Modeling and selecting the optimal scenario for development of social and economic programs of Altai territory for the period up to year 2025

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ABSTRACT

In this article the complex scenarios of long-term social and economic development of Altai territory are modeled, the risks and the threats of realization of each of the scenarios are considered. Special attention is paid to section and substantiation of the optimal variant. The perspective areas of economic development of the region are stated.

INTRODUCTION

Development of the economics of Altai territory in the long-term and middle-term perspective will to a large extent be oriented at the model of development of the Russian economics on the whole. The basic scenario of development is integration of the region into the renewable economics of Russia, into the spatial structure of the economy of the country, increase in the macro regional scale of the regional economic.

In the perspective the economics of the territory shall be influenced by the following external factors: the state of the Russian and the world economics, conditions of taxation, pricing and financial policy at the word markets, customs and tariff policy, dynamics of exchange rate of the RUB, inflation factors, social and economic consequences of entering by the Russia to WTO etc.

Methodology:

The basis for writing this article were the results of fundamental scientific development, monographs of the national and foreign scientists, studying guidelines, analytical materials of periodicals and scientific collections, local regulatory and legal acts of Altai territory.

The following general scientific and special methods of research were used: analytical, synthetic, logical methods, schematic, graphic, statistic and mathematical descriptions of economic processes. Methods of comparative, system, subjective and objective and structural functioning analysis, as well as methods of sociological research: questionnaire, interviewing, supervision and method of expert evaluation.

Main part:

One of the most important external factors of development of the region is the competitive environment with both – the neighboring entities, and in the Siberia federal district on the whole.

The internal factors of development of the region shall be determined by the existing resources (mineral and raw materials, natural, labor), the dynamics of the key macroeconomic indices of the territory against the background of SFD, labor, economic, innovation potential.

Based on the analysis of different combinations of parameters of the internal and external specific conditions it is possible to differentiate three complex scenarios of the long-term social and economic...
development of the territory;
1. The conservative, stipulating realization of the energy and raw material model of growth of the economic and keeping the major tendencies in development of the economics of the territory;
2. The innovation, directed at realization of the innovation model of development of the economics of Russia on the whole and the possibility of innovation development of the economics of the region;
3. The forced, planning realization of the model of forced economic growth and the possibility of more intensive development of the economics of the region.

In the course of realization of the conservative scenario the key factors of economic growth of the region remain the same, namely, development of agricultural industry, aimed at satisfaction of the needs of population, communication and transport, trade, dynamics of which will completely depend on dynamics of the income of the population, development of industries of social services at the cost of costs of the regional and the federal budgets. It is planned to preserve the region’s positions at the external regional markets, this will establish the demand for traditional products on condition of increase of its competitive capacity (Sheshinov, Yu. V., 2013).

The scenario stipulates demographic positive dynamics only on the birth rates; the level and sex and age mortality profile, as well as migration loss reduce very slowly. Stabilization of the number of population is possible only after year 2020.

Completion of the started investment projects will contribute to modernization of the technical, material and production base of ACC (agricultural complex), development of food production and processing sphere, metallurgy, machine building, recreational complex, development of transport infrastructure of the region.

The existing tendencies will be kept in the sphere of investments. The investment demand will remain low, there will a large share of budget investment be kept, mainly of the federal. Realization of this scenario will provide development of economic indices at the average Russian level.

Risks and threats of realization of the scenario are connected with continuation of reduction of the number of population of Altai territory, which will become worse at the background of further outflow of labor resources. In the structure of the income of the population of Altai territory the tendency keeps towards growth of the share of social payment, which in the perspective will increasingly influence the general dynamics and form the end demand in the territory. The tendencies will remain for falling behind of the end consumer and the income of the population, a large level of competitive capacity of the processing sector of the territory.

There is no platform for creation of new external incentives, contributing to growth of the economics of the territory, but the existing internal sources of growth will be limited mainly at the background of unfavorable demographic tendencies, with preservation of falling of the territory behind as regard wear-off of production assets and the income of the population.

The perspectives of the innovation growth of the region is connected with activation and modernization of the innovation activity of the industry, the ACC, formation of tourist and recreational complex of international level, development of regional innovation system.

The model of innovation development of the region is based on the knowledge, technologies, competences and this means that the most important becomes the high quality of the human capital, which will provide the development of growth.

Perspectives of economic growth of Altai territory shall be determined by the following factors in the course of introducing the innovation scenario:
- realization of competitive advantages in ACC of the region, formation of the agricultural powerful cluster, development of the technologies, attraction of large producers, selection and genetics, creation of a number of regional brands of ecologically clean products, products for healthy eating etc., which will allow Altai territory becoming one of the leading suppliers in Russia to the foreign and national market of products of agriculture;
- development of recreation and tourism; modernization of the tourist and transport infrastructure of the territory, attraction of international partners in the sphere of hotel business and tourism;
- modernization of production in metallurgy and machine building, development of agricultural clusters, chemical industry of the territory, energy machine building;
- diversification of the economics of the region at the cost of increase of processing and extraction of natural resources of the territory, as well as introduction of highly technological productions in biotechnological and pharmaceutics;
- creation of innovation of the regional system, including scientific and educational complex, technology city, effective innovation infrastructure;
- realization of transport and transit advantages of the region by way of creation of a number of transport and logistics complexes of interregional and international purpose;
- development of servicing sector of the region, based on development of highly technological modern types of services, as well as growth of insurance and financial services; educational and business services, informational technologies.

Development of the social sphere of the territory in case of realization of the innovation variant stipulates
concentration at the problems of providing the best demographic balance and increase of welfare of the people. This means high quality of employment of the population, high level of income of the population, availability of high quality services of health care and education, high standards of personal safety, access to cultural benefits, the necessary level of procurement with residential space, high level of ecological safety (Stroiteleva, T.G., 2013).

The scenario plans demographic positive trend, starting from 2012 at the cost of reduction of mortality, increase of birth, as well as with achievement of positive indices of migration growth.

By the present moment the elements of innovation regional system existing in Altai territory may become the independent factor of the innovation of development of the innovation technologies in biotechnologies, pharmaceutics, agricultural business, sphere of highly technological educational and medical services.

In the course of realization of the innovation scenario of the development of the region the important role belongs to development of small business in agribusiness, industry, tourism, in the innovation sphere.

Realization of the innovation scenario requires significant change of the demographic situation in the region towards strengthening of the number of the population and transfer to its systematic growth. This scenario sets special requirements to the quality of the human capital. Failure to observe the necessary requirements is a significant threat for transition to the innovation development.

The forces scenario of development of the region stipulates increase of the rates of economic growth and is formed within the framework of scenario of the forces growth of the country, based on maximum favorable external conditions and on more intensive flow-in of the investments at the world food markets, increased demand. At the first stage high growth rates will be achieved at the cost of intensive renewal of the production base in the following industries: construction, machine building, servicing sphere (including tourism), transactions with the real estate.

Both - the innovation scenario and the forced scenario stipulates favorable demographic situation.

Realization of the forced scenario bears a number of risks and threats, in particular: in accordance with the forced scenario development of the economics is possible only if there are the following external factors:
- macroeconomic stability of the world and Russian economics;
- stabilization of real exchange rate of RUB;
- favorable environment of process at the world markets of food and agricultural raw materials;
- restrained tariff policy inside the country for services and goods of natural monopolies.

The forced scenario is very dependent on the above mentioned conditions, that is why the extent of its realization is very small.

The innovation scenario is offered as the target scenario in the strategy of the economic and social development of the region for the period up to year 2025 (Vazhenina, T.Yu., 2013).

The key quantitative characteristics of scenarios of development of the region in the perspective up to year 2025 are presented in table 1.

<table>
<thead>
<tr>
<th>Table 1: Macroeconomic parameters of scenarios of economic and social development of the region (2025 in times vs 2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indices</td>
</tr>
<tr>
<td>GRP</td>
</tr>
<tr>
<td>Investments at the cost of all sources of financing to the fixed capital</td>
</tr>
<tr>
<td>Total volume of industrial production</td>
</tr>
<tr>
<td>Disposed real income of the population</td>
</tr>
</tbody>
</table>

Growth rates of GRP in Altai territory will mainly be determined by the development of the sphere of social services, the dynamics of expenses of the population, agriculture and productions oriented at the internal regional market. Over the period 2012-2025 on the whole the average annual growth of the industrial production will make 3.1%, GRP - 3.3%. (Ushakov, A.K., 2000)

The differences between the conservative and the innovation scenarios relate not only to its quantitative parameters, but also the quality of economic growth.

In accordance with the assumptions of the innovation variant the average growth rates of GRP in 2012-2025 will make 5.9%, of the industrial production – 4.5%. The major part of the growth of the production will be provided at the cost of nonindustrial spheres. Forming of the tourist complex of international class in the territory will lead to increased development of transport, trade, communication, as well as servicing sector. Growth of which will be based on development of services and the innovation types of activity (http://www.fbk.ru; http://www.altaicpp.ru).

The innovation scenario contributes to growth of average per capita indices of GRP (table 2), together with the fact that for its realization more rigid conditions for dynamics of effectiveness of production are required and the resource provision of the growth. The main source of increase of the production capacity will be technological and technical renewal of the production mechanism, as well as development of new productions with large level of production capacity.
Transfer to the model of innovation development of the region will let strengthen its positions in the economics of Russia and realize competitive advantages of Altai territory. (Stroiteleva, T.G., 2010)

As the main measures for development of the innovations and science for the future perspective up to year 2025 the following are defined:

- increase of the quality of innovations offer;
- promotion of many innovations in all economic sectors;
- realization of social functions of the innovations.

Increase of the quality of innovations offer will be reached by the following ways:

- providing with technological and financial support of the academic and higher educational science, creation of conditions for attraction of intellectual capital from other RF entities;
- assistance to development with high concentration of the innovation and scientific and technical potential of territories, including the largest technology city in RF – Biysk;
- assistance to promotion to the market of the innovation competitive products, performed in the territory, at the cost of combining the efforts of administrative resources and entrepreneur sector of the economics based on mutually beneficial partnership, activation of technologies, creation of centers of collective access to equipment and centers on promoting of technologies;
- inclusion into the operation of technical platforms for expanding possible approaches of development of technical and scientific activity and growth of its effectiveness;
- reduction of the level energy dependence on the neighboring regions of RF, reduction of energy losses by way of development and active introduction of high technological, energy saving devices and their components.

Realization of social functions of innovations is directed at:

- increase of practice of performing tenders of innovation offers on resolving ecological, infrastructural and social problems at the municipal and regional level;
- increase of computerization of educational establishments, social sphere and health care;
- modernization of residential and municipal economy, increase of scales of energy saving buildings construction;
- introduction of new modern standards for providing innovation services in health care, education, state management and social sphere, including in the interests of social vulnerable groups of population of the territory, as well as including assistance of measures on providing their access to innovation products, services and innovation technologies;
- realization on the territory of educational projects and programs, directed at training of the youth to the bases of innovation entrepreneur activity, propagation of scientific and technical activity and innovation entrepreneur activity.

One more important aspect in the innovation project is the spatial arrangement. The key aim of improving the spatial arrangement of the region is providing conditions for growth of the quality of living of the population and the economics in the whole territory (Vazhenina, T.Yu., 2013).

Achievement of the set aim stipulates resolving the following tasks:

1. Leveling the inequality of territories on the level of economic and social development of the territories of the region based on distribution of economic activity by all groups of municipal formations, for the inhabitants of the territory expanding the possibility for choice of places of procurement with services of social sphere and implementing labor.
2. Based on large cities of the territory to perform creation of centers of economic growth – backbone territories for development of economics and increase of the quality of living of the population of the territory.
3. Based on municipal districts of the territory to perform formation of areas of economic growth at the cost of saturation with objects of agricultural complex and industry, which will allow providing the conditions of «fixing» of the local population and employment of the population.
4. Increase of the quality of transport and engineering arrangement of the territories of Altai territory.
5. Reshaping of single-industry cities.

Modern spatial structure if the economics of the region is determined by the high extent of economic activity in the chief centers if Altai territory – the Barnaul agglomeration in Biysk. For the purpose of increase of the economic stability of the territory it is necessary to provide distribution of economic activity of the centers existing now, as well as to achieve creation of new centers of economic development, which will reduce shifts of spatial development, increase the territorial flexibility of the economic structure, to provide the growth of the level and the quality of living of the population in villages and towns.

Table 2: Gross regional product per capita. RUB thousand.

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservative</td>
<td>123.7</td>
<td>225</td>
<td>350</td>
<td>450</td>
</tr>
<tr>
<td>Innovation</td>
<td>157</td>
<td>237</td>
<td>350</td>
<td>450</td>
</tr>
<tr>
<td>Forced</td>
<td>231</td>
<td>360</td>
<td>445</td>
<td></td>
</tr>
</tbody>
</table>

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Incentives for development of economic centers will assist the creation in them of social and economic environment, characterized with steady and fast progress, creation of new workplaces, increase of the quality if and the level of living of the population, as well as increase at the interregional level of their competitive capacity. There will be areas created with the exceeding development in the areas of attraction of each center, with which growth and development of industries of specialization of Altai territory is connected and the forms of economic spatial arrangement: industrial areas, clusters, special economic areas (Shenshinov, Yu.V., 2013).

Within the framework of realization of the innovation scenario of social and economic development, it is offered to state 4 areas for perspective, possessing large potential for exceeding development, out of which the two are formed close to large social and economic centers – Barnaul and Biysk (table 3).

Table 3: Spatial objective characteristics of areas of economic development

<table>
<thead>
<tr>
<th>Areas of economic development</th>
<th>Share of the area in the territory</th>
<th>Territories of Altai territory, directly belonging to the area</th>
<th>Social and economic center</th>
</tr>
</thead>
<tbody>
<tr>
<td>North-Eastern</td>
<td>29.0%</td>
<td>Barnaul, Alesyk, Zarinisk, Novoaltaysk.</td>
<td>Barnaul</td>
</tr>
<tr>
<td>South-Eastern</td>
<td>17.4%</td>
<td>Cities: Belokurikha, Biysk.</td>
<td>Biysk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Districts: Altayskii, Buyuskii, Bystroistokskii, Zonalniy, Yeltsokskii, Soltognskii, Sovetskii, Soloneshenskii, Smolenskii, Kransogorskii, Petropavlovskoi, Tselinnii.</td>
<td></td>
</tr>
<tr>
<td>South</td>
<td>27.4%</td>
<td>Cities: Rubtsovsk.</td>
<td>Rubtsovsk</td>
</tr>
<tr>
<td>North-Western</td>
<td>26.2%</td>
<td>Cities: Slavgorod, Kamen-na-Obi, Yarovoe.</td>
<td>Slavgorod</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Districts: Blagoveschenskii, Baevskiy, Burlinskii, Zavialovskiy, Kuludinskiy, Kluchevskiy, Krutikhinskiy, Nemetskiy, Mamontovskiy, Pankrushikhinskii, Rodinskii, Romanovskiy, Slavgorodskii, Suetskii, Tabunskii, Tyumentsevskii, Khabanskii.</td>
<td>–</td>
</tr>
</tbody>
</table>

Development of social and economic area will contribute to strengthening of social and demographic, economic and infrastructural carcass of the territory of the region. It is stipulated that formation of progressive spatial forms of arrangement of the territory, creation of centers of growth based on regional competitive advantages, increase of competitive capability and investment attractiveness, introduction of highly technological services and goods, support of advanced technologies, which finally will contribute to improvement of the target indices of the innovation activity (table 4).

Table 4: Target indices of innovation activity of the region

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of innovation activity, %</td>
<td>8.20</td>
<td>12.80</td>
<td>16.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Total volume of innovation products, bln. RUB</td>
<td>5.70</td>
<td>6.90</td>
<td>9.80</td>
<td>14.50</td>
</tr>
<tr>
<td>Number of production advanced technologies created over the year</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Number of submitted patent applications for inventions and useful models as per one researcher</td>
<td>0.28</td>
<td>0.31</td>
<td>0.36</td>
<td>0.42</td>
</tr>
<tr>
<td>Internal costs on development and research, in % to GRP</td>
<td>0.27</td>
<td>0.35</td>
<td>0.55</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Besides, increase of forecasting indicators of social and economic development of Altai territory is substantiated within the framework of realization of the program and target approach (table 5).

Table 5: Target forecasting indicators of the program of economic and social development of the territory for the period up to year 2025

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2011</th>
<th>2015</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth rates, %</td>
<td>12.70</td>
<td>12.80</td>
<td>13.10</td>
</tr>
<tr>
<td>Average life expectancy, years</td>
<td>69.90</td>
<td>71.0</td>
<td>74.0</td>
</tr>
<tr>
<td>Level of unemployment to the number of able-bodies population, %</td>
<td>2.10</td>
<td>2.10</td>
<td>1.90</td>
</tr>
<tr>
<td>Introducing permanent new workplaces, thousand units</td>
<td>15.10</td>
<td>15.10</td>
<td>15.40</td>
</tr>
<tr>
<td>Average salary of 1 employee, RUB</td>
<td>13823.0</td>
<td>16147.0</td>
<td>28800.0</td>
</tr>
<tr>
<td>Commissioning of residential houses, thousand sq. m. of total area</td>
<td>663.20</td>
<td>665.0</td>
<td>990.0</td>
</tr>
<tr>
<td>Physical volume index of GRP, %</td>
<td>105.10</td>
<td>101.40</td>
<td>132.0</td>
</tr>
<tr>
<td>Production capacity, %</td>
<td>101.70</td>
<td>104.10</td>
<td>130.0</td>
</tr>
<tr>
<td>Industrial production index, %</td>
<td>107.90</td>
<td>105.60</td>
<td>128.0</td>
</tr>
<tr>
<td>Specific weight of products of scientific-intensive and highly technological sphere of economics, a % to GRP</td>
<td>11.0</td>
<td>11.20</td>
<td>12.50</td>
</tr>
<tr>
<td>Specific weight of investments in GRP volume, %</td>
<td>20.30</td>
<td>22.40</td>
<td>35.0</td>
</tr>
</tbody>
</table>
Results:
With the help of analysis of quantitative characteristics of each kind of scenario, the optimal variant of the territory development was determined, namely – the innovation. This scenario stipulates development of innovation regional system, modernization of social infrastructure, including health care, education, residential sector, providing essential growth of the quality of human capital and living standards of the population. Performing the events offered in the program will let creating the due conditions for steady economic and social development of Altai territory at the level, providing realization and achievement of parameters of strategy of economic and social development of Altai territory for the period up to year 2025 (Vazhenina, T.Yu., 2013).

Conclusions:
This way, modern economics of Russia at the regional level will function effectively only when there will be real mechanisms created for performing strategy of management based on realization of economic and social programs, taking into account the regional specific nature of a certain region, bringing possible amendments to the existing social and economic programs of optimal methods and ways of their realization.

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