90	2,00	2,30	2,40		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,381	Inversed
	Public expenditures on public order and safety (% GDP)	2,40	2,30	2,30	2,20	2,20	2,20	2,20	2,10		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	-0,678	Inversed
	Public expenditures on public order and safety (% GDP)	2,40	2,20	2,20	2,20	2,10	2,30	2,00	2,00		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,233	Direct
	Public expenditures on public order and safety (% GDP)	2,20	2,20	2,10	2,20	2,20	2,40	2,30	2,10		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	-0,81	Inversed
	Public expenditures on public order and safety (% GDP)	3,50	3,70	4,30	4,40	6,50	7,30	7,40	7,50		

Table A.16: The results of determining the correlation between the indicators "life satisfaction" and "traffic accidents per 1000 population"

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10	11	12
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,758	Direct
	Traffic accidents per 1000 population	0,89	0,90	0,92	0,97	0,97	1,01	1,04	0,97		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,617	Direct
	Traffic accidents per 1000 population	1,88	1,95	1,95	1,93	2,00	2,04	2,02	2,01		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	0,826	Direct
	Traffic accidents per 1000 population	1,63	1,59	1,53	1,59	1,61	1,66	1,69	1,68		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	-0,745	Inversed
	Traffic accidents per 1000 population	1,02	1,05	0,97	0,94	0,92	0,87	0,89	0,86		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,74	Direct
	Traffic accidents per 1000 population	1,28	1,32	1,34	1,24	1,27	1,46	1,56	1,59		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,35	Direct
	Traffic accidents per 1000 population	1,22	1,07	0,99	0,94	0,99	1,01	1,03	1,04		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	0,945	Direct
	Traffic accidents per 1000 population	0,70	0,68	0,67	0,67	0,57	0,56	0,60	0,61		

Table A.17: The results of determining the correlation between the indicators “life satisfaction” and “corruption perception index”

State	Indicators	2010	2011	2012	2013	2014	2015	2016	2017	Correlation coefficient	Type of relationship
1	2	3	4	5	6	7	8	9	10		
BG	Life satisfaction, point	3,91	3,88	4,22	3,99	4,44	4,87	4,84	5,10	0,616	Direct
	Corruption Perception Index	40,00	41,00	41,00	41,00	43,00	41,00	41,00	43,00		
CZ	Life satisfaction, point	6,25	6,33	6,33	6,70	6,48	6,61	6,74	6,79	0,712	Direct
	Corruption Perception Index	47,00	49,00	49,00	48,00	51,00	56,00	55,00	57,00		
HU	Life satisfaction, point	4,73	4,92	4,68	4,91	5,18	5,34	5,45	6,07	-0,764	Inversed
	Corruption Perception Index	53,00	55,00	55,00	54,00	54,00	51,00	48,00	45,00		
PL	Life satisfaction, point	5,89	5,65	5,88	5,75	5,75	6,01	6,16	6,20	0,449	Direct
	Corruption Perception Index	57,00	57,00	58,00	60,00	61,00	63,00	62,00	60,00		
RO	Life satisfaction, point	4,91	5,02	5,17	5,08	5,73	5,78	5,97	6,09	0,864	Direct
	Corruption Perception Index	43,00	43,00	44,00	43,00	43,00	46,00	48,00	48,00		
SK	Life satisfaction, point	6,05	5,95	5,91	5,93	6,14	6,16	5,99	6,37	0,574	Direct
	Corruption Perception Index	46,00	45,00	46,00	47,00	50,00	51,00	51,00	50,00		
UA	Life satisfaction, point	5,06	5,08	5,03	4,71	4,30	3,96	4,03	4,31	-0,704	Inversed
	Corruption Perception Index	24,00	25,00	26,00	25,00	26,00	27,00	29,00	30,00		

APPENDIX B. Standardization and calculation of an aggregated indicator of QoL, not determining the baseline indicator significance

Table B.1: The results of standardization of baseline indicators and the calculation of the QoL aggregated indicator not determining the baseline indicator significance for 2010

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,36	0,24	0,74	0,18	0,09	0,61	0,45	0,11	0,36	0,60	0,80	0,50	1,52	1,26	0,36	1,90	5,04
CZ	1,00	1,00	0,93	0,59	0,15	0,59	1,00	1,00	0,65	0,90	0,00	0,70	3,52	2,74	0,65	1,60	8,51
HU	0,70	0,84	0,00	0,95	0,33	0,66	0,55	0,77	0,78	1,00	0,20	0,90	2,49	2,31	0,78	2,10	7,68
PL	0,67	0,83	0,93	1,00	0,41	0,04	0,84	0,30	0,00	0,50	0,70	1,00	3,43	1,59	0,00	2,20	7,22
RO	0,47	0,52	1,00	0,03	0,00	0,00	0,45	0,00	1,00	0,90	0,50	0,60	2,02	0,45	1,00	2,00	5,47
SK	0,87	0,99	0,23	0,61	0,16	0,43	0,68	0,18	0,53	0,90	0,60	0,70	2,70	1,45	0,53	2,20	6,88
UA	0,00	0,00	0,37	0,00	1,00	1,00	0,00	0,42	0,32	0,00	1,00	0,00	0,37	2,42	0,32	1,00	4,11

Table B.2: The results of standardization of baseline indicators and the calculation of the QoL aggregated indicator not determining the baseline indicator significance for 2011

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,36	0,11	0,57	0,23	0,16	0,76	0,47	0,03	0,09	0,67	0,85	0,50	1,27	1,42	0,09	2,02	4,80
CZ	1,00	1,00	1,00	0,67	0,39	0,73	1,00	1,00	0,74	0,97	0,00	0,75	3,67	3,12	0,74	1,72	9,25
HU	0,71	0,81	0,00	0,25	0,50	0,81	0,57	0,65	0,80	1,00	0,31	0,94	1,77	2,53	0,80	2,25	7,35
PL	0,71	0,80	0,89	1,00	0,57	0,09	0,47	0,24	0,00	0,39	0,69	1,00	3,40	1,37	0,00	2,08	6,85
RO	0,47	0,37	0,98	0,06	0,00	0,00	0,51	0,00	1,00	0,79	0,54	0,56	1,88	0,51	1,00	1,89	5,28
SK	0,87	0,97	0,22	0,78	0,29	0,52	0,73	0,15	0,51	0,97	0,69	0,63	2,84	1,69	0,51	2,29	7,33
UA	0,00	0,00	0,39	0,00	1,00	1,00	0,00	0,23	0,15	0,00	1,00	0,00	0,39	2,23	0,15	1,00	3,77

Table B.3: The results of standardization of baseline indicators and the calculation of the QoL aggregated indicator not determining the baseline indicator significance for 2012

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,38	0,18	0,52	0,22	0,15	0,95	0,47	0,09	0,12	0,65	0,85	0,47	1,30	1,66	0,12	1,97	5,05
CZ	1,00	1,00	1,00	0,58	0,35	0,86	1,00	1,00	0,71	0,97	0,00	0,72	3,58	3,21	0,71	1,69	9,19
HU	0,71	0,76	0,00	0,22	0,33	0,93	0,58	0,60	0,85	1,00	0,38	0,91	1,69	2,44	0,85	2,29	7,27
PL	0,75	0,78	0,86	1,00	0,50	0,15	0,81	0,31	0,00	0,42	0,77	1,00	3,39	1,77	0,00	2,19	7,35
RO	0,51	0,30	1,00	0,06	0,00	0,00	0,49	0,00	1,00	0,85	0,54	0,56	1,87	0,49	1,00	1,95	5,31
SK	0,90	0,95	0,19	0,71	0,26	0,58	0,72	0,25	0,54	0,96	0,77	0,63	2,75	1,81	0,54	2,36	7,46
UA	0,00	0,00	0,43	0,00	1,00	1,00	0,00	0,21	0,18	0,00	1,00	0,00	0,43	2,21	0,18	1,00	3,82

Table B.4: The results of standardization of baseline indicators and the calculation of the QoL aggregated indicator not determining the baseline indicator significance for 2013

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,36	0,22	0,38	0,39	0,29	1,00	0,53	0,16	0,17	0,53	1,00	0,46	1,35	1,98	0,17	1,99	5,49
CZ	1,00	1,00	1,00	0,79	0,29	0,99	1,00	1,00	0,66	0,95	0,00	0,66	3,79	3,28	0,66	1,61	9,34
HU	0,73	0,77	0,00	0,29	0,32	0,90	0,63	0,66	0,78	1,00	0,16	0,83	1,79	2,51	0,78	1,99	7,07
PL	0,74	0,81	0,80	0,69	0,53	0,16	0,83	0,32	0,00	0,43	0,53	1,00	3,04	1,84	0,00	1,96	6,84
RO	0,51	0,38	0,97	0,15	0,00	0,00	0,56	0,00	1,00	0,77	0,37	0,51	2,01	0,56	1,00	1,65	5,22
SK	0,88	0,98	0,01	1,00	0,29	0,59	0,75	0,28	0,47	0,97	0,53	0,63	2,87	1,91	0,47	2,13	7,38
UA	0,00	0,00	0,44	0,00	1,00	0,89	0,00	0,25	0,17	0,00	0,63	0,00	0,44	2,14	0,17	0,63	3,38

Table B.5: The results of standardization of baseline indicators and the calculation of the QoL aggregated indicator not determining the baseline indicator significance for 2014

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,37	0,28	0,36	0,24	0,30	1,00	0,43	0,26	0,08	0,72	0,71	0,49	1,25	1,99	0,08	1,92	5,24
CZ	1,00	1,00	1,00	0,53	0,31	0,86	1,00	1,00	0,66	0,95	0,00	0,71	3,53	3,17	0,66	1,66	9,02
HU	0,72	0,73	0,29	0,20	0,55	0,77	0,60	0,61	0,81	1,00	0,29	0,80	1,94	2,53	0,81	2,09	7,37
PL	0,72	0,80	0,83	1,00	0,65	0,20	0,84	0,36	0,00	0,52	0,79	1,00	3,35	2,05	0,00	2,31	7,71
RO	0,51	0,27	0,98	0,08	0,00	0,00	0,49	0,00	1,00	0,78	0,50	0,49	1,84	0,49	1,00	1,77	5,10
SK	0,86	0,98	0,00	0,68	0,40	0,53	0,74	0,31	0,51	0,94	0,71	0,69	2,52	1,98	0,51	2,34	7,35
UA	0,00	0,00	0,02	0,00	1,00	0,70	0,00	0,17	0,20	0,00	1,00	0,00	0,02	1,87	0,20	1,00	3,09

Table B.6: The results of standardization of baseline indicators and the calculation of the QoL aggregated indicator not determining the baseline indicator significance for 2015

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,40	0,31	0,52	0,45	0,22	1,00	0,46	0,33	0,14	0,87	0,71	0,39	1,68	2,01	0,14	1,97	5,80
CZ	1,00	1,00	1,00	0,88	1,00	0,83	1,00	1,00	0,70	0,99	0,00	0,81	3,88	3,83	0,70	1,80	10,21
HU	0,73	0,73	0,32	0,30	0,54	0,81	0,59	0,61	0,73	1,00	0,21	0,67	2,08	2,55	0,73	1,88	7,24
PL	0,73	0,83	0,91	0,66	0,64	0,00	0,85	0,36	0,00	0,60	0,79	1,00	3,13	1,85	0,00	2,39	7,37
RO	0,53	0,41	0,91	0,19	0,00	0,10	0,52	0,00	1,00	0,83	0,36	0,53	2,04	0,62	1,00	1,72	5,38
SK	0,85	0,99	0,21	1,00	0,57	0,74	0,73	0,18	0,49	0,93	0,71	0,67	3,05	2,22	0,49	2,31	8,07
UA	0,00	0,00	0,00	0,00	0,91	0,67	0,00	0,08	0,15	0,00	1,00	0,00	0,00	1,66	0,15	1,00	2,81

Table B.7: The results of standardization of baseline indicators and the calculation of the QoL aggregated indicator not determining the baseline indicator significance for 2016

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,42	0,28	0,64	0,47	0,03	1,00	0,44	0,33	0,12	0,84	0,71	0,36	1,81	1,80	0,12	1,91	5,64
CZ	1,00	1,00	1,00	0,85	1,00	0,83	1,00	1,00	0,75	1,00	0,00	0,79	3,85	3,83	0,75	1,79	10,22
HU	0,70	0,73	0,56	0,41	0,51	0,86	0,61	0,61	0,77	0,99	0,21	0,58	2,40	2,59	0,77	1,78	7,54
PL	0,72	0,84	0,94	0,62	0,47	0,00	0,84	0,36	0,00	0,65	0,79	1,00	3,12	1,67	0,00	2,44	7,23
RO	0,58	0,43	0,83	0,22	0,00	0,18	0,51	0,00	1,00	0,85	0,29	0,58	2,06	0,69	1,00	1,72	5,47
SK	0,84	0,98	0,47	1,00	0,05	0,65	0,75	0,48	0,48	0,96	0,71	0,67	3,29	1,93	0,48	2,34	8,04
UA	0,00	0,00	0,00	0,00	0,67	0,67	0,00	0,08	0,04	0,00	1,00	0,00	0,00	1,42	0,04	1,00	2,46

Table B.8: The results of standardization of baseline indicators and the calculation of the QoL aggregated indicator not determining the baseline indicator significance for 2017

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,42	0,31	0,72	0,50	0,00	1,00	0,39	0,31	0,10	0,80	0,71	0,43	1,95	1,70	0,10	1,94	5,69
CZ	1,00	1,00	1,00	0,90	0,33	0,79	1,00	1,00	0,75	1,00	0,00	0,90	3,90	3,12	0,75	1,90	9,67
HU	0,70	0,77	0,63	0,41	0,53	0,83	0,56	0,77	0,77	0,96	0,21	0,50	2,51	2,69	0,77	1,67	7,64
PL	0,72	0,85	0,94	0,69	0,66	0,00	0,79	0,44	0,00	0,59	0,79	1,00	3,20	1,89	0,00	2,38	7,47
RO	0,61	0,52	0,88	0,25	0,04	0,14	0,46	0,04	1,00	0,67	0,29	0,60	2,26	0,68	1,00	1,56	5,50
SK	0,80	0,96	0,52	1,00	0,08	0,62	0,70	0,32	0,48	0,94	0,71	0,67	3,28	1,72	0,48	2,32	7,80
UA	0,00	0,00	0,00	0,00	1,00	0,62	0,00	0,00	0,04	0,00	1,00	0,00	0,00	1,62	0,04	1,00	2,66

APPENDIX C. Standardization and calculation of an aggregated indicator of QoL, where significance of the baseline indicators takes place (based on the Ukrainian expert's rating)

Table C.1: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2010

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,03	0,08	0,01	0,01	0,09	0,06	0,01	0,04	0,01	0,02	0,02	0,17	0,16	0,04	0,04	0,42
CZ	0,14	0,14	0,10	0,02	0,01	0,08	0,14	0,05	0,08	0,02	0,00	0,02	0,40	0,28	0,08	0,04	0,80
HU	0,10	0,12	0,00	0,03	0,02	0,09	0,08	0,04	0,09	0,02	0,00	0,03	0,24	0,23	0,09	0,05	0,62
PL	0,09	0,12	0,10	0,03	0,02	0,01	0,12	0,02	0,00	0,01	0,01	0,03	0,34	0,16	0,00	0,05	0,56
RO	0,07	0,07	0,11	0,00	0,00	0,00	0,06	0,00	0,12	0,02	0,01	0,02	0,25	0,06	0,12	0,05	0,48
SK	0,12	0,14	0,03	0,02	0,01	0,06	0,10	0,01	0,06	0,02	0,01	0,02	0,30	0,17	0,06	0,05	0,59
UA	0,00	0,00	0,04	0,00	0,06	0,14	0,00	0,02	0,04	0,00	0,02	0,00	0,04	0,22	0,04	0,02	0,32

Table C.2: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2011

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,02	0,06	0,01	0,01	0,11	0,07	0,00	0,01	0,01	0,02	0,02	0,14	0,18	0,01	0,05	0,37
CZ	0,14	0,14	0,11	0,02	0,02	0,10	0,14	0,05	0,09	0,02	0,00	0,02	0,41	0,32	0,09	0,04	0,86
HU	0,10	0,11	0,00	0,01	0,03	0,11	0,08	0,03	0,10	0,02	0,01	0,03	0,22	0,26	0,10	0,05	0,63
PL	0,10	0,11	0,10	0,03	0,03	0,01	0,07	0,01	0,00	0,01	0,01	0,03	0,34	0,12	0,00	0,05	0,52
RO	0,07	0,05	0,11	0,00	0,00	0,00	0,07	0,00	0,12	0,02	0,01	0,02	0,23	0,07	0,12	0,04	0,46
SK	0,12	0,14	0,02	0,02	0,02	0,07	0,10	0,01	0,06	0,02	0,01	0,02	0,31	0,20	0,06	0,05	0,62
UA	0,00	0,00	0,04	0,00	0,06	0,14	0,00	0,01	0,02	0,00	0,02	0,00	0,04	0,21	0,02	0,02	0,29

Table C.3: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2012

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,03	0,06	0,01	0,01	0,13	0,07	0,00	0,01	0,01	0,02	0,01	0,14	0,21	0,01	0,04	0,41
CZ	0,14	0,14	0,11	0,02	0,02	0,12	0,14	0,05	0,09	0,02	0,00	0,02	0,41	0,33	0,09	0,04	0,87
HU	0,10	0,11	0,00	0,01	0,02	0,13	0,08	0,03	0,10	0,02	0,01	0,03	0,21	0,26	0,10	0,05	0,63
PL	0,11	0,11	0,09	0,03	0,03	0,02	0,11	0,02	0,00	0,01	0,02	0,03	0,34	0,18	0,00	0,05	0,57
RO	0,07	0,04	0,11	0,00	0,00	0,00	0,07	0,00	0,12	0,02	0,01	0,02	0,23	0,07	0,12	0,04	0,46
SK	0,13	0,13	0,02	0,02	0,02	0,08	0,10	0,01	0,06	0,02	0,02	0,02	0,30	0,21	0,06	0,05	0,63
UA	0,00	0,00	0,05	0,00	0,06	0,14	0,00	0,01	0,02	0,00	0,02	0,00	0,05	0,21	0,02	0,02	0,30

Table C.4: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2013

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension arrangements*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,03	0,04	0,01	0,02	0,14	0,07	0,01	0,02	0,01	0,02	0,01	0,13	0,24	0,02	0,04	0,44
CZ	0,14	0,14	0,11	0,02	0,02	0,14	0,14	0,05	0,08	0,02	0,00	0,02	0,41	0,35	0,08	0,04	0,88
HU	0,10	0,11	0,00	0,01	0,02	0,13	0,09	0,03	0,09	0,02	0,00	0,02	0,22	0,27	0,09	0,05	0,63
PL	0,10	0,11	0,09	0,02	0,03	0,02	0,12	0,02	0,00	0,01	0,01	0,03	0,33	0,19	0,00	0,05	0,56
RO	0,07	0,05	0,11	0,00	0,00	0,00	0,08	0,00	0,12	0,02	0,01	0,02	0,24	0,08	0,12	0,04	0,47
SK	0,12	0,14	0,00	0,03	0,02	0,08	0,11	0,01	0,06	0,02	0,01	0,02	0,29	0,22	0,06	0,05	0,62
UA	0,00	0,00	0,05	0,00	0,06	0,12	0,00	0,01	0,02	0,00	0,01	0,00	0,05	0,20	0,02	0,01	0,28

Table C.5: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2014

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,04	0,04	0,01	0,02	0,14	0,06	0,01	0,01	0,01	0,01	0,01	0,14	0,23	0,01	0,04	0,42
CZ	0,14	0,14	0,11	0,02	0,02	0,12	0,14	0,05	0,08	0,02	0,00	0,02	0,41	0,33	0,08	0,04	0,85
HU	0,10	0,10	0,03	0,01	0,03	0,11	0,08	0,03	0,10	0,02	0,01	0,02	0,24	0,26	0,10	0,05	0,64
PL	0,10	0,11	0,09	0,03	0,04	0,03	0,12	0,02	0,00	0,01	0,02	0,03	0,33	0,20	0,00	0,06	0,59
RO	0,07	0,04	0,11	0,00	0,00	0,00	0,07	0,00	0,12	0,02	0,01	0,01	0,22	0,07	0,12	0,04	0,45
SK	0,12	0,14	0,00	0,02	0,02	0,07	0,10	0,02	0,06	0,02	0,01	0,02	0,28	0,22	0,06	0,05	0,61
UA	0,00	0,00	0,00	0,00	0,06	0,10	0,00	0,01	0,02	0,00	0,02	0,00	0,00	0,17	0,02	0,02	0,21

Table C.6: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2015

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,06	0,04	0,06	0,01	0,01	0,14	0,06	0,02	0,02	0,02	0,01	0,01	0,17	0,23	0,02	0,04	0,46
CZ	0,14	0,14	0,11	0,03	0,06	0,12	0,14	0,05	0,08	0,02	0,00	0,02	0,42	0,37	0,08	0,04	0,91
HU	0,10	0,10	0,04	0,01	0,03	0,11	0,08	0,03	0,09	0,02	0,00	0,02	0,25	0,26	0,09	0,04	0,64
PL	0,10	0,12	0,10	0,02	0,04	0,00	0,12	0,02	0,00	0,01	0,02	0,03	0,34	0,18	0,00	0,06	0,57
RO	0,07	0,06	0,10	0,01	0,00	0,01	0,07	0,00	0,12	0,02	0,01	0,02	0,24	0,09	0,12	0,04	0,48
SK	0,12	0,14	0,02	0,03	0,03	0,10	0,10	0,01	0,06	0,02	0,01	0,02	0,31	0,25	0,06	0,05	0,67
UA	0,00	0,00	0,00	0,00	0,05	0,09	0,00	0,00	0,02	0,00	0,02	0,00	0,00	0,15	0,02	0,02	0,19

Table C.7: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2016

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,06	0,04	0,07	0,01	0,00	0,14	0,06	0,02	0,01	0,02	0,01	0,01	0,18	0,22	0,01	0,04	0,46
CZ	0,14	0,14	0,11	0,03	0,06	0,12	0,14	0,05	0,09	0,02	0,00	0,02	0,42	0,37	0,09	0,04	0,92
HU	0,10	0,10	0,06	0,01	0,03	0,12	0,09	0,03	0,09	0,02	0,00	0,02	0,27	0,27	0,09	0,04	0,67
PL	0,10	0,12	0,10	0,02	0,03	0,00	0,12	0,02	0,00	0,01	0,02	0,03	0,34	0,16	0,00	0,06	0,56
RO	0,08	0,06	0,09	0,01	0,00	0,03	0,07	0,00	0,12	0,02	0,01	0,02	0,24	0,10	0,12	0,04	0,50
SK	0,12	0,14	0,05	0,03	0,00	0,09	0,11	0,02	0,06	0,02	0,01	0,02	0,34	0,22	0,06	0,05	0,67
UA	0,00	0,00	0,00	0,00	0,04	0,09	0,00	0,00	0,00	0,00	0,02	0,00	0,00	0,14	0,00	0,02	0,16

Table C.8: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2017

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,06	0,04	0,08	0,02	0,00	0,14	0,06	0,02	0,01	0,02	0,01	0,01	0,20	0,21	0,01	0,04	0,46
CZ	0,14	0,14	0,11	0,03	0,02	0,11	0,14	0,05	0,09	0,02	0,00	0,03	0,42	0,32	0,09	0,05	0,87
HU	0,10	0,11	0,07	0,01	0,03	0,12	0,08	0,04	0,09	0,02	0,00	0,02	0,29	0,26	0,09	0,04	0,68
PL	0,10	0,12	0,10	0,02	0,04	0,00	0,11	0,02	0,00	0,01	0,02	0,03	0,34	0,17	0,00	0,06	0,57
RO	0,09	0,07	0,10	0,01	0,00	0,02	0,06	0,00	0,12	0,01	0,01	0,02	0,26	0,09	0,12	0,04	0,51
SK	0,11	0,13	0,06	0,03	0,00	0,09	0,10	0,02	0,06	0,02	0,01	0,02	0,33	0,21	0,06	0,05	0,65
UA	0,00	0,00	0,00	0,00	0,06	0,09	0,00	0,00	0,00	0,00	0,02	0,00	0,00	0,15	0,00	0,02	0,17

APPENDIX D. Standardization and calculation of an aggregated indicator of QoL, where significance of the baseline indicators takes place (based on the Czech Republic expert's rating)

Table D.1: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2010

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,04	0,09	0,01	0,01	0,07	0,07	0,01	0,01	0,01	0,02	0,02	0,19	0,16	0,01	0,04	0,40
CZ	0,14	0,17	0,11	0,04	0,01	0,07	0,15	0,06	0,02	0,02	0,00	0,02	0,46	0,29	0,02	0,04	0,81
HU	0,10	0,14	0,00	0,06	0,03	0,08	0,08	0,05	0,02	0,02	0,00	0,03	0,30	0,24	0,02	0,05	0,61
PL	0,09	0,14	0,11	0,06	0,04	0,00	0,13	0,02	0,00	0,01	0,01	0,03	0,41	0,19	0,00	0,05	0,65
RO	0,07	0,09	0,12	0,00	0,00	0,00	0,07	0,00	0,03	0,02	0,01	0,02	0,28	0,07	0,03	0,05	0,42
SK	0,12	0,17	0,03	0,04	0,01	0,05	0,10	0,01	0,02	0,02	0,01	0,02	0,35	0,18	0,02	0,05	0,60
UA	0,00	0,00	0,04	0,00	0,09	0,12	0,00	0,03	0,01	0,00	0,02	0,00	0,04	0,24	0,01	0,02	0,31

Table D.2: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2011

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,02	0,07	0,01	0,01	0,09	0,07	0,00	0,00	0,01	0,02	0,02	0,15	0,18	0,00	0,05	0,38
CZ	0,14	0,17	0,12	0,04	0,04	0,09	0,15	0,06	0,02	0,02	0,00	0,02	0,47	0,33	0,02	0,04	0,87
HU	0,10	0,14	0,00	0,02	0,05	0,10	0,09	0,04	0,02	0,02	0,01	0,03	0,25	0,27	0,02	0,05	0,60
PL	0,10	0,14	0,11	0,06	0,05	0,01	0,07	0,01	0,00	0,01	0,01	0,03	0,40	0,15	0,00	0,05	0,60
RO	0,07	0,06	0,12	0,00	0,00	0,00	0,08	0,00	0,03	0,02	0,01	0,02	0,25	0,08	0,03	0,04	0,40
SK	0,12	0,16	0,03	0,05	0,03	0,06	0,11	0,01	0,02	0,02	0,01	0,02	0,36	0,21	0,02	0,05	0,63
UA	0,00	0,00	0,05	0,00	0,09	0,12	0,00	0,01	0,00	0,00	0,02	0,00	0,05	0,22	0,00	0,02	0,30

Table D.3: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2012

Country	*Baseline indicators*											*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,03	0,06	0,01	0,01	0,11	0,07	0,01	0,00	0,01	0,02	0,01	0,16	0,20	0,00	0,04	0,41
CZ	0,14	0,17	0,12	0,03	0,03	0,10	0,15	0,06	0,02	0,02	0,00	0,02	0,46	0,34	0,02	0,04	0,87
HU	0,10	0,13	0,00	0,01	0,03	0,11	0,09	0,04	0,03	0,02	0,01	0,03	0,24	0,26	0,03	0,05	0,59
PL	0,11	0,13	0,10	0,06	0,05	0,02	0,12	0,02	0,00	0,01	0,02	0,03	0,40	0,20	0,00	0,05	0,66
RO	0,07	0,05	0,12	0,00	0,00	0,00	0,07	0,00	0,03	0,02	0,01	0,02	0,25	0,07	0,03	0,04	0,39
SK	0,13	0,16	0,02	0,04	0,02	0,07	0,11	0,02	0,02	0,02	0,02	0,02	0,35	0,22	0,02	0,05	0,64
UA	0,00	0,00	0,05	0,00	0,09	0,12	0,00	0,01	0,01	0,00	0,02	0,00	0,05	0,22	0,01	0,02	0,30

Table D.4: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2013

Country	*Baseline indicators*											*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,04	0,05	0,02	0,03	0,12	0,08	0,01	0,01	0,01	0,02	0,01	0,16	0,24	0,01	0,04	0,44
CZ	0,14	0,17	0,12	0,05	0,03	0,12	0,15	0,06	0,02	0,02	0,00	0,02	0,48	0,35	0,02	0,04	0,89
HU	0,10	0,13	0,00	0,02	0,03	0,11	0,09	0,04	0,02	0,02	0,00	0,02	0,25	0,27	0,02	0,05	0,59
PL	0,10	0,14	0,10	0,04	0,05	0,02	0,12	0,02	0,00	0,01	0,01	0,03	0,38	0,21	0,00	0,05	0,64
RO	0,07	0,06	0,12	0,01	0,00	0,00	0,08	0,00	0,03	0,02	0,01	0,02	0,26	0,08	0,03	0,04	0,41
SK	0,12	0,17	0,00	0,06	0,03	0,07	0,11	0,02	0,01	0,02	0,01	0,02	0,35	0,23	0,01	0,05	0,64
UA	0,00	0,00	0,05	0,00	0,09	0,11	0,00	0,02	0,01	0,00	0,01	0,00	0,05	0,21	0,01	0,01	0,28

Table D.5: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2014

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,05	0,05	0,04	0,01	0,03	0,12	0,06	0,02	0,00	0,01	0,01	0,01	0,16	0,23	0,00	0,04	0,43
CZ	0,14	0,17	0,12	0,03	0,03	0,10	0,15	0,06	0,02	0,02	0,00	0,02	0,46	0,34	0,02	0,04	0,86
HU	0,10	0,12	0,03	0,01	0,05	0,09	0,09	0,04	0,02	0,02	0,01	0,02	0,27	0,27	0,02	0,05	0,61
PL	0,10	0,14	0,10	0,06	0,06	0,02	0,13	0,02	0,00	0,01	0,02	0,03	0,40	0,23	0,00	0,06	0,68
RO	0,07	0,05	0,12	0,00	0,00	0,00	0,07	0,00	0,03	0,02	0,01	0,01	0,24	0,07	0,03	0,04	0,38
SK	0,12	0,17	0,00	0,04	0,04	0,06	0,11	0,02	0,02	0,02	0,01	0,02	0,33	0,23	0,02	0,05	0,63
UA	0,00	0,00	0,00	0,00	0,09	0,08	0,00	0,01	0,01	0,00	0,02	0,00	0,00	0,18	0,01	0,02	0,21

Table D.6: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2015

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,06	0,05	0,06	0,03	0,02	0,12	0,07	0,02	0,00	0,02	0,01	0,01	0,20	0,23	0,00	0,04	0,47
CZ	0,14	0,17	0,12	0,05	0,09	0,10	0,15	0,06	0,02	0,02	0,00	0,02	0,48	0,40	0,02	0,04	0,95
HU	0,10	0,12	0,04	0,02	0,05	0,10	0,09	0,04	0,02	0,02	0,00	0,02	0,28	0,27	0,02	0,04	0,62
PL	0,10	0,14	0,11	0,04	0,06	0,00	0,13	0,02	0,00	0,01	0,02	0,03	0,39	0,21	0,00	0,06	0,66
RO	0,07	0,07	0,11	0,01	0,00	0,01	0,08	0,00	0,03	0,02	0,01	0,02	0,26	0,09	0,03	0,04	0,42
SK	0,12	0,17	0,03	0,06	0,05	0,09	0,11	0,01	0,01	0,02	0,01	0,02	0,37	0,26	0,01	0,05	0,70
UA	0,00	0,00	0,00	0,00	0,08	0,08	0,00	0,00	0,00	0,00	0,02	0,00	0,00	0,17	0,00	0,02	0,19

Table D.7: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2016

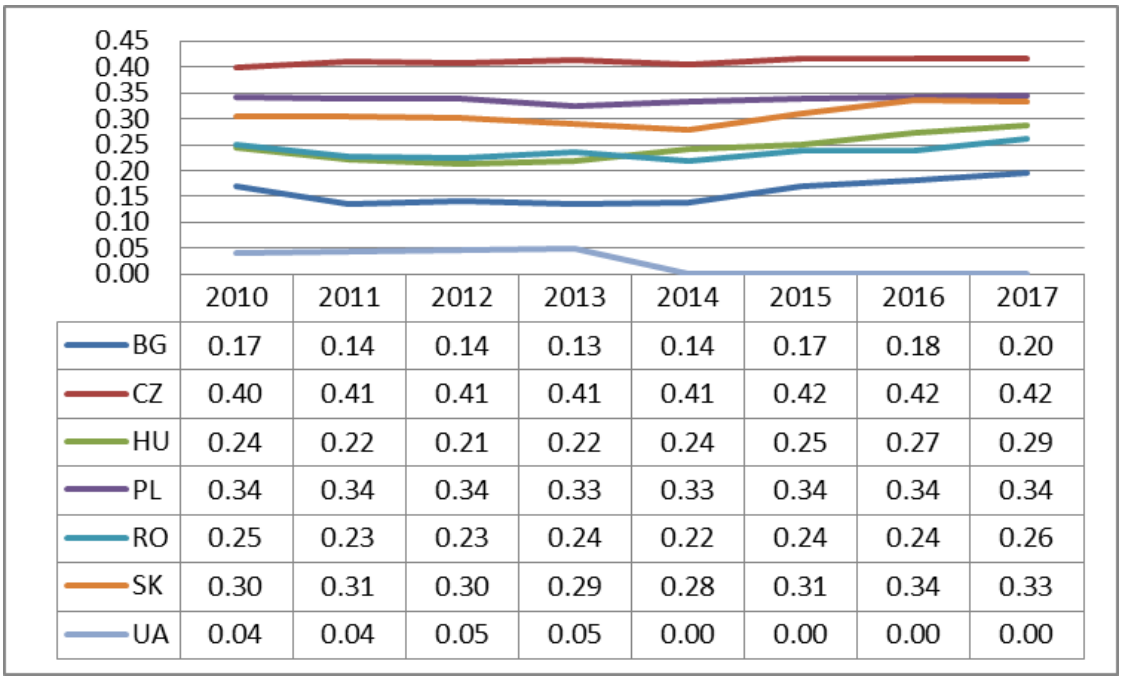
Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,06	0,05	0,08	0,03	0,00	0,12	0,07	0,02	0,00	0,02	0,01	0,01	0,21	0,21	0,00	0,04	0,47
CZ	0,14	0,17	0,12	0,05	0,09	0,10	0,15	0,06	0,02	0,02	0,00	0,02	0,48	0,40	0,02	0,04	0,95
HU	0,10	0,12	0,07	0,02	0,05	0,10	0,09	0,04	0,02	0,02	0,00	0,02	0,31	0,28	0,02	0,04	0,66
PL	0,10	0,14	0,11	0,04	0,04	0,00	0,13	0,02	0,00	0,01	0,02	0,03	0,39	0,19	0,00	0,06	0,64
RO	0,08	0,07	0,10	0,01	0,00	0,02	0,08	0,00	0,03	0,02	0,01	0,02	0,27	0,10	0,03	0,04	0,44
SK	0,12	0,17	0,06	0,06	0,00	0,08	0,11	0,03	0,01	0,02	0,01	0,02	0,40	0,22	0,01	0,05	0,69
UA	0,00	0,00	0,00	0,00	0,06	0,08	0,00	0,00	0,00	0,00	0,02	0,00	0,00	0,15	0,00	0,02	0,17

Table D.8: The results of standardization of the baseline indicators and the calculation of the QoL aggregated indicator where significance of the baseline indicators takes place for 2017

Country	*Baseline indicators*												*Subaggregates*				*Aggregated indicator*
	GDP per capita, PPP	*Average Monthly*	*Long-term unemployment*	*Total investment of providers of funded and private pension*	*Government expenditure on education*	*Government health expenditure*	*Life expectancy at birth*	*Research and development expenditure*	*Air pollution exposure*	*Military expenditure*	*Traffic accidents per 1000 population*	*Corruption Perception*	*Economic subaggregates*	*Social subaggregates*	*Ecological subaggregates*	*Security and safety subaggregates*	
BG	0,06	0,05	0,09	0,03	0,00	0,12	0,06	0,02	0,00	0,02	0,01	0,01	0,23	0,20	0,00	0,04	0,47
CZ	0,14	0,17	0,12	0,05	0,03	0,09	0,15	0,06	0,02	0,02	0,00	0,03	0,48	0,33	0,02	0,05	0,89
HU	0,10	0,13	0,08	0,02	0,05	0,10	0,08	0,05	0,02	0,02	0,00	0,02	0,33	0,28	0,02	0,04	0,67
PL	0,10	0,14	0,11	0,04	0,06	0,00	0,12	0,03	0,00	0,01	0,02	0,03	0,40	0,20	0,00	0,06	0,66
RO	0,09	0,09	0,11	0,02	0,00	0,02	0,07	0,00	0,03	0,01	0,01	0,02	0,29	0,09	0,03	0,04	0,45
SK	0,11	0,16	0,06	0,06	0,01	0,07	0,11	0,02	0,01	0,02	0,01	0,02	0,40	0,21	0,01	0,05	0,67
UA	0,00	0,00	0,00	0,00	0,09	0,07	0,00	0,00	0,00	0,00	0,02	0,00	0,00	0,16	0,00	0,02	0,19

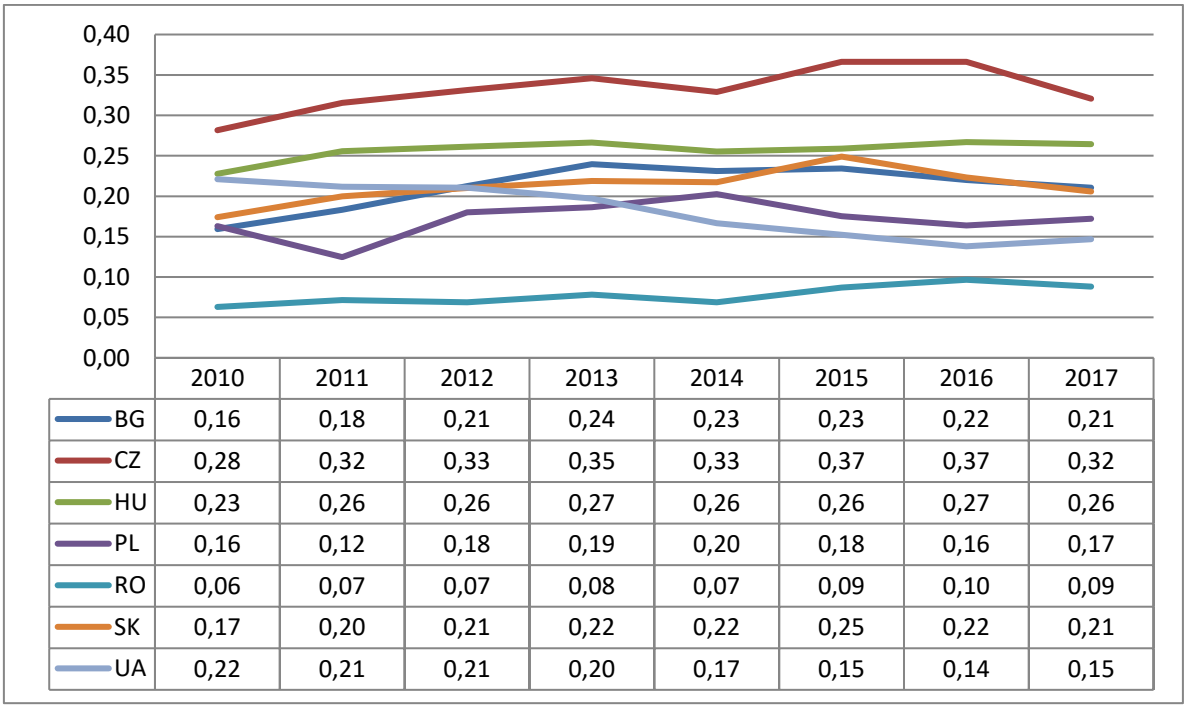
APPENDIX E. Dynamics of the corresponding subaggregates taking into consideration the weights of the baseline indicators of the Ukrainian expert

Table E.1: Dynamics of the economical subaggregates taking into consideration the weights of the baseline indicators



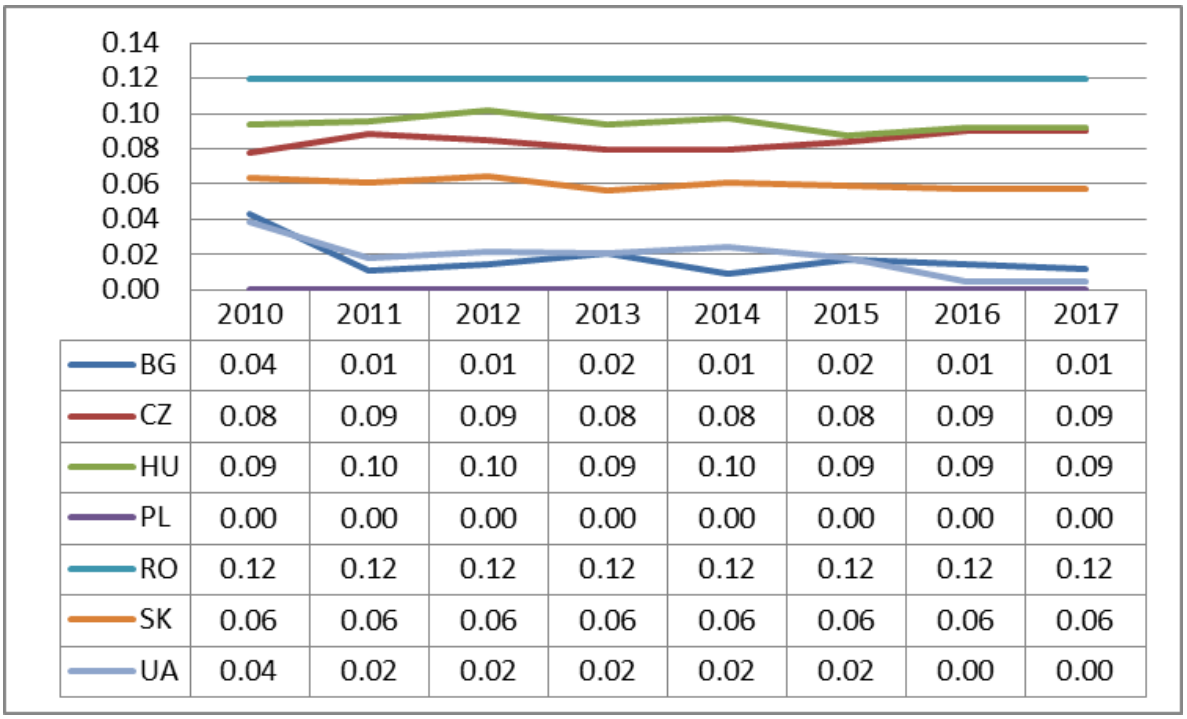
	2010	2011	2012	2013	2014	2015	2016	2017
BG	0.17	0.14	0.14	0.13	0.14	0.17	0.18	0.20
CZ	0.40	0.41	0.41	0.41	0.41	0.42	0.42	0.42
HU	0.24	0.22	0.21	0.22	0.24	0.25	0.27	0.29
PL	0.34	0.34	0.34	0.33	0.33	0.34	0.34	0.34
RO	0.25	0.23	0.23	0.24	0.22	0.24	0.24	0.26
SK	0.30	0.31	0.30	0.29	0.28	0.31	0.34	0.33
UA	0.04	0.04	0.05	0.05	0.00	0.00	0.00	0.00

Table E.2: Dynamics of the social subaggregates taking into consideration the weights of the baseline indicators



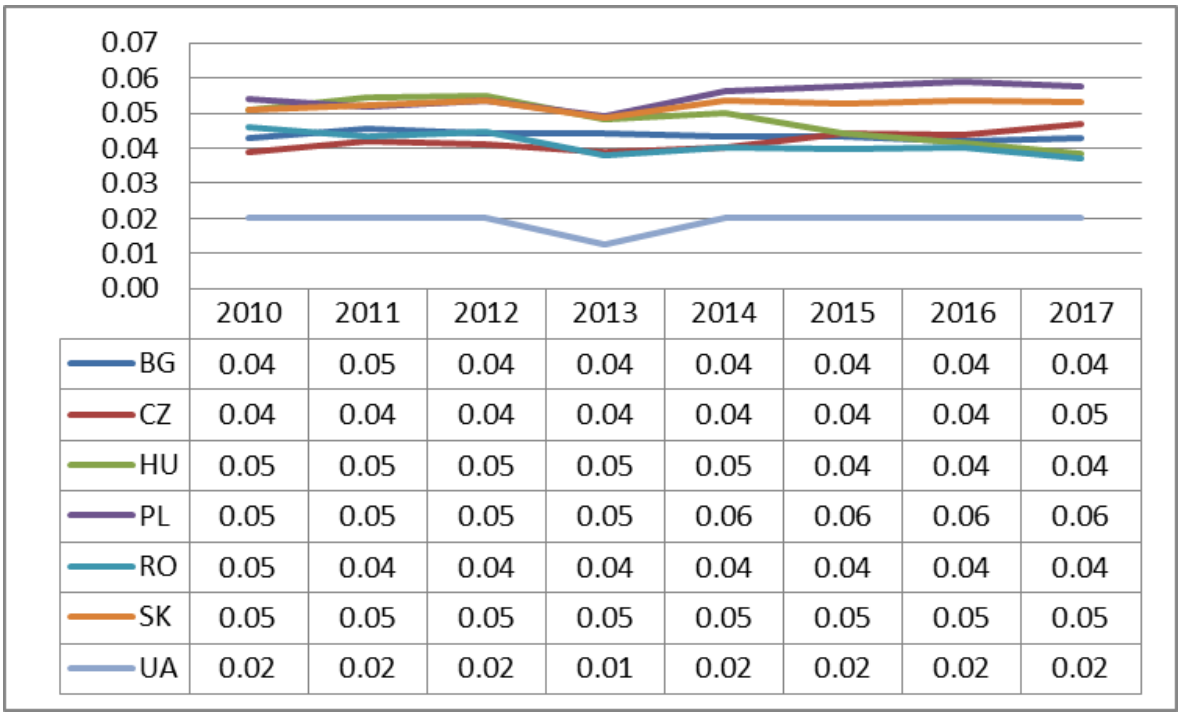
	2010	2011	2012	2013	2014	2015	2016	2017
BG	0,16	0,18	0,21	0,24	0,23	0,23	0,22	0,21
CZ	0,28	0,32	0,33	0,35	0,33	0,37	0,37	0,32
HU	0,23	0,26	0,26	0,27	0,26	0,26	0,27	0,26
PL	0,16	0,12	0,18	0,19	0,20	0,18	0,16	0,17
RO	0,06	0,07	0,07	0,08	0,07	0,09	0,10	0,09
SK	0,17	0,20	0,21	0,22	0,22	0,25	0,22	0,21
UA	0,22	0,21	0,21	0,20	0,17	0,15	0,14	0,15

Table E.3: Dynamics of the ecological subaggregates taking into consideration the weights of the baseline indicators



	2010	2011	2012	2013	2014	2015	2016	2017
BG	0.04	0.01	0.01	0.02	0.01	0.02	0.01	0.01
CZ	0.08	0.09	0.09	0.08	0.08	0.08	0.09	0.09
HU	0.09	0.10	0.10	0.09	0.10	0.09	0.09	0.09
PL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RO	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
SK	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
UA	0.04	0.02	0.02	0.02	0.02	0.02	0.00	0.00

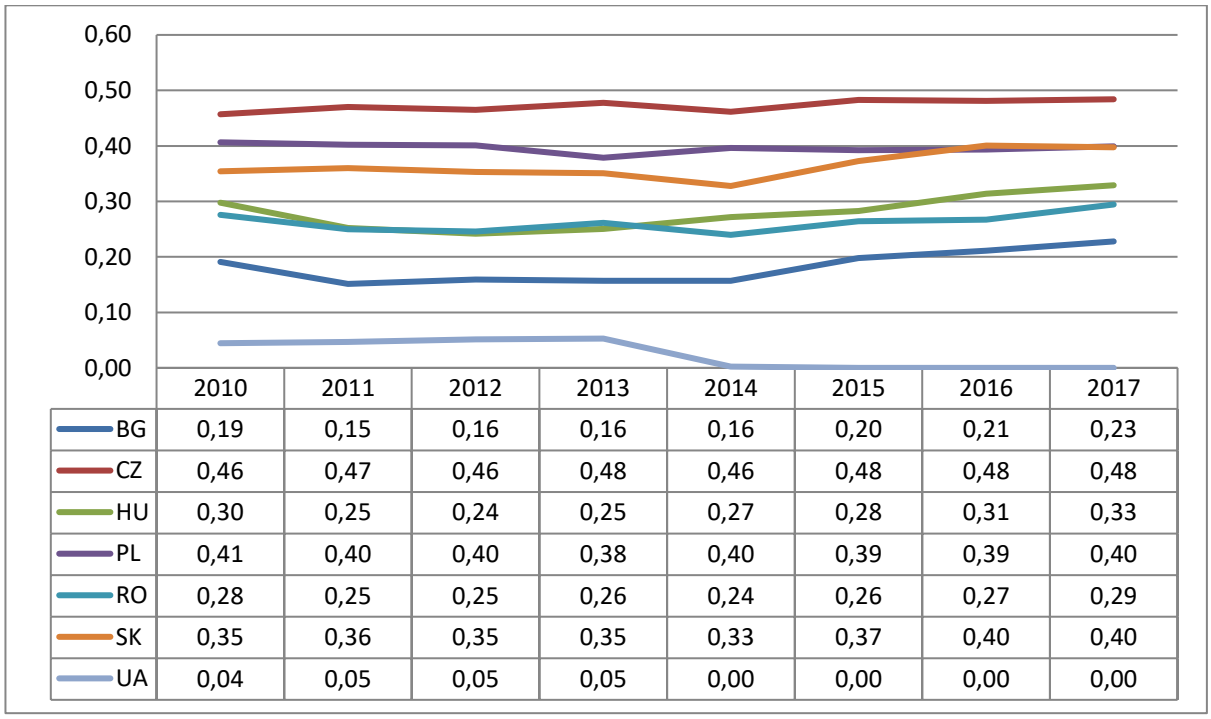
Table E.4: Dynamics of the safety and security subaggregates taking into consideration the weights of the baseline indicators



	2010	2011	2012	2013	2014	2015	2016	2017
BG	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04
CZ	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05
HU	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04
PL	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06
RO	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04
SK	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
UA	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02

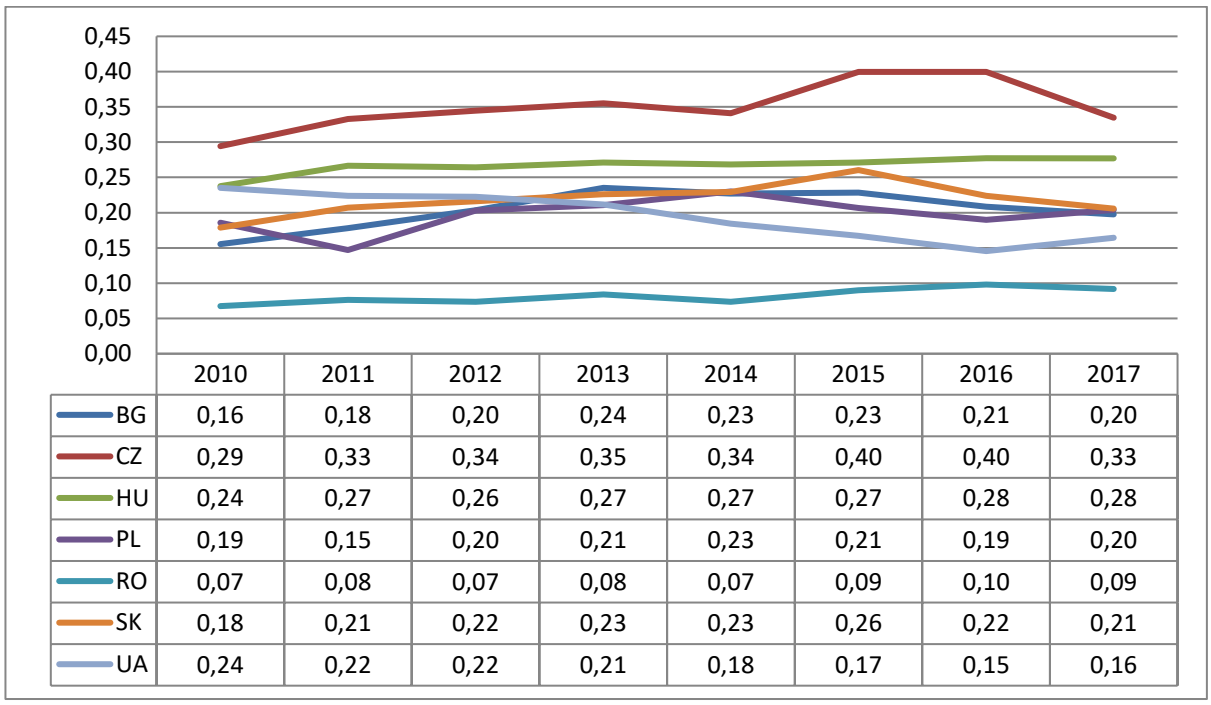
APPENDIX F. Dynamics of the corresponding subaggregates taking into consideration the weights of the baseline indicators of the Czech Republic expert

Table F.1: Dynamics of the economical subaggregates taking into consideration the weights of the baseline indicators of the Czech Republic expert



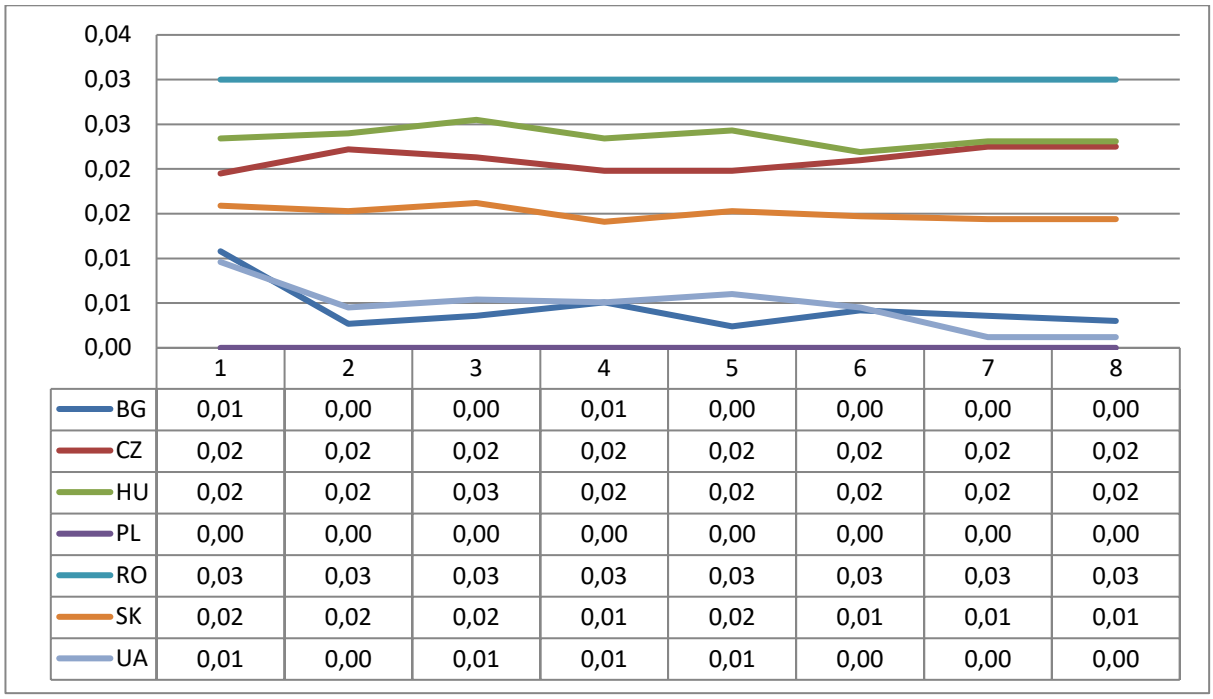
	2010	2011	2012	2013	2014	2015	2016	2017
BG	0,19	0,15	0,16	0,16	0,16	0,20	0,21	0,23
CZ	0,46	0,47	0,46	0,48	0,46	0,48	0,48	0,48
HU	0,30	0,25	0,24	0,25	0,27	0,28	0,31	0,33
PL	0,41	0,40	0,40	0,38	0,40	0,39	0,39	0,40
RO	0,28	0,25	0,25	0,26	0,24	0,26	0,27	0,29
SK	0,35	0,36	0,35	0,35	0,33	0,37	0,40	0,40
UA	0,04	0,05	0,05	0,05	0,00	0,00	0,00	0,00

Table F.2: Dynamics of the social subaggregates taking into consideration the weights of the baseline indicators of the Czech Republic expert



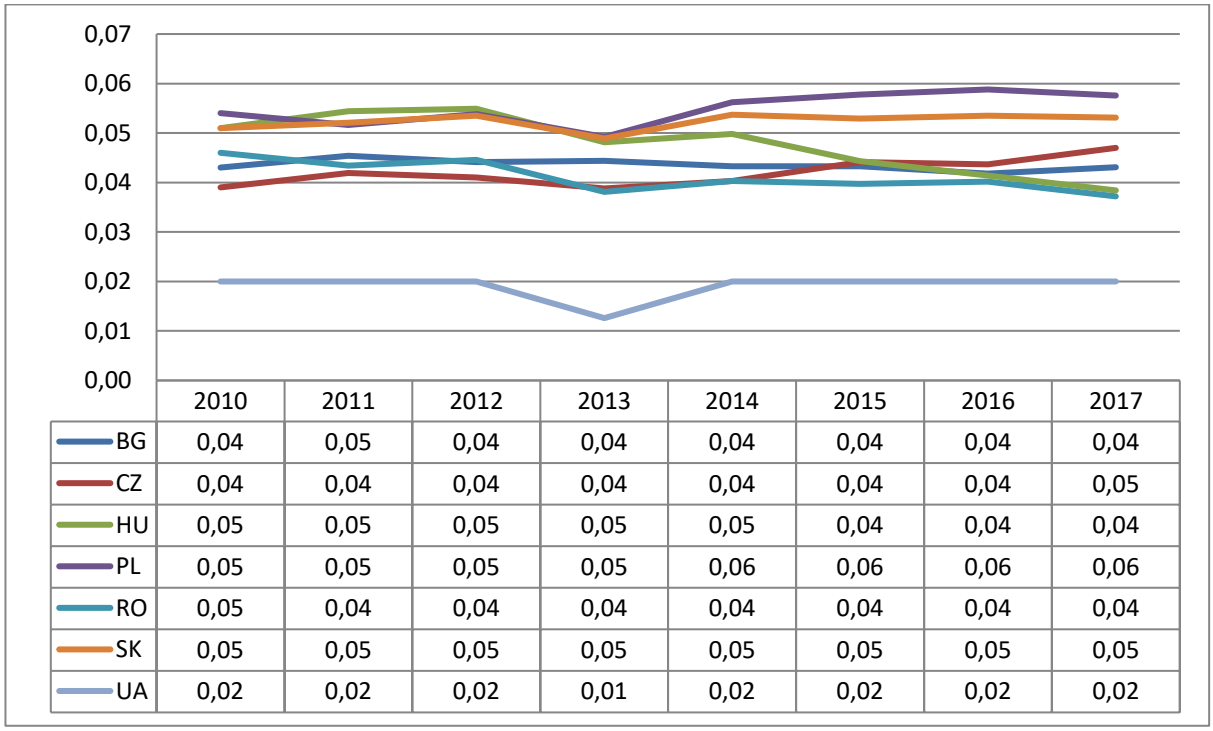
	2010	2011	2012	2013	2014	2015	2016	2017
BG	0,16	0,18	0,20	0,24	0,23	0,23	0,21	0,20
CZ	0,29	0,33	0,34	0,35	0,34	0,40	0,40	0,33
HU	0,24	0,27	0,26	0,27	0,27	0,27	0,28	0,28
PL	0,19	0,15	0,20	0,21	0,23	0,21	0,19	0,20
RO	0,07	0,08	0,07	0,08	0,07	0,09	0,10	0,09
SK	0,18	0,21	0,22	0,23	0,23	0,26	0,22	0,21
UA	0,24	0,22	0,22	0,21	0,18	0,17	0,15	0,16

Table F.3: Dynamics of the ecological subaggregates taking into consideration the weights of the baseline indicators of the Czech Republic expert



	1	2	3	4	5	6	7	8
BG	0,01	0,00	0,00	0,01	0,00	0,00	0,00	0,00
CZ	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02
HU	0,02	0,02	0,03	0,02	0,02	0,02	0,02	0,02
PL	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
RO	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03
SK	0,02	0,02	0,02	0,01	0,02	0,01	0,01	0,01
UA	0,01	0,00	0,01	0,01	0,01	0,00	0,00	0,00

Table F.4: Dynamics of the safety and security subaggregates taking into consideration the weights of the baseline indicators of the Czech Republic expert



	2010	2011	2012	2013	2014	2015	2016	2017
BG	0,04	0,05	0,04	0,04	0,04	0,04	0,04	0,04
CZ	0,04	0,04	0,04	0,04	0,04	0,04	0,04	0,05
HU	0,05	0,05	0,05	0,05	0,05	0,04	0,04	0,04
PL	0,05	0,05	0,05	0,05	0,06	0,06	0,06	0,06
RO	0,05	0,04	0,04	0,04	0,04	0,04	0,04	0,04
SK	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
UA	0,02	0,02	0,02	0,01	0,02	0,02	0,02	0,02