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MODEL OF EVALUATION OF THE LEVEL OF SOCIAL AND ECONOMIC DEVELOPMENT OF THE TERRITORY

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Abstract

The article offers the model of evaluation of the level of social and economic development of the territory that includes a set of basic indicators, regulated by the program documents of the regional level and some additional indicators. It grounds the distinguishing of the social subsystem, economic subsystem and municipal finances subsystem as the strategic initiatives when implementing the managerial impact on the level of social and economic development of the region. A model of evaluation of the level of social and economic development of the territory is shown as a set of basic table that contains the structuring of the subsystems of the territory on the analogy with the strategic initiatives of the balanced system of the indicators and the row of decomposing tables allowing to distinguish the factors of the second and the following levels of specification.

The model differs from the earlier offered models by the possibility of its universal use in regard to the various regions because it provides the possibility to modify the set of estimating indicators belonging to the subsystems depending upon the data provided by the official statistic reports. The obtained results can be used when forming the project measures by the federal and regional municipal authorities to increase the efficiency of the managerial impact on regional processes. These elements allow forming the set of instruments that increases the efficiency of the managerial impact, decreases the irregularity of the social and economic development of the country in a regional aspect.

Keywords: Social and Economic Development of the Territory, Region, Municipal Education, Model of Social and Economic Development, Economic Subsystem, Social Subsystem, Subsystem of Municipal Finance Management, Indicator of the Social and Economic Development

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INTRODUCTION

One of the most important problem of the state regulation of the Russian economy within the framework of the strategic approach to the regional management now is the evaluation of the level of social and economic development of the regions, which is due to the disproportions in the development of the regions in combination with the high level of complexity of the territorial entities of the Russian Federation considered as the social and economic systems that include the set of subsystems (economic, social, municipal finances), functioning in the conditions of the indeterminate boundaries and territories involved into the mechanism of interaction of social and economic structure.

Thus, the method of Baranov et al. [1] allows estimating the level of interregional differentiation of the regions and includes 9 indicators. The method of Samarina [2] is based on the method [1], but it uses only 5 of the offered indicators. Some methods offer to distinguish the subsystems (spheres of activity) of the territory (economic, financial and social) [3,4]. The method of Girina [5] is of a particular interest because it offers to evaluate the social and economic development of the region by means of a specified regional industrial complex, scientific sphere and information and communication infrastructure of the region. Some methods suppose the carrying out of rather volumetric calculations and processing of the huge volume of statistic information. In particular, the method of Khokhlova [6] is based upon the presentation of the object of analysis as a vector in ten-dimensional space of factors. The method of Kuznetsova [7] is implemented by means of the fulfillment of the three stages including the definition of the integral indicator and the determination of the quantitative ratio of the factors by means of the correlation and regression analysis.

Existing methodological approaches can be structured by the following:

1. Methods, based on the distinguishing of the only indicator considered as the criterion of the level of social and economic development [1,8,9].
2. Methods supposing the use of several priority indicators of the level of social and economic development [3,10-15].
3. Methods supposing the creation of the system of aggregated indicators of the level of the social and economic development, including those developed at the governmental level [7,16,17].

At the same time, the abundance of methods together with their fragmentation, special character of their use in regard to the various objects of research, subjectivity of the selection of indicators included into the methods make it difficult to provide the objective analysis of the level of development of the territory.

Foreign researchers pay much attention in their works to the problems of evaluation of the level of social and economic development of the territories. Already in 1970s, some works were published that tried to develop the system of the social and economic indicators to monitor the conditions of the social development [18,19]. The work of Hughes [18] shall be mentioned especially, because it offered the universal system of indicators of the social and economic development of the cities; that was one of the scientific studies of this type. The project Global Urban Observatory and Statistics was important for the development of the monitoring system of the social and economic development of the world cities and it provided three basic programs including the program of indicators of the city development Urban Indicators Programme [19]. Many foreign scientists such as Gordon [20], Hatry [21], Hoefsloot et al. [22], Morley et al. [23], Rubel et al. [24], Wholey et al. [25] and others studied the problems of improvement of the systems of indicators of the municipal statistics.

At the same time, the mentioned works did not provide the accurate definition of what indicators shall be taken into account when evaluating the level of social and economic development of the territory, which in the conditions of a huge number of indicators offered for consideration available to public makes evaluation very difficult. Creation of a universal model of evaluation of the level of social and economic development of the constituent territory of federation or municipal entity is an actual problem.

The aim of the research is to form a model allowing to evaluate the level of social and economic development of the territory and to determine the factors of the social and economic development and also the indicators reflecting its impact on the level of the development of the territory. The following problems were solved within the framework of the set aim:

- Formation of the universal approach to the selection of the targeted indicators of the model of evaluation of the level of social and economic development of the constituent entity of the federation on the base of the program documents of the federal and regional level;
- Grounding of the sources of information to select the targeted indicators of the model of social and economic development of the constituent entity of the federation;
- Development of the model of evaluation of the level of social and economic development of the territory.

Social and economic development of the territory that can be presented as the constituent subject of the federation as well as the municipal entity is considered to be the object of the research.

Method of Research

A model is a system the research of which is the means of obtaining of information about other system; presentation of some real process, device or concept [26]. Its universal character allows widening the area of application of the model to the row of similar systems in one or several modes of functioning. Mathematical models are the set of interconnected mathematical and formal and logical equations that reflect, as a rule, the real processes [27], the form of representation of which can be:

- Analytical, i.e. their solutions are found in the form of functional dependences. These models are convenient for the analysis of the essence of the described process and use in other mathematical models;
- Computational models, i.e. their solutions are discrete sequence of numbers (tables). Models are universal, convenient for the solution of difficult problems but they are hard to analyze and determine the interconnections between the parameters.

Within the framework of the research conducted, it is offered to use analytical approach that is based upon the basic indicators that determine the level of social and economic development of the territory. The methods of horizontal and vertical analysis can be used as the main methods of solving problems; they characterize the tendencies of the change of key indicators of social and economic development of the territory and their structure in combination with the index method that is based on the relative indicators of dynamics expressing the relation of the actually achieved targeted indicators of social and economic state of the entity to the planned values regulated by the legislative and program documents of the federal and regional level and also by the comparative method allowing to reveal the deviations of the achieved values of the indicators from the values regulated by program documents.

The authors of the article ground the offered model of evaluation of the level and perspectives of social and economic development of the territory that is different from the previously offered models by the universal character of its use in respect to the object under analysis.

RESEARCH METHODOLOGY

Research Methodology is based upon the Following Main Provisions

Social and economic position of the territory is determined by the complex of indicators characterizing the state of social (demographic situation, life quality of population, unemployment, criminality), economic (production, investments and construction, consumer market of goods and services), municipal finances (budget implementation, structure of budget income, structure of budget expenses) subsystems of the territory. Every considered indicator can be determined by means of the horizontal analysis method, allowing to reveal the tendency to its change; comparative method and index method. Some indicators can be subjected to the vertical analysis, for example, the ratio of the value of average per capita expense for the acquiring of the paid services to the total value of the per capita income.

Specification of the indicators allows to form the analogue of the system of balanced score card (BSC) in respect to the territory, subsystems contained in which can be considered as the strategic initiatives of BSC. The said subsystems can further be decomposed to the factors of the second and the following levels of specification referring these indicators of the social and economic development to one or another subsystem.

The content of the particular indicators forming the set of factors of the second and the third decomposing levels is determined by the corresponding regional resolutions of the approval of the system of strategic targeted values and targeted indicators of the implementation of the strategic program of the territory development.

The depth of specification is determined by the aims of the analysis of the social and economic development and the availability of the necessary info ware according to the selected aspects of analysis.

RESULTS AND THEIR DISCUSSION

The aim stated in the research was implemented using the empiric material of the Far East region of the Russian Federation. Table 1 shows the model of evaluation of the level of social and economic development of the constituent territory of the federation using the Vladivostok City District. The content of indicators of the model is structured according to the subsystems and is determined by the clause 1 of the Decree of the President of the Russian Federation No. 1384 dated October 14, 2012 “Modifications to the Russian President Decree No. 607 dated April 28, 2008”.

Table 1: Indicators for evaluating the efficiency of the activity of the Vladivostok City District*.

Number of the targeted indicator	Targeted indicator
1	Number of small and medium business entities per 10 thousand people.
2	A share of average staff number (without external part-timers) of the small and medium business enterprises in the average staff number (without external part-timers) of all enterprises and organizations.
3	A share of stretch of public secondary roads that does not correspond to the normative requirements in the total stretch of public secondary roads.
4	A share of population living in the communities that does not have a regular bus and (or) railway communication with the administrative centre of the city district (municipal district) in the total number of population of the city district (municipal district).
5	A share of square of land lots being the objects of land taxation in the total square of the city district (municipal district).
6	A share of children at the age from one to six, registered for the distribution to the municipal preschool educational institutions in the total number of children at the age from one to six.
7	A share of graduating students from the municipal general educational institutions, who passed the universal state exam in the Russian language and Mathematics in total number of the graduating students of the municipal general educational institutions, who passed the universal state exams in these subjects.
8	Total square of the residential rooms for one resident in the average, total, including the new builds delivered during one year.
9	A share of utilities providers manufacturing goods and rendering services of water, heat, gas and electricity supply, wastewater disposal, sewage treatment, disposal (burring) of household solid wastes and

	using the objects of communal infrastructure as a private property, according to the rent agreement or concession, a share of the constituent territory of the Russian Federation and(or) city district (municipal district) in the authorized capital is maximum 25 percent, in total number of the utilities providers carrying out its activity on the territory of the city district (municipal district).
10	A share of blocks of flats located on the land lots that were registered in the State Cadastral.
11	Specific value of consumption of energy resources (electricity and heat energy, water, natural gas) by the blocks of flats (per 1 sq.m. of the total square and (or) per one person).
12	Specific value of consumption of energy resources (electricity and heat energy, water, natural gas) by the municipal budgetary institutions (per 1 sq. m. of the total square and (or) per one person).
13	Satisfaction of the population with the activity of the local authorities of the city district (municipal district) (percent from the respondents).
<p>*Sources of information: Federal State Statistic Service http://www.gks.ru/dbscripts/munst/munst05/DBInet.cgi Regional office of the Federal State Statistic Service in the Primorsky Krai</p>	

Main indicators of the level of social and economic development of the territory are the indicators characterizing the growth of the life quality of population, growth of the industrial outputs and also the growth of the efficient spending of budgetary funds. These indicators are necessary to be grouped according to the criterion of the object of research to the subsystems of the social and economic development of the territory: social, economic and subsystem of management of municipal finances. The value of the subsystems for the evaluation of level of social and economic development of the territory is shown in the Table 2.

Table 2: Value of the subsystems of model.

Subsystem	Value	Source of information
Social	It characterizes the life quality of the population of the territory.	Statistic information
Economic	It characterizes the structure and outputs of goods and services and also the infrastructure of the territory.	Statistic information
Management of municipal finances	It characterizes the level of efficient management of the financial resources of the territory.	Statistic information

The indicators 4, 6, 7, 8, 10, 13 can be referred to the indicators of the social subsystem. The indicators of the economic subsystem include 1, 2, 3, 9. The level of development of the subsystem of the municipal finances is determined by means of

indicators 5, 12. Thus, the indicators of the social subsystem have a priority; however, the other two subsystems are also presented in it.

To balance the ratio of the indicators of different subsystems it is offered to add the groups of indicators according to the subsystems also presented in the official statistic reports (Table 3). The main criterion of the selection of indicators is their relativity that provides the dynamic character of the evaluation of level of social and economic development of the territory according to the offered model.

Table 3: Indicators of the subsystems of model.

Indicators of social subsystem	Indicators of economic subsystem	Indicators of subsystem of management of municipal finances
J ₁₁ (a share of population that does not have a regular communication with the administrative center in the total number of population of the municipal district, %)	J ₂₁ (a share of staff number of the small and medium business enterprises in the average staff number of all enterprises and organizations, %)	J ₃₁ (a share of the square of land lots being the objects of land taxation, in the total square of the territory, %)
J ₁₂ (a share of children at the age from one to six, registered for the distribution to the educational institutions in the total number of children, %)	J ₂₂ (a share of stretch of public secondary roads that do not correspond to the normative requirements in the total stretch of roads, %)	J ₃₂ (a share of tax and non-tax income of the local budget (excluding the tax income according to the additional allocations norms) in the total volume of own income of the budget of the municipal institution (regardless of grants), %)
J ₁₃ (a share of graduating students from the educational institutions, who passed the universal state exam, in the total number of the graduating students of the municipal general educational institutions, %)	J ₂₃ (a share of utilities providers of communal complex as a private property in the total number of the utilities providers located on the territory, %)	J ₃₃ (a share of fixed assets of the company of municipal form of ownership under bankruptcy stage, in the fixed assets of the companies of municipal form of ownership (at the end of the year according to the gross book value), %)
J ₁₄ (a share of blocks of flats located on the land lots of the State Cadastral, %)	J ₂₄ (a share of turnover of the large and medium businesses according to the type of activity in the total turnover of the companies located on the territory, %)	J ₃₄ (a share of overdue accounts payable of the remuneration of labour (including the accruals of the remuneration of labour) of the municipal institutions in the total expenditures of the municipal education for the remuneration of labour

		(including the accruals of the remuneration of labour), %)
J ₁₅ (a share of population who obtained the residential accommodation and improved housing conditions in the accounting year in the total population registered as requiring accommodation, %)	J ₂₅ (a share of manufacturing in the structure of the shipped goods of own production, rendered works and services using own resources, %)	J ₃₅ (growth of surplus/deficit of the budget in comparison with the previous accounting period, %)
J ₁₆ (satisfaction of the population with the activity of the local authorities of the city district, % of the respondents)	J ₂₆ (growth of investments into the authorized capital in comparison with the accounting period, %)	J ₃₆ (a share of nonrepayable budget revenues in the structure of the budget incomes, %)

The authors offer to perform the following specification of the presented indicators of the regional constituent territory.

Each of the presented targeted indicators can be specified by means of revealing of factors of social and economic development of the second level. For example, the dynamics of the indicator “Number of small and medium-sized business entities per 10 thousand people” is determined by the values of the indicators “Number of small and medium-sized business entities”, “Population”.

Similarly, every targeted indicator is specified and that allows determining due to which factors of the second and the following levels of specification the increase or the decrease of a general level of social and economic development of the territory take place.

Thus, those factors were selected as factors of the model which reflect the logics and progress of the economic development of the territory. The main criterion was the selection of adequate particular indicators that shall correspond to the following requirements:

- They shall reflect sufficiently the level of the development of subsystem;
- They shall be able to serve as an indicator of the development;
- They shall be statistically available and contain minimum of subjective information.

A general indicator of the evaluation of level of social and economic development of the territory is determined as a resulting indicator in regard to the ratio of the evaluation indicators of level of economic, social subsystems and subsystem of municipal finances:

$$K_{gen} = \omega_s \times k_{d,s} + \omega_e \times k_{s,e} + \omega_f \times k_{d,f} \quad (1)$$

where $k_{d,s}$, $k_{d,e}$, $k_{d,f}$ are indicators of the development of social subsystem, economic subsystem and subsystem of municipal finances of the territory correspondingly;

ω_s , ω_e , ω_f are the corresponding weighing coefficients of the indicators of level of development of subsystems.

In this case $d = 3$, thus, provided the equivalence of the impact of subsystems $w_d = 0.33$.

The indicator of the level of development of the social subsystem of the territory is determined according to the formula

$$K_{i.s.d} = \sum_{i=1}^6 \omega_{si} \times J_{si} \quad (2)$$

where J_{si} – i-th indicator of the social subsystem of the territory;

ω_{si} – i-th weighing coefficient of the corresponding indicator.

In this case $i = 6$, thus, provided the equivalence of the impact of subsystem indicators $\omega_{si} = 0.1667$.

The indicators of the level of the development of the economic subsystem and subsystem of the management of municipal finances are determined the same way.

The sensitivity of the level of social and economic development of the territory is determined by its elasticity of the changeable parameters of the model. The term “elasticity” shows by how many percent the evaluation of the level of social and economic development of the territory will change if the researched factor of impact changes by 1% under all otherwise equal conditions. The elasticity of the level of social and economic development of the territory is calculated according to the following formula:

$$E_{ix} = \frac{\partial Y}{\partial X} \times \frac{X}{Y} \quad (3)$$

where E_{ix} is the elasticity of the level of social and economic development according to the factor X ;

X – researched factor of impact;

Y – level of social and economic development of the territory.

Calculated values of elasticity of the researched factors are shown in decreasing order and that allows concluding that some factors have a bigger impact on the resulting indicator and other have a smaller impact. The offered model of the evaluation of the level of social and economic development of the territory is based upon the use of mathematical apparatus allowing analyzing the sensitivity of the resulting indicator to

the change of particular components of the model.

CONCLUSION

Thus, as a result of the research performed using the methods of horizontal and vertical analysis, comparison, index method within the frames of the analytical approach, the following results were obtained.

1. The distinguishing of social, economic subsystems and subsystem of municipal finances was grounded as the strategic initiatives when implementing the managerial impact on the level of social and economic development of the territory.
2. The model of the evaluation of the level of social and economic development of the territory was grounded, which is based upon the use of three integral indicators of the level of development of the subsystems of the territory on the analogy with the strategic initiatives of the balanced system of indicators and some decomposing indicators allowing to distinguish the factors of the second and the following levels of specification.
3. A set of basic indicators of the evaluation of the level of development of the territory was added by the indicators that provide the balancing of the distributed indicators according to the subsystems.

The offered model differs from the early offered models by the possibility of the universal use in regard to the various constituent territories of the federation because it provides the possibility to modify the set of targeted indicators in the subsystems depending upon the indicators presented in the official statistic reporting. The obtained results can be used when forming the project measurements of the federal, regional municipal authorities to increase the efficiency of the managerial impacts on the regional processes. These elements allow forming the set of instruments that helps to increase the efficiency of the managerial impact and decrease the irregularity of the social and economic development of the country in the regional aspect.

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