The integral indicator of socio-economic assessment in regard to resource-oriented territories development in Russia

M N Chuvashova, N T Avramchikova, P V Zelenkov, M O Petrosyan
Reshetnev State University, 31 Krasnoyarsky Rabochy Av., Krasnoyarsk, 660037, Russia

E-mail: chuvashova@sibsau.ru

Abstract. Economic peculiarity of Russian resource-oriented territories are based on a focal type of industrial complex, differentiation of economies within a principle of mining and processing of natural resources. To improve the economic condition and integrate into the world innovative process is essential to solve the problem of eliminating the prevalence of resource focus in the industrial economic structure that could ensure the overcoming of the existing spatial dissociation and market mechanisms development in innovative promotion. The monitoring system, involving the integral indicator of socio-economic and territorial potential assessment, has suggested by the authors. The integral indicator could guarantee the objective evaluation of economic condition within a territory that is vital for the governmental authorities to design strategies providing the economic development of administrative territories.

The economic space of the majority of Russian administrative territories are characterized by uneven economic development and its weak diversification at the same time they have significant natural and resource potential, their potential innovative form serves as a fund of vacant opportunities, which are the subject of close examination. Economic growth in Russia is mainly formed to due to mining and processing industry, which provides over half of all the budget revenues of the country. Economic growth is mainly determined due to the primary industries.

In the context of globalization of economic processes, a significant number of Russian territories have to solve the problem of eliminating the prevalence of resource-oriented focus on the industrial economic structure in order to provide the complete integration into the world innovative process that could guarantee the overcoming of the existing spatial dissociation and market mechanisms development in innovative promotion. Recently an innovative approach towards the economic space has received an increasing attention provided by the researchers. This is due to the rapid upsurge of "knowledge economy" and innovative factor.
highlight among the economic development agents [4]. The innovative distribution within the territorial socio-economic system and economic condition improvement as a whole require:

- the generation of income transfer mechanisms from the products sales of extractive industries in favour of branches with stiff technological modes;
- regional budget revenue sharing into oil and gas and others, creation of territorial reserve funds formed up by the partial income transfer from product sales of extractive industry branches;
- setting priorities in the territorial innovative processes development;
- further urbanization processes development (agglomeration) contributing to the appearance of scientific and technical ideas and innovative elaborations in accordance with the worldwide experience, that stimulates the initiative growth and territorial responsibility with regard to the efficient increase of development;
- further transport and energy infrastructure development of the territory (traffic and delivery acceleration, connectivity and disposition) which assures the innovation of development [5].

The authors, using the data from the Federal State Statistics Service of the RF, have carried out the analysis to identify the condition of basic economic indexes in comparison with the territories of Siberian Federal District in case of Krasnoyarsk Territory so that to determine and methodize the factors, influencing the technological and innovative development of resource-oriented territories.

**Table 1.** The main innovation development indexes within Krasnoyarsk Territory as a resource-oriented territory in comparison with the territories of Siberian Federal District and the RF in 2014 (in current prices).

| Index | The Russian Federation | Siberian Federal District | Krasnoyarsk Territory |
|-------|------------------------|--------------------------|-----------------------|
| Gross regional product, bn. rub. | 49920,0 | 5147,4 | 1192,6 |
| Shipped internal goods, works and services, bn. rub. | 41372,4 | 4537,3 | 1060,5 |
| - including innovative products and services | 3507,9 | 151,4 | 53,9 |
| Economic density of population (\(\text{Ec.d}=\frac{\text{economically active population}}{\text{S km}^2}\). Unit of measure a person per km\(^2\)) | 4 | 2 | 1 |
| Total freight turnover mln. ton per km. | 250054 | 18057 | 3447 |
| Volume of permanent investments, bn. rub. | 13255,5 | 1378,0 | 369,3 |
| Share in the volume of innovative production, %: | 7,0 | 2,9 | 4,5 |
| - in GDP (GRP) | 9,2 | 3,3 | 5,1 |
| Net financial result, mln. rub. | 6853753 | 446292 | 189769 |
Conducted studies testify that the output production and innovative production sales growth, as well as the growth of permanent investments volume within the economy of the territory of resource kind is extensively dependent on the territory richness in terms of human resources and development of industrial infrastructure. The analysis results allow to conclude that there is a weak correlation between the innovation development indicators of the territory and the net financial result (the share of permanent investments volume towards the net financial result is lower than in the Siberian Federal District (SFD) as a whole), which indicates the lack of interest on the part of regional economic business - community in the renewal of fixed assets and their modernization. Therefore, it has concluded that the market mechanisms efficiency of innovation diffusion is insufficient in resource – oriented territories. Besides the economic density of population in the territory (the ratio of economically active population to the total area of the territory) is generally much lower in comparison with the same indicator in SFD and Russia, so the innovative processes has characterized by the distinct local nature. The research results have approved the necessity of the support system establishment in the territories of such kind by the public authorities, who are in charge of the innovation infrastructure development, ensuring the creation and market promotion of most recent and upgraded products and technologies that will undoubtedly improve the quality of economic space inside a resource-oriented territory. It is essential to have an objective view of the region competitiveness, learn and evaluate the socio-economic potential of the territory to create and promote the most recent or innovative and upgraded products and technologies to the market. In this regard, it has proposed to develop a diagnostic system, which comprises an integral indicator of the socio-economic assessment of the territory development.

It is vital to carry out the diagnostics of the economic space of the territory as a whole to assess the level of regional economic development and the possibility of high-quality and uniform distribution of innovation in the resource-oriented territory. The diagnostics will show how qualitative the regional economic space is, so the integral indicator of the regional socio-economic development, which could been applied not only to the administrative territories of such kind, is suggested to be used. To calculate the integral index it is necessary to highlight the main directions of its socio-economic development and form an array of objective indicators for each of them. The absence of linear connection between the indexes consider one of the conditions in the indicator selection. The correlation analysis method uses to examine the existence of linear connection between the indicators. This particular research suggests Spearman’s identification pairwise test to guarantee the efficient discovery of linear connection (Table 2).
### Table 2. The Structural integral indicator of the socio-economic evaluation of regional development.

| Highlighted aspects of socio-economic regional development | Indicators of integral index of the socio-economic assessment of regional development | The integral indicator of the economic development level of the resource-oriented territory |
|----------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Economic                                                 | - natural \((K_{1.1})\)                                                             | \[ J_i = \sum_{j=1}^{J} a_{ij} K_{ij} \] on condition of \[ \sum_{i=1}^{4} \sum_{j=1}^{J} a_{ij} = 1 \] |
| Innovative                                               | - the level of technological state of economic branches \((K_{2.1})\)             | \(0 \leq a_{ij} \leq 1, i=1,4, j=1, J\)                                               |
| Social                                                   | - demographic \((K_{3.1})\)                                                          | \(K_{ij} \) – general index of importance of each indicator in a group. \(a_{ij}\) – ratio meaning, \(i\)- direction, \(j\)- indicator. |
| Budgetary                                                | - local balanced budget\((K_{4.1})\)                                                |                                                                                         |
|                                                          | - the rate of grants, subventions and subsidies from the budget of superior level \((K_{4.2})\) |                                                                                         |
|                                                          | - support of enterprise development \((K_{4.3})\)                                   |                                                                                         |

The adequacy of proposed integral indicator of socio-economic assessment of regional development are specified by the slow change of its ratings in terms of time because each of the integral properties reflects the conditions that can enhance or degrade the quality of economic space of resource-oriented territory under the consideration of time interval.

This particular approach, evaluating the quality of economic space within resource-oriented territories, complements the existing characteristics of its assessment and permits to carry out the correlation of the level of selected socio-economic lines of development, which are difficult to compare due to the diversity of evaluation factors. The essential content of the integral indicator in terms of socio-economic evaluation of the territorial potential lies in the integrated assessment in regard to the economic independence of the territory and possible development prospects. The integral indicator application in regard to the level evaluation of economic and innovative growth within the territories of various kinds contributes to the level determination of regional field development. The obtained results could applied as a series of recommendations concerning the administrative influence in order to improve the economic space of the territory. The integral indicator evaluation results would be used by the public authorities to design the economic development strategies in accordance with their resource profile.
References
[1] Scopin A. U. 2007. *Regional economic and environmental management*. Moscow. Prospect Publ. pp. 35-47.
[2] Hugget P. 2005. *General geography: global synthesis*. Pearson Custom Publ. pp. 233-242.
[3] Avramchikova N. T., Chuvashova M. N. 2015. *Regional economic: theory and practice*. No. 28 (403).
[4] Chuvashova M N, Avramchikova N T, Antamoshkin A N, *IOP Conf. Series: Materials Science and Engineering* 94 (2015) 012017.
[5] Chuvashova M. N. 2014. *Vestnik SibGAIU*. no. 5 (57).