Socio-geographic Assessment of the Quality of Life in North Central Bulgaria

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Abstract The geographical science has an original approach to studying the concept of "quality of life of the population". Each geographic study suggests conducting science-based and planned research over a certain territory. In our case, this is North Central Bulgaria, which covers the areas of Pleven, Lovech, Veliko Tarnovo, Gabrovo, and Ruse. The life quality of the population is quantified, which allows the assessment of a certain territory and its differentiation against individual factors. In the proposed model for assessing the quality of life of the population the conscious rejection for using subjective criteria has been accepted; thus, our choice centers upon current, accurate and comparable indicators publicly available and adopted from the National Statistical Institute. Obviously, the individual components have unequal measurability so it is necessary to apply the linear scale method. The final indices for the quality of life of the population in Northern Central Bulgaria have been cartographically visualized.

Keywords Quality of life · Systematic approach · Settlements · Sociological methods · Region · Communities · Indices

Introduction

The current stage of community development is marked by the ongoing discussion of the appropriateness and legitimacy of changes in the concept of quality of life for the population and its assessment of the perspective of social development. Quality of life has become one of the most significant social phenomena of modern times.

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The emergence of quality of life issues in economic and philosophical literature is an element of the theory of economic well-being. The term "quality of life" appears for the first time in 1960 in the book by American economist J. Gilbert—"Public Abundance". In the political vocabulary, this concept was introduced by US President J. Kennedy in the 1963 Report on the Situation of the Nation. Kennedy develops the thesis that "the quality of life of Americans must keep up with the amount of American goods produced" (Nagimova 2010). As a result of succession, New President L. Johnson states that the goal of American society "can not be in measuring our bank deposits, but in the quality of life of our population" (McCall 1975).

In our country, "quality of life" is defined as the main objective of regional planning. It is in all planning and strategic documents at state, regional, district and municipal level.

Different sciences have interest in the different aspects of quality of life, all of which use elements of the geographic approach to explore and characterize it in detail. It helps to reveal the regional differences of macro, meso, and microlevel, their dynamics, determines causal relations, isolates a range of problems and provides concrete practical solutions for improving the quality of life.

In the context of the global trends in the concept of quality of life, the view is that human resources are becoming a key source of economic growth with their various qualitative characteristics.

For us, the quality of life objectively is geographically diverse and even more geographically determined. The acceptance of geographic determination of quality-of-life indicators necessitates the use of a spatial-temporal approach to the analysis of this public phenomenon. Considering the territory of North Central Bulgaria as an object of analysis, we can assume it as a specific socio-geographic system reproducing the quality of life. The territorial choice of Northern Central Bulgaria covers five districts (Pleven, Lovech, Gabrovo, Veliko Tarnovo, and Rousse) and 41 municipalities. For us, this is the most compact and complex geographic subject.

The geographical interpretation of the territorial differentiation of processes for the quality of life of the population builds horizontal and vertical links. Higher scientific value is the study of vertical relationships formed by the coordination of processes and mechanisms that shape the quality of life at national, regional, and local levels. Vertical slice is directed from the higher taxonomic levels to the lower ones (in our case—to the municipalities).

Theoretical Aspects of the Study

The study of quality of life implies conducting a scientifically based and well-planned analysis of heterogeneous statistical information, which is primarily systematized as socio-geographic indicators.

In the current European version, following the EurLIFE database to the European Foundation for the Improvement of Living and Working Conditions, 12 "life domains" are: (1) health, (2) education, (3) employment, (4, 5) social participation

(social relations, communication); (6) transport; (7) housing; (8) family; (9) recreation; (10) the environment; (11) security; (12) life satisfaction.

The European Social Indicators System (ESSI) offers 14 "key indicators" for life domain: (1) population, (2) socioeconomic status and subjective class identification, (3) labor market and working conditions, (4) income and distribution of income, (5) consumption and supply, (6) transport, (7) housing, household and family, (8) health, (9) education and vocational training, (10) civic activity), (11) environment, (12) public security, etc., accessibility, (13) leisure and media consumption, (14) common indicators of development (GDP).

In the definition of the World Bank, "quality of life" is "the overall well-being of people," including "the quality of the environment, national security, personal security and safety, political and economic freedoms."

According to the approach used, researchers are divided into two directions: objective and subjective. The subjective approach to quality of life is based on established values and experiences. Components in the structure of quality of life are self-esteem, life satisfaction, happiness (or a combination of them) (Diener 1994).

The objective approach limits its analysis to components such as housing, living space, nutrition, education, health care, and this is the approach we have chosen to analyze the territory of Northern Central Bulgaria. Geographical views have the following manifestations of the properties of the term "quality of life":

- the quality of life of the population is viewed from the point of the complex and systemic approach and is defined as an integrated concept taking into account the territorial differences at individual taxonomic levels (countries and regions, districts and municipalities, urban and rural) as well as global, regional and local level;
- quality of life is an evaluation category that characterizes the degree of development of the studied territorial settlement system, located in time and space;
- the quality of life of the population is objective and subjective, reflecting the objective picture of the conditions and processes of the life activity, as well as the subjective assessment of the people studying the trends of development for the quality of life on a given territory;
- objectivity in the quality of life emphasizes the positioning of the territorial factor as a leader.

The analysis of all the above-mentioned manifestations allows the formulation of a definition of the quality of life of the population in a given territory as follows: a socio-geographical category formed as a set of vital values, needs and activities that are necessary for the human being (people's satisfaction of life and environment) that provide an opportunity for individual personality development, taking into account the impact of processes related to the balanced socioeconomic development of the particular territory (Simeonov 2010).

It is important to note that one of the first attempts in Bulgaria to use an integrated assessment at regional and municipal level is through the synthetic Human Development Index (HDI) introduced by the UN in 1990 (Human Development Report 2016). This is also the first attempt to realistically assess the quality of life in the

country. The HDI itself is a combined measure and is based on the use of three important dimensions of human development: a prolonged and healthy lifestyle, the level of education (judged by the literacy rate of adults and the total of student enrollment ratio I2); and a living standard.

In our view, focusing on just these three indicators of the HDI does not reveal the overall quality of life. In the case of objective reflection, it is necessary to take into account further individual elements of the methodologies of: the World Bank, the International Society for Quality of Life Studies, the World Health Organization, etc.

Data Processing by Municipalities and Tracing the Trends

Designing the arguments set out above on the territory of North Central Bulgaria, we tried to assess the quality of life of the population at the level of municipalities in 2016. We use the methodology developed by the Laboratory of Mathematical Methods for Political Analysis and Forecasting at the Faculty of Political Science at the Moscow State University, MV Lomonosov, with Akhremenko and Eutushenko (2010). The main feature of the proposed model is the deliberate denial of the use of subjective criteria for quality of life. The selected indicators are conventionally labeled and are arranged in the following order:

A—Useful living area by municipality (square meters)
B—Residents by municipality (number of persons)
C—Unemployment rate by municipalities (%)
D—Available health establishments by municipality (number)
E—Doctors by municipality (total number)
F—Places for accommodation by municipalities (number)
G—Schools total in school year 2016–2017 (number)
H—Kindergartens by municipalities (number)
I—Crime committed by municipalities (number).

Of course, it is possible to enrich the palette of indicators with others but in general the content aspects of the applied research methodology will not change.

The annual quality of life index of each municipality is a linear function of the sum of the 9 indicators divided by 9.

$$\mathrm{IQL} = \frac{\mathrm{A} + \mathrm{B} + \mathrm{C} + \mathrm{D} + \mathrm{E} + \mathrm{F} + \mathrm{G} + \mathrm{H} + \mathrm{I}}{9}$$

Obviously, the individual components have unequal measurability. In order to form the general municipal index it is necessary to bring the data in a comparable form that's why we have to apply the linear scale method

$$X_{i/a} = \frac{X_i}{X_{max} - X_{min}}$$

The essence of linear scaling is rooted in the fact that for each indicator first is found the difference between the highest and the lowest value. Then it remains averaged basis in proportion with each specific value by municipality and the result is rounded to three decimal places after the decimal point. If this recalculation is not done, the data will be dynamically incomparable.

There are various issues in each integrated assessment, one of which is how to determine the significance of the individual components that impact on the quality of life. These indicators, which are directly measurable but negatively related to the quality of life of the population (for example, the higher unemployment rate and the higher number of committed crimes), are subject to recalculation by the linear inversion formula

$$X_{i/a} = 1 - \frac{X_i - X_{min}}{X_{max} - X_{min}}$$

This has been applied by us in both indicators B and I where the size of the value is inversely proportional.

The final version of the quality of life index of the municipalities is mapped—Fig. 1. There may be outlined at least five key areas for the quality of life index in Northern Central Bulgaria. First, significantly outstripping the others are the municipalities of Veliko Tarnovo, Ruse, Pleven. The second zone includes two municipal-

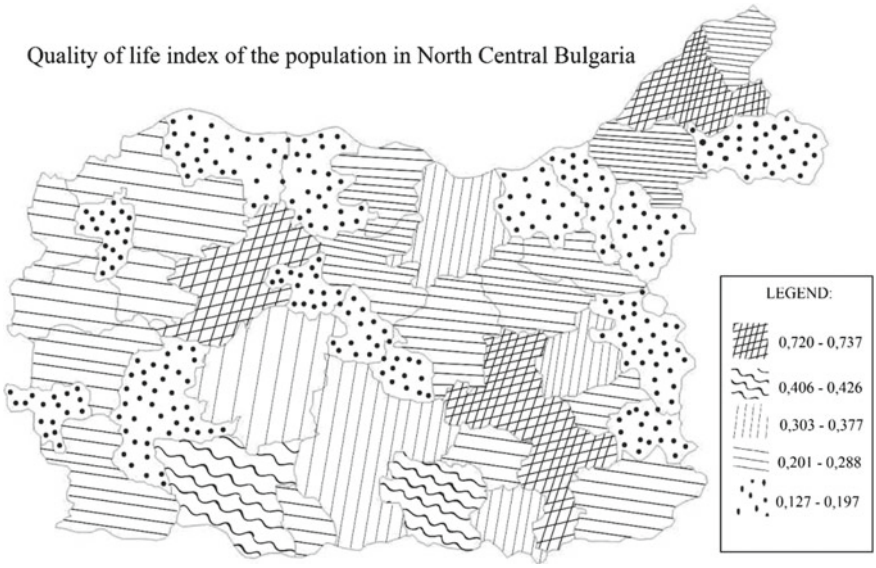

Fig. 1 Quality of life of the population

ities—Gabrovo and Troyan. The third group includes five municipalities: Lovech, Gorna Oryahovitsa, Sevlievo, Svishtov, and Tryavna, whose quality of life index is twice lower than the leading municipalities. The fourth group covers the largest number of municipalities—17. With the lower values are 14 municipalities (fifth zone), from which the last is a municipality of Ugarchin.

From the study an expected conclusion is drawn that there are district centers with high quality of life and a vast periphery of municipalities with predominantly lower values and degraded conditions. The situational analysis gives us reason to summarize that the levels of health and educational status are significantly differentiated on the "village-city-municipality" axis.

Conclusion

The quality of life of the population is an important indicator for all institutions and people and especially for the new paradigms in the social geography that has developed in our country in recent years.

The applied methodology for assessing the quality of life of the population reveals the internal differences at the municipal level. It is generally applicable and open to comments and discussion, both in content and procedural terms. Possible corrections in the choice of indicators are an integral part of such research. Adding or removing of indicators would not change the positions of leading municipalities.

The established geographic model for studying the quality of life is adapted to the opportunities for current, accessible, and relevant (comparable) statistical information with specific localization—41 municipalities from Northern Central Bulgaria.

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