

On the Issue of the Evaluation of the Economic Development of a Region

N A Demura¹

¹Belgorod State Technological University. V.G. Shukhov, Belgorod, Russia

E-mail: fareastcon2019@gmail.com

Abstract. The article presents the research of basic approaches to the assessment of regional economic development and identifies the most feasible approach, which is today a pertinent task for the Russian science and practice. The research is based on the analysis of the publications by Russian experts, recommendations of public authorities for assessing regional economic development. Data from Rosstat, information and analytical agencies were among the research sources. The article presents the study of the existing approaches to the assessment of regional economic development. The author made an attempt to compare the existing methods for evaluating regional economic development on the basis of an analysis of the official statistics, rating agencies and the calculation of the integral indicator for the level of economic development by groups of indicators. The advantages and disadvantages of the proposed assessment methods are identified. A comprehensive approach to the evaluation is proposed. The correlation and regression analysis is suggested for selecting meaningful factors and establishing the level of their impact on the level of economic development of a region. The assessment procedure for the economic development of a region is explained.

1. Introduction

The pertinence of the topic is determined by the final goal of the operation of any economic system, namely its development. When global economic transformation becomes more rapid and wide-scale, uncertainty grows, and competition intensifies, a need arises for constant improvement of the management system and philosophy, development of new methods and approaches alleviating the influence of the environment. Solutions to present-day problems in innovative modernization and system-wide transformation of the national economy are impossible without ensuring the sustainable economic development at the level of states, regions and businesses.

Economic growth and development have been researched by the fathers of the economic science: M. Varro, Columella, T. Malthus, K. Marx, D. Ricardo, Jean-Baptiste Say, A. Smith, H. Storch, J. Schumpeter. The theory and practice of the economic growth and development have been further explored by foreign and Russian scientists: A. Anchishkin, S. Glaziev, Edward F. Denison, E. Domar, N. Kaldor, J. Keynes, N. Kondratiev, S. Kuznets, V. Leontiev, William D. Nordhaus, J. Robinson, W. Rostow, P. Samuelson, R. Solow, G. Feldman, M. Friedman, R. Harrod, N. Yaremchuk, I. Veretennikova, Y. Doroshenko, E. Stryabkova, T. Uskova, G. Feraru, D. Fraimovich, A. Kholodnaya, E. Shchetinina made a contribution into the solution of specific theoretical and methodological issues associated with the economic development of a region.

While highly appreciating the theoretical, methodological and practical research conducted by the aforementioned scientists, we should say that in a number of relevant practical issues, further research

and improvement are needed. In particular, there is no unified method for assessing the economic development of a region.

2. The analysis of the basic approaches to the assessment of regional economic development

The problem of regional economic development assessment has been researched by different authors both at the state level in terms of development of programmes, projects and monitoring of regional economic development and by scientists and researchers.

Ruling of the Government of the Russian Federation of 15 June 2009 No. 806-p [1] approves the collection of information, accounting time frames, lists of indicators for the monitoring of social and economic development of Russian regions.

Various rating agencies develop ranking for Russian regions, for example: "Expert RA" is the rating of investment attractiveness; "RIA Rating" is the social and economic situation, living standards, credit rating; the Association of innovative Russian regions provides the innovative regions rating; the Institute for Statistical Studies and Economics of Knowledge develops the innovative development rating and the rating of the preparedness of the regions for the future; the Agency for political and economic communication and the Laboratory of political research in Higher School of Economics make the management efficiency rating for subjects of the Russian Federation; AV Group consulting company provides the region competitiveness index; AV RCI provides data on the growth poles in Russia, etc.

When such ratings are developed, both static and dynamic ranking is provided. Dynamic ranking is associated with a number of challenges to the calculation of the general rating. Both methods face the problem of accuracy connected to the expert evaluation of weighting coefficient.

The conducted comprehensive research on the analysis of the development assessment approaches has shown that the task of evaluating the social and economic development of regions is still not fully fulfilled, and new approaches and methods are needed. One and the same process of the social and economic development is measured by different indicators. The same indicators in different methodologies has different units of measurement.

At the same time, the quality of the sources determines the quality of research and forecasting.

When economic development is assessed, the following approaches to the development evaluation and monitoring have been found.

- The official position in terms of administrative approach [1].
- A number of authors believe that the evaluation can be performed in the form of monitoring [3].
- The vision of experts who isolate the development evaluation and have proposed their own methods for assessing the development level [8, 9, 10].

3. The comparison of the regional economic development evaluation methods

The analysed regional economic development evaluation methods are divided into the following basic areas (groups).

– The assessment of the current situation in a region using data on the development indicators' monitoring, their comparison to the threshold values established on the basis of expert analysis data. Here experts as part of an expert commission need to be selected so that they could conduct a high-quality assessment.

– The evaluation of quantitative macro-economic indicators, their fluctuations, growth rate and the calculation of the integrated index.

- Expert evaluations and indicator ranking by various priority areas.
- Economic and mathematical algorithm and assessment methods.

The analysis shows that the absolute majority of methods based on the calculation of the integrated index allow to identify the economic development leaders and outsiders. However, various ways to normalize indicators, selection of different groups of factors, and impossibility to account for varying impact of those factors, result in discrepancies between the economic development assessments that use various methods.

It is feasible to use comprehensive assessment approach to take management decisions depending on the situation in the regions [2], their geography, social, cultural, historic and other aspects of their growth, its rate and specific situation.

Table 1. Comparative analysis of the regional economic development assessment.

| Methodology | Specific aspects | Results of the assessment based on the 2017 data. Leaders (indicator)/outsiders (indicator) |
|--|--|--|
| Source: drawdown/growth rate of gross regional product in 2017, % (in comparable prices) (Source: the author's analysis on the basis of Rosstat data [1, 6]) | As the final indicator we offer draw down/growth rate of gross regional product per capita, % (in comparable prices) | Kaluzhskaya (105.6), Bryanskaya (104.7), Tulskaya (103.9), Belgorodskaya (103.7), Smolenskaya (102.9) / Orlovskaya (98.8) |
| Source: welfare rating (the author's analysis on the basis of RIA Novosti data [4]) | Rating is developed on the basis of 72 indicators divided into 11 groups | Moskovskaya (65.059), Belgorodskaya (55.629), Voronezhskaya (55.027), Lipetskaya (53.833), Kaluzhskaya (49.578) / Kostromskaya (21.148) |
| Source: the rating on social and economic situation in the subjects of the Russian Federation (Source: the author's analysis on the basis of RIA Rating data [5]) | Rating is developed on the basis of 15 indicators divided into 4 groups | Moskovskaya (76.88), Belgorodskaya (64), Voronezhskaya (61.21), Lipetskaya (59.5), Kurskaya (54.4)/Tverskaya (39.46) |
| Source: calculation of the integrated index accounting for the arithmetic mean normalization (Source: calculated on the basis of the author's data using the method [9]) | The ranking is based on 28 indicators that are divided into 3 groups (economic, social and environmental). | Moskovskaya (1.711), Voronezhskaya (1.168), Lipetskaya (1.130), Tulskaya (1.124), Smolenskaya (1.101) / Ivanovskaya (1.588) |
| Source: calculation of the integrated index accounting for the linear normalization (calculated on the basis of the author's data using the method [8, 10]) | The ranking is based on 28 indicators that are divided into 3 groups (economic, social and environmental). | Moskovskaya(1.274), Tverskaya (1.220), Voronezhskaya (1.085), Tulskaya (1.059), Lipetskaya (1.048) / Ivanovskaya (0.588) |
| Source: calculation of the integrated index accounting for the arithmetic mean normalization (Source: calculated on the basis of the author's data using the method [7]) | The ranking is based on 24 indicators that are divided into 2 groups (economic and social). | Moskovskaya(1.598), Lipetskaya (1.365), Tverskaya (1.356), Kostromskaya (1.225), Voronezhskaya (1.079) / Ivanovskaya (0.501) |

4. Propositions about the improvement of regional economic development assessment methodology

From the author's point of view, the significant contribution of the classifications of economic development evaluations developed by various researchers, the scope of the work and deep analysis

should be recognized. We have to agree that it is essential to use comprehensive and synergetic approaches to the assessment and differentiation of methods depending on the goal of a management decision, specific qualities of a region (individual set of factors that affect its development), development system resourcing, in particular in the view of national trends and the need for digital transformation.

Comprehensive approach employs a correlation and regressive analysis and evaluation method with the integrated index calculated on the basis of factors selected from each group and divided into the regional development subsystems.

The step-by-step assessment procedure for the regional economic development is the following.

The first step: select factors.

The second step: factor analysis and identification of meaningful, meaningless and multicollinear factors.

The third step: select meaningful factors.

The fourth step: find the function of each selected meaningful factor (linear, power, parametric, logarithmic, etc.).

The fifth step: construct a regression equation accounting for the factors' functions.

The sixth step: evaluate the regression parameters.

The seventh step: make a forecast of the economic development of a region.

Use the calculated integrated index to conduct a comparative analysis of the regional development, but in order to assess specific groups of factors, meaningful indicators should be selected.

In order to select a factor that impacts the outcome the most, we can use the hierarchy analysis method, ELECTRE method and other methods of multi-criteria evaluation.

The assessment becomes the basis for management solutions concerning the development of the region.

5. Conclusion

In conclusion, we can say the following. As today there is no consensus on the regional economic development assessment, this problem seems to be pertinent and needs further research. The proposed regional economic development assessment methods do not provide identical results, some of them do not indicate the sources they use for methodological and information calculation, and, in the author's opinion, are not reliable. We believe that authors' methods vary in their criteria normalization and contents, and can include indicators that are not meaningful enough, which influences the final integrated index of the regional economic development. When a large number of indicators are divided into economic, social and environmental ones, their combined impact might not be taken into account. The integrated index calculation with a large group of indicators is a complex task in terms of the calculation method (a technical error is possible). The integrated index calculation does not allow to identify the impact of individual factors and find the main factor.

A comprehensive evaluation approach allows to eliminate the mentioned disadvantages and find a solution. The correlation and regression analysis should be used to calculate the impact of the factors and increase the number of econometric model applications.

6. Acknowledgments

The article is published under the development programme for the flagship university under the auspices of V.G. Shukhov Belgorod State Technological University.

7. References

- [1] Decree of the Government of the Russian Federation of June 15, 2009 No 806-r On approval of the list of indicators for monitoring processes in the real sector of the economy, financial, banking and social spheres of the constituent entities of the Russian Federation <https://www.garant.ru/products/ipo/prime/doc/6625196/>
- [2] Dzhemali O, Stryabkova E A 2017 Development of an innovative economy in the Belgorod

- region *Bulletin of BSTU named after V.G. Shukhov* **8** 219-224
- [3] Dyukina T O, Lukyanova N Yu 2018 Assessment of the socio-economic development of Russian regions: an inventory of approaches *Bulletin of the Baltic Federal University I Kant* **2** 61–69
- [4] Rating of Russian regions by quality of life 2017 <https://ria.ru/20180214/1514552265.html?in=t>
- [5] Rating of the socio-economic situation of the constituent entities of the Russian Federation in 2017 <http://riarating.ru/infografika/20180523/630091878.html>
- [6] Rosstat Official website http://www.gks.ru/free_doc/new_site/rosstat/pok-monitor/pok-monitor.html
- [7] Slepneva L R 2017 Assessment of the level of socio-economic development of regions: a methodological aspect Institute of Scientific Information for Social Sciences of the Russian Academy of Sciences (Moscow)
- [8] Uskova T V 2009 Management of sustainable development of the region *ISED T RAS* (Vologda)
- [9] Feraru G S, Orlova A V 2014 Methodology for assessing the level of sustainable socio-economic development of regions *Modern problems of science and education* **1** 292–298
- [10] Fraimovich D Yu, Cold A K 2017 Comprehensive diagnostics of interregional innovation and resource differentiation *Bulletin of the Financial University* **1** 16–27