

Municipalities community preferences vector and management digitalization practice

Gordeev S.S.

Chelyabinsk branch of Russian Presidential Academy of
National Economy and Public Administration
Chelyabinsk, Russia
sgordeev222@gmail.com

Zyryanov S.G.

Chelyabinsk branch of Russian Presidential Academy of
National Economy and Public Administration
Chelyabinsk, Russia
director@chel.ranepa.ru

Abstract — The basics of assessing the quality of life in conditions of limited statistical data and use as an additional resource of sociological information are considered. The key characteristic is the vector assessment of social wealth of living conditions. The system of indicators based on sociological estimates of population satisfaction with the quality of life, gives a general characteristic, community preferences vector. The estimates characterizing dissatisfaction with living conditions determine the preferred directions of change and form the vector of priorities of social and economic development. The main aspects of the assessment procedure use soft systems methodology technologies, and are exemplified by the typical rural municipal areas of the southern Urals.

Keywords — *quality of life, information, sociology, social priorities, vector ratings*

I. INTRODUCTION

Management digitalization, providing a multiple increase in data processing, inevitably affects the methodology and tools of the decision-making process. Expansion of opportunities of information technologies eventually leads to change of the developed stereotypes in practice of management of social and economic processes.

This evolution is fully related to the interrelated problems of assessing the quality of life and determining the priorities of social and economic development of the territories. Currently, the methodology for assessing the quality of life presented in international practice [1] unites many areas. With the variety of problems involved, the issues of assessing the quality of life are largely interdisciplinary.

The changes in the methodological and information component of the quality of life assessment are currently associated with changes in the overall methodology for measuring social and economic development and the selection of appropriate indicators. Previously the key indicator, the growth of gross domestic product, is now under serious criticism because of its abstraction and inefficiency [2]. The use of human capital indicators instead of traditional estimates of economic growth [3] faces considerable difficulties in reality. The issues of assessing the parameters of social processes that determine the quality of life are traditionally problematic for statistics, both in terms of the assessment methodology and the "deficit" of reliable data.

The application of traditional approaches to the assessment of living conditions, based mainly on statistical data, in conditions of instability of social and economic systems is very difficult. Traditional statistical indicators, in addition to the costs of averaging, can have systematic errors, the so-called "crafty figures". The problem of "crafty statistics" noted in a well-known publication 30 years ago [4], largely persists [5].

Given the heterogeneity and uneven development of the Russian territories [6], the problem of uncertainty in assessing social and economic, as well as spatial, prospects is obvious. In crisis conditions of instability, the general provisions of methodology of estimations poses many questions [7]. In case of crisis instability [8] and a noticeable change in the trends of individual regions [9], the requirements for estimates become more strict. Next, for small regional and municipal social and economic systems, when elaborating development programs, the problem of "information deficit", lack of correct information, becomes urgent.

Taking into account all the above, the update of approaches to the assessment of quality of life is generally associated with an increase in the number of factors considered and the use of more complex multidimensional vector estimates. This direction has recently received significant development as the "economy of quality of life".

Further details of the characteristics of social processes in general and the quality of life in particular, are largely associated with the use of self-assessment of the population living conditions in the framework of sociological research. Sociological information opens the possibility of considering the characteristics of a social object from the point of view of different groups of the community and certain key aspects of development.

Data processing is connected with the updating and integration of specialized information systems, both sociological and traditional economic and analytical, including tools for analysis and assessment. For example, in the system of indicators of living standards containing economic indicators, can be adjusted and supplemented by indices obtained in the course of regular sociological surveys of the population [10]. The use of vector estimates of social processes inevitably implies the expansion of the information

component of the search. This provides both processing of significantly increasing data volumes and smoothing of certain errors [11].

In general, a radical change in the requirements for assessing the quality of life inevitably involves a significant update, as the methodological basis for the formation of estimates, and the tools used.

II. METHODS

Conceptual foundations of multicriteria assessment of quality of life are primarily associated with the consideration of components of well-being of the community and a number of factors of quality of life.

The issues of conceptual bases of quality of life and social well-being estimates in the management of regional social and economic systems development were considered earlier [12]. The level of social well-being in such cases is considered as a subjective assessment of the degree of satisfaction of material and spiritual needs given by a particular community.

Fundamental analysis of approaches to the diagnosis of personal well-being in the territory of residence [13] shows that even in this narrower and digitizable area of quality of life a lot of questions remains in an attempt to obtain operational and multidimensional information. In general, social well-being is characterized by a broader system of indicators than material well-being: the well-being of the population. In our opinion, in the conditions of "information deficit" and limited opportunities to use statistical data, the real situation is more reliably characterized by indicators of social well-being (satisfaction) reflecting the opinion of the population.

The community's self-assessment of many components of the quality of life according to feelings of satisfaction with the comfort of living, the degree of satisfaction of material and spiritual needs, is an operational characteristic of the state of social well-being. As a rule, the system of indicators reflecting the opinion of the population about the quality of life can act as a key determining assessment of the welfare of the community, i.e., be considered as a vector of preferences (expectations) of the community. When considering prospects of development, given the necessity to meet the needs of a particular community, its expectations are determined on the basis of such system of indicators, and the vector of priorities of socio-economic development is formed considering the above. The latter vector characterizes the priority (preference) of social transformations aimed at increasing the well-being of the population.

Reflecting the preferences of the community in the conditions of lack of traditionally considered data becomes a key element for determining the priorities and goals of social and economic development. Furthermore, they become an indicator of the correctness of the reflection of the current situation in the official statistics available for analysis. However, it should be noted that in the management practice of Russia, the use of multi-criteria vector estimates of well-

being on the community's perception is still limited. Especially if it concerns strategic issues of social and economic development.

In general, the system of indicators reflects the following aspects of social and economic monitoring of the territories:

- salary, income;
- housing, ownership, property;
- accessibility of education;
- job security;
- health and medical care;
- housing and communal services;
- public transport;
- crime rate;
- and others.

To minimize subjectivity and ensure the credibility of such estimates the following is required: maximum representativeness of sociological research, transparency of the analysis and assessment procedure, providing visualization of digital information. This involves the use of information-adapted tools [14], built on the principles of openness of the analysis process and maximum representativeness of the results obtained, taking into account the factor of trust [15].

In the conditions of limited and heterogeneous information, the classical economic and mathematical methods of assessment give a very approximate result. Here, the advantage is gained by specialized, information-adapted approaches for finding solutions using a combination of heuristic analysis methods, including the study of graphical images to recognize the nature of trends and mathematical apparatus for their subsequent assessment. In fact, based on the results of such an analysis, preliminary formalization of changes is performed and the parameters of constructing mathematical models corresponding to the current situation are determined. With this information-adapted heuristic approach, analysis includes data visualization: specialized information preparation of graphical materials supplemented with statistical indicators. The search for solutions is largely based on the principles of soft systems methodology [16].

For such information-adaptable approaches using data visualization, there are a number of principles and techniques aimed at improving the quality of the solutions [3]. Here, the graphical component, from the auxiliary tools in mathematical statistics, becomes the basis of an information-adapted heuristic approach to finding solutions (assessment of the suitability of a particular type of line, etc.). Assessment by a combination of graphs and digital parameters inevitably contain subjective moments, which leads to an increased risk of errors. To reduce them, the corresponding basic rules of plotting are important.

Below is an example of the development of indicators for assessing the quality of life on the system of indicators - community preferences vector. Sociological estimates of satisfaction/dissatisfaction with living conditions form the basis for determining the priorities of the development strategy of municipalities. In this example, the community preferences vector is formed by the responses of respondents in the survey "evaluate the criterion of quality", the state of infrastructure and service sector with three options: "high", "medium", "low". The questions concern the development of the most important components for the community: transport services; quality of roads; medical care; preschool education, etc.

In general, sociological estimates of population satisfaction with living conditions allow to form a regional or municipal system of priorities of social and economic development of territories, based on the opinion of the community, depending on the administrative task to be solved.

For example, the territories of municipalities with a small population are characterized by both general regional and specific municipal (local) problems. In such a case, the assessment of the quality of life and priorities for the development of territories are also determined in two stages.

The first stage is a general assessment of satisfaction (dissatisfaction) with living conditions in the territory by the quality of infrastructure and social services (characterized by the proportion of the population dissatisfied with living conditions). The totality of such sociological estimates forms a vector of preferences. The estimates characterizing dissatisfaction with living conditions automatically reflect the preferred directions of desirable changes, the priorities of the social development strategy.

The second stage is the analysis of the discrepancy between the expectations of the population for different territories (comparison of preference vectors). At this stage, the analysis involves comparing the expectations of the community for the region as a whole and the expectations of the community for a particular territory. The difference in the expectations (by the difference in the percentage of unsatisfied living conditions) indicates the divergence of expectations of the general regional and specific local municipal level and, therefore, demonstrates the special "local" priorities of social and economic development, recorded as the expectations of the population.

III. RESULTS

The main points of the assessment procedure, as well as the results obtained using digital information visualization technologies, are exemplified by the typical rural municipalities of the southern Urals: Uysk and Troitsk municipal districts of the Chelyabinsk region.

In the variant considered below, the vector of preferences of local community for the Uysk municipal district is presented according to the results of a sociological study of 2017 [18] (see Figure 1) against the background of a similar

general regional assessment, which are common for a group of similar social and economic parameters of municipal districts of the Chelyabinsk region. Graphically, the components of the preference vector for the district largely overlap similar regional ones. The values of dissatisfaction with living conditions in the studied areas on many indicators, which are depressive territories, in most areas exceed those for the district. The exception here are some of the "least critical" areas, which represent nothing more than the relative competitive advantages of the territory. In general, the high criticality of estimates of the population means: either a worse situation, or the population of the studied territory is more demanding and critical to the quality of living conditions.

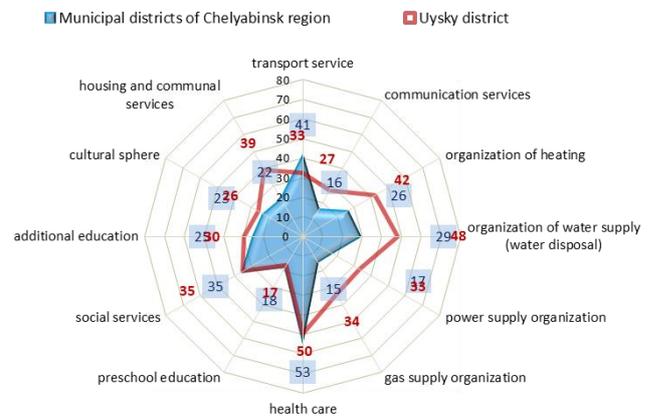


Fig. 1. Vectors of preferences (priorities) of the community (by percentage of dissatisfied with living conditions) of the municipality against the background of the average regional: as exemplified by the Uysk municipal district of Chelyabinsk region

The structure of the preference vector shown in the figure is heterogeneous. This is typical both for the regional level and for individual territories. The percentage of those dissatisfied with living conditions (the share of the population that noted "poor quality" in the sociological survey) in some areas exceeds 50%.

Further study of the expectations of the community involves a comparison of the estimates, regional vs. local. The difference, i.e. the balance between the values of the components of the studied territories and the general regional, forms a vector of "local (areal)" preferences (the community expectations). For the area under consideration, it is displayed in a bar chart format in Figure 2.

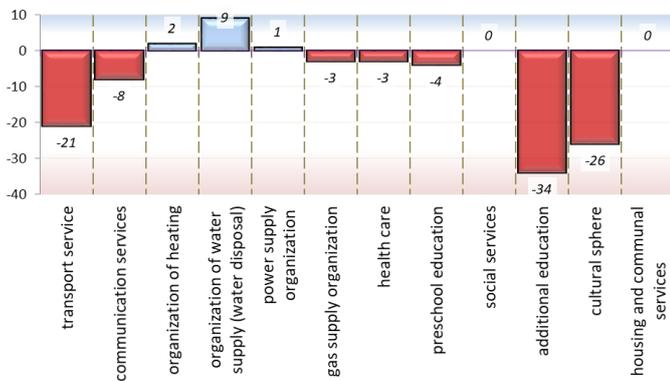


Fig. 2. Comparative vector estimation of the community expectations - "local (areal)" vectors of preferences. The differences in expectations from the regional average for this group of territories (the difference between the percentage of dissatisfied living conditions): as exemplified by the Troitsk municipal district of Chelyabinsk region

Figure 2 shows "local (areal)" preference vectors specific to the territory. The heterogeneity of these vectors is also quite large. The values that go most noticeably into the negative zone indicate exceptional problems that are characteristic for the territory and require special attention at the level of both local and regional administrations. Such problems are often the main factors influencing the growth of discontent of the population of the municipality. On the other hand, values above the zero mark indicate the presence of local competitive advantages and achievements against the background of comparable territories. The sum of estimates for the components of the local vector can be considered as an integral indicator of the quality of life in the territory.

IV. DISCUSSION

Prospects of application of vector estimates of the community expectations are rather various. The considered bases of methodical approach with elements of tools of visualization of vector estimations allow to solve questions of goal-setting of social and economic development relying on opinion of the community. This simplifies the definition of program priorities for the concentration of resources on key areas of the territory development strategy. Flexibility, i.e. extensibility of such vectors of preferences, creates the basis for further more detailed analysis of the community expectations, goals and strategies of social and economic policy, both for a particular municipality and at the regional level.

V. CONCLUSION

The experience of application of the considered methodical approach on definition of social priorities at development of strategies of spatial development of municipal areas of the Chelyabinsk region points to wide opportunities of its adaptation and development [17]. Further expansion of the practice of using vector estimates based on sociological materials opens prospects for new aspects of regional social management. Among them: assessment of changes in the quality of life by social groups; reaction of the main social

groups and layers to the decisions of the authorities; identification of situations of tension by groups, etc. This allows us to create prerequisites: to improve the quality of management decisions, bringing them in line with the real needs of the population. Further, this contributes to both improving the quality of current management of territorial development, and the ability to adjust the regional social and economic policy in general.

The focus on taking into account public opinion also contributes to solving the issues of assessing the attractiveness of municipal territories and increasing confidence in the processes of ongoing transformations. In the conditions of digitalization, the development and implementation of such approaches for the management of social and economic processes becomes not only possible, but also inevitable.

Acknowledgment

This article was prepared with the financial support of the Russian Foundation for Basic Research, grant RFBR 19-010-00964/19 "Modeling and visualization of spatial development scenarios of cross-border macro-region by the example of the Urals and the Northern Kazakhstan".

References

- [1] Madzikova A., Mitrikova Ja., Senkova A. Quality of life of seniors in the context of population ageing in Slovakia / *Economic Annals-XXI*. 2015. № 7-8-1. pp. 109-112.
- [2] Stiglits D., Sen A., Fitussi Zh.-P. Neverno otsenivaya nashu zhizn': Pochemu VVP ne imeet smysla? Doklad Komissii po izmereniyu effektivnosti ekonomiki i sotsial'nogo progressa = Mismeasuring our lives: why GDP doesn't add up // M.: Izd-vo Instituta Gaydara, 2016. - 216 s.
- [3] Barkhatov V.I. Chelovek kak aktivnyy sub"ekt ekonomicheskogo rosta: k probleme chelovecheskogo kapitala i roli elit // *Vestnik ChelGU*. — 2015. — №8 (363). — S. 7—13.
- [4] Selyunin V., Khanin G. Lukavaya tsifra // *Novyy mir*. 1987. № 2. S. 181–201
- [5] Khanin G.I. «Lukavaya tsifra»: 30 let spustya // *Idei i idealy*. 2018. № 2, T.1. S.139-163
- [6] Animitsa E. G. Ekonomicheskiy rost v diskurse prostranstvenno-vremennoy paradigmy// *Ekonomika regiona* № 2/2010
- [7] Bobylev S., Zubarevich N., Solov'yeva S. Vyzovy krizisa: kak izmeryat' ustoychivost' razvitiya? // *Voprosy ekonomiki*. 2015. № 1. S. 147—160.
- [8] Mau, V.S. Ekonomicheskie krizisy v Noveyshey istorii Rossii // *Ekonomicheskaya politika*. 2015. T. 10. № 2. S. 7–19
- [9] Gordeev S.S., Zyryanov S.G., Ivanov O.P., Kocherov A.V. The economic dynamics of Russia and its regions in the context of a structural crisis: analysis and forecasting // *Sotsium i vlast'*. 2016. № 6 (62). S. 39-46
- [10] Kozlova O.A., Gladkova, T.V., Makarova, M.N. & Tukhtarova Y.K. (2015). Methodical Approach to Measuring The Life Quality in Region. *Economy of region*, №2 (42), pp. 182-193.
- [11] Maslennikov M.I. Tekhnologicheskie innovatsii i ikh vliyanie na ekonomiku // *Ekonomika regiona*. — 2017. — T. 13. — № 4. — S. 1221—1235.
- [12] Golikov A.A., Gordeev S.S., Davankov A.Yu., Kozlov V.N. Kontseptual'nye osnovy dinamiki blagopoluchiya naseleniya v regione // *V sbornike: Golikovskie chteniya*. Chelyabinsk, 2015. S.6-10
- [13] Kuklin A. A., Naydenov A. S., Nikulina N. L., Taras'yeva T. V., Transformatsiya teoretiko-metodologicheskikh podkhodov i metodicheskogo instrumentariya diagnostiki blagosostoyaniya lichnosti i

- territorii prozhivaniya. Chast'1. Ot rasprostranennykh do al'ternativnykh podkhodov k diagnostike (istoriya voprosa) // *Ekonomika regiona* № 3 (2014). S. 22-36
- [14] Gordeev S.S. Poisk sotsio-ekologo-ekonomicheskikh resheniy v informatsionnoy srede // *Vestnik Chelyabinskogo gosudarstvennogo universiteta*. 2013. № 8 (299). S. 47-52
- [15] Sorokin D. E. Faktor doveriya // *Zhurnal ekonomicheskoy teorii*. 2016. № 3. S 133-138
- [16] Checkland, P. *Soft systems methodology in action* / R. Checkland, J. Scholes. N. Y.: John Wileys Sons Inc., 1990. 329 p.
- [17] Zyryanov S.G., Gordeev S.S., Pon'kina A.O. Integratsionnye priority prostranstvennogo razvitiya munitsipal'nykh obrazovaniy v usloviyakh formirovaniya tsifrovoy ekonomiki // *Nauchnyy ezhegodnik Tsentra analiza i prognozirovaniya*. — 2018. — № 2. — С. 9—18.
- [18] Rezul'taty oprosa potrebiteley Uyskogo munitsipal'nogo rayona Chelyabinskoy oblasti 2017 [Elektronnyy resurs] / Administratsiya Uyskogo rayona. — 2017. URL: <https://news.rambler.ru/other/39609424-mirovoy-opyt-kak-arhitektory-raskryvayut-prestupleniya-i-narushenie-prav-cheloveka/?updated> (data obrashcheniya 24.09.2019).