Development Potential as an Economic Background for Regulation of Regional Economic and Social Processes

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Abstract. Nowadays more and more attention is paid to the issue of ensuring a stable regional socio-economic situation by developing approaches that treat regional potential as a background and a key focus in generation and application of tools for regulating economic and social processes. Taking a regional development potential as a result of successful accomplishment of state and municipal programs with an updated set of quantitative and qualitative features allows us to solve a number of topical problems of regional development. Among them are: resource support of socio-economic processes of regions; saving and redistribution of development costs; optimal use of resources allocated through state programs. In terms of chronic underfunding, developing principles for introducing amendments to state programs at a next stage of their execution will allow us to keep the most significant activities from the program list intact. A broaden concept of the development potential as a background of a regional strategic planning system contributes to an objective assessment of effective socio-economic development of the region.

1. Introduction

During a crisis period, importance of a territorial development strategy increases together with the role of a program-target approach as an effective balancing tool of financial support for remote regions [12,17,19,20]. Despite a fairly wide and authoritative research pool and well-established scientific theories that explain many challenges of socio-economic sphere, the issue of regulating regional socio-economic development need further consideration [11,14]. The need to improve institutional processes in the regions requires an updated content and further development of a program-target approach towards regulation of regional socio-economic systems (SES). Researchers complain of, first of all, no universal methods to calculate a fiscal effect of the programs, and no methods to determine budgetary resources allocated for regional development.

2. Relevance

This issue is becoming relevant due to serious imbalances in socio-economic development of certain regions, where lack of resources gets chronic [9,15,21]. Due to procedural difficulties, often programs are not officially closed, but rather cease to be funded - in whole or in part. In this respect, a solution of a prompt funds transfer between programs and their activities gets a scientific and practical interest.

There are objective reasons that result in clarification of, amendments and additions to the approved programs. For example, a number of researchers explain the need for adjusting state programs by an annual budget approval, amendments thereto, changes of templates; unpredictable

events (changes in the policy); necessity to refine the contents or eliminate errors, inefficiency of programs, etc. [2,3,6,7,10]. Given the above, it is necessary to develop principles of introducing amendments to programs at a next stage of their execution.

3. Statement of the problem

The focus of economic, institutional and other regional resources is development potential of regional socio-economic systems [18]. Its analysis reflects objective changes in financial, economic and organizational plans of the regions [1,4,5]. Therefore, a methodological principle of developing a program-target approach is to present an algorithm that structures the SES development potential as separate elements (economic, innovation, institutional) and components (fiscal-budget and investment-entrepreneurial). A novelty here is that the separation principle can be treated as a key principle for structuring state programs of any constituent entity of the Federation [4].

The object-subject approach to systemic representation of state programs allows us to treat differentiation criteria as a group of indicators that characterize property-budgetary and investment-entrepreneurial activities of the authorities within the activities list of a certain program. Interests of all parties to property-budgetary and investment-business relations in a region are united by a common drive to meet the needs in the course of production of collective goods as a condition for an effective regional (municipal) development.

Creation of methodological tools for quantitative assessment of the development potential allows us to determine how programs funding depends on a potential capacity of the region; we can estimate the scope of amendments (adjustment of funding); as well as interrelation of indicators of regional socio-economic development and capacity of the development potential

4. Theoretical part

In order to formalize the program-target approach as a tool for regulating socio-economic processes, we used an economic-mathematical method of experiment planning [8]. This allowed us to study the area of the target function Y - the SES regional development potential - corresponding to the starting development potential (factor x_1) in terms of quantitative assessment of property, budget, business, investment risks (factor x_2):.

$$Y = (X_1, X_2) \tag{1}$$

where Y is the target function (response) (program indicators and components of the development potential), which serves as an object of optimization and (or) a factor of limitation over the study area (as target indicators and the funding sum for program activities).

While collecting, rationing and statistical processing of the data pool for assessment of the development potential (Ip) and risk (Ir), we formulated the input factors of the model (development potential in terms of property, budget, investment and business risks). We considered changes in the input factors over periods of time so that a certain year shall have a certain level of the development potential (funding sum for the program stage).

In order to prepare experimental data for targeted functions based on performance analysis of existing state programs and making the content of investment-entrepreneurial and fiscal-budget components of the development potential, we selected a number of funding periods. The regression equation is a quadratic polynomial, since it gives more accurate approximation of the target functions models.

$$Y_n \left(I_p, I_r \right) = b_0 + b_1 * I_p + b_2 * I_r + b_3 * I_p * I_r + b_4 * I_p^2 + b_5 * I_r^2 \tag{2}$$

To get a mathematical model as a regression equation, we made a regression analysis of the response function. Factors b0, b1, etc. were calculated as follows: the sum of products of the prepared data for target functions (Y) and elements of a corresponding column in the planning matrix was

divided by the sum of squares of elements in the same column. Thus, having conducted a series of "experiments" with different ratios of factors, we got a response function in three-dimensional space and a possibility of experimental optimization of the object of study.

As a result, we found elements of investment-entrepreneurial (IE_{econ}, IE_{inst}, IE_{inn}) and fiscal-budget (FB_{econ}, FB_{inst}, FB_{inn}) components of the SES regional development potential; and we constructed the response surfaces in the factor space for the following dependencies:

$$ИП_{econ} = f(I_п, I_p), ИП_{inst} = f(I_п, I_p), ИП_{inn} = f(I_п, I_p),$$
$$ФБ_{econ} = f(I_п, I_p), ФБ_{inst} = f(I_п, I_p), ФБ_{inn} = f(I_п, I_p) \tag{3}$$

Using the method of straightforward enumeration in the TurboBasic program, we found the point on the response surface that corresponds to minimal required values of components of the SES regional development potential, as well as funding of programs in the monetary terms.

In terms of a program-target approach, state and municipal programs serve not only as a background for strategic plans for regional development, but also as a mechanism of expanded reproduction of the development potential as a sum of its material and non-material components. The final result of the programs, in our opinion, can be considered as an assessment of the entire system of regional management as a whole [5].

Analysis of relations between the components of the development potential and indicators of the regional socio-economic level of allowed us to obtain statistically relevant correlation and regression dependencies as two-factor linear models (three-dimensional regression). Effect of components of the development potential was determined through specific elasticity coefficients; ß, Δ are coefficients demonstrating reserves for growth of socio-economic development indicators [16].

As a result of research, we established that the applied elements of the SES regional development potential have a dominant effect on indicators of its medium-term development. It explains a dynamic nature of the development potential, expressed herein as a generalizing indicator of a SES regional socio-economic development (P):

$$I = \left(\sum_{i=1}^{k} \frac{N_i^r}{N_i^b}\right)/K \tag{4}$$

where N_i^r is a calculated value of the i-th estimated indicator, received by equations of correlation-regression dependence; N_i^b is a value of the i-th indicator selected as basic; K is a quantitative value of indicators selected as components of a comprehensive indicator of the socio-economic development level.

Methodological background for assessing of how the predicted values of elements of the development potential structure act on the generalizing indicator of SES regional socio-economic development (4) relies on identification of priority components of the development potential that have the greatest effect on the growth of indicators of regional socio-economic development.

5. Practical relevance

In order to test the proposed methodological approach, we analyzed a set of state programs in Khabarovsk Region in the period since 2012. The result showed that regression equations were significant by Fisher's F-criterion only for six out of eleven models that were defined according to the assessment criteria for effective performance of executive authorities [13]. Among others, they include the following criteria: turnover of small enterprises; ratio of the number of employed people to the working-age population; tax and non-tax revenues of the regional budget in the total revenues of the consolidated budget; investment in fixed assets; share of high-tech and knowledge-intensive industries in the GRP (in the total output), etc.

Specific effectiveness of a model to regulate the development potential was calculated by quantitative effect of each component of the potential (factor) on the growth of a certain indicator of

socio-economic development (specific elasticity coefficient). Using ßI and Δi coefficients, we differentiated effect of factors on the regional development criteria and identified reserves for improving the indicator through the variation degree of the factors included in the correlation-regression model.

Analyzing effect of components of the development potential on a general indicator of social and economic development (4), we determined dominant elements of the development potential (institutional and economic elements of the investment and business component, innovation and economic element of the fiscal and budget component).

6. Results

Thus, taking into account the preset parameters of budget efficiency, balance of interests of all parties, prescribed level of the budget funds use, we made an optimal ratio between funding of state programs at the regional level and priorities for effective (efficient) use of development potential. It will allow us to configure innovative, economic and institutional components of targeted programs, taking into account their degree of effect on indicators of regional social and economic development, as well as monitor the effect of SES regional development on achievement of planned indicators of socio-economic dynamics in the region.

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