



Article

Scientific Problems of Regional Development Assessment Methodology

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Abstract: The article considers systemic methodological problems in assessing regional development in the context of a modern regional economy. Based on a critical analysis of the literature review (2020–2025), the main problems were identified and grouped into four blocks: indicator-measurement (incomparability of data, subjective indicator selection, weight uncertainty, multidimensionality), spatial-statistical (ignoring spatial autocorrelation, equating differences to average values, issues of scale and digital transformation), institutional-management (the gap between strategic planning and monitoring, the formal nature of the assessment) and specialized (incompatibility of methodologies for different regions, mainly rural areas). The author's classification of problems is proposed, which allows for a systematic discussion of ways to improve the methodological apparatus. Based on the results obtained, proposals are formulated for the development of methodological support, statistical basis and institutional environment for assessing regional development.

Keywords: Assessment methodology, regional development, regional economy, integrated indices, strategic planning, indicator system, digitalization, rural areas, regional economic security.

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Introduction

In the context of increasing complexity of interregional relations and the transition to a management model aimed at achieving national goals, the problem of reliable and effective assessment of regional development is gaining not only scientific, but also practical importance. The effectiveness of strategic planning, budget policy and interbudgetary relations directly depends on how accurately the current state of the regions is diagnosed, growth points and risk zones are identified. However, recent experience has shown that there is a constant gap between the declared approaches and the actual methodologies used in the management cycle. This gap is associated not only with a lack of data, but also with deep methodological problems inherent in the paradigm of assessing regional development[1].

In modern regional economics, several established assessment approaches have emerged: a resource-based approach (assessing potential), a results-based approach (assessing effectiveness), a sustainable development approach (balancing economic, social and environmental components), and an institutional approach that takes into account the quality of governance. Each of these approaches relies on its own set of tools, which creates the problem of inconsistent results[2].

Despite the large number of publications devoted to individual aspects of assessment, a complete systematic understanding of methodological problems is lacking.

Many studies are aimed at criticizing existing indicators or propose new, specific methodologies without resolving the main contradictions[3]. To date, a single classification of methodological problems has not emerged that would allow structuring the discussion and identifying priority areas for improving the methodological framework.

Our goal is to systematize methodological issues in the assessment of territorial development in the form of a classification scheme that reflects their interrelationships and hierarchy, as well as to identify contradictions between different methodological approaches that have not been comprehensively considered before.

Research Methodology

This study is based on the methodology of systematic review and qualitative content analysis. The classification method was used to process the data. For each group, the authors' proposals for eliminating the identified problems were identified, which allowed us to subsequently compare the level of consensus and identify unresolved problems[4].

Review of Related Literature

An analysis of selected publications covering the period 2020–2025 allows us to identify several main areas of criticism of the existing methodology for assessing territorial development.

O. Ivanov and E. Vasileva systematize approaches to assessment and emphasize that existing methodologies suffer from incomparability of data, subjectivity in the selection of indicators, and insufficient dynamism[5]. The authors justify the need to transition to multi-criteria models that take into account uneven territorial development.

A similar issue was raised by A. Tatarkin and A. Kuklin, analyzing the evolution of integral indices[6]. They argue that “traditional integral indices do not reflect structural imbalances and do not allow identifying obstacles to regional development”. In their opinion, the main difficulty lies in the choice of weighting coefficients and multicollinearity of indicators, which leads to the “average” of various characteristics and the loss of managerial significance of the results.

H. Zubarevich and S. Safronov argue that “standard statistical methods (average values, indices) neutralize differences and can lead to erroneous conclusions”[7]. The authors propose the introduction of regional clustering and inequality analysis methods, and emphasize that ignoring regional autocorrelation and the “center-periphery” hierarchy reduces the validity of the assumptions. This thesis reflects the findings of M. Sharygin and I. Chupina, who see digitalization as a factor complicating the methodology: on the one hand, new data are emerging, and on the other hand, there is a need to “unify regional data, develop algorithms that take into account information security and network interaction”. E. Bukhvald and A. Kolchugina study “methodological gaps between strategic planning and goal achievement assessment systems at the regional level”[8]. In their opinion, the lack of a single methodological basis for assessment within the strategic cycle leads to fragmentation of management decisions. This is complemented by the findings of V. Senchagov and S. Mityakov on the assessment of regional economic security: “existing methodologies suffer from subjective threshold values and the lack of dynamic adjustment of indicators”, and standardization of indicators without taking into account regional specialization reduces their diagnostic value[9].

I. Merenkova and A. Neustroeva argue that “traditional methodologies developed for the regional level cannot be applied to rural areas without adaptation that takes into account their functional specificity” [10]. The problem of low statistical observation density, the multifaceted nature of the economy, and the complexity of quantitative measurement of social impacts require a differentiated approach to the selection of indicators.

A review of the literature shows that methodological problems are multifaceted and affect the selection of data, processing methods, and interpretation of results. However,

these issues are mostly considered separately, which hinders a holistic understanding of the structure of the methodological crisis.

Results

As a result of the analysis, 18 specific methodological issues were identified, grouped into four blocks. Table 1 shows the systematization of these issues based on the sources reviewed[11].

Table 1. Systematization of methodological issues in assessing territorial development.

Problem group	Specific problem	Sources	The authors' main findings
Indicator and measurement unit	Incomparability of source data due to differences in statistical calculations	[1]	It is necessary to harmonize statistical classifiers and move to the principles of unified data collection
	Subjectivity in the selection of indicators and the absence of a well-founded system of indicators	[1], [5]	Methodologies should be developed based on the assessment goals, not on the availability of data
	Multiplicity in the construction of integral indices	[3]	Use factor analysis methods to reduce dimensionality without losing information content
	Uncertainty in weighting coefficients in aggregated indicators	[3], [5]	Abandon global weights, switch to dynamic or expert-based weights that take into account regional priorities
	Averaging of heterogeneous characteristics, hiding structural imbalances	[3]	Division of integral indices into sub-indices with mandatory visualization of deviations
Regional-statistical block	Ignoring spatial autocorrelation when interpreting data	[4]	Introduction of spatial econometric tools (Moran indices, spatial regression models)
	Equalizing differences when using average values	[4]	Use of clustering and inequality analysis methods (Gini coefficient, polarization)
	Ignoring the "center-periphery" hierarchy	[4]	Inclusion of variables characterizing proximity to growth centers and transport connectivity in models
	Inadequacy of traditional statistical methods for working with "big data" and geospatial data	[2]	Development of a methodology for "digital twins" of territories and unification of spatial data formats
	The issue of scale: it is incorrect to transfer conclusions from one level (municipal) to another (regional)	[7]	Need for multi-level analysis taking into account economies of scale
Institutional and management block	Discrepancy between strategic planning indicators and current assessment indicators	[6]	With strategic goals creation of a unified synchronized monitoring system

	The formal nature of monitoring hinders the adjustment of management decisions	[1], [6]	Transition from "reporting" indicators to indicators of final socio-economic results
	Subjectivity in setting boundaries (economic security for)	[5]	Development of boundary justification methods based on retrospective analysis and interregional comparisons
	Lack of feedback: assessment does not affect resource allocation	[6]	Integration of assessment results into budget planning processes
	Provision		
Specialized block (territorial typology)	Low density of statistical observations for rural areas	[7]	Use of sample questionnaires, remote sensing data, and alternative sources
	Multidisciplinary nature of the rural economy that does not fit into standard classifications	[7]	Development of specialized indicator systems that include informal employment and private farms
	Difficulty in quantitatively measuring social dimensions of impacts (quality of life, social capital)	[7]	Combining quantitative and qualitative methods, conducting sociological measurements
	Standardization of methods regardless of the functional specialization of the region	[5], [7]	Differential approach to indicator selection depending on the type of territory (agriculture, industry, recreation, etc.).

The analysis of the table reveals several important trends:

firstly, the indicator-measurement component is mentioned most often, which indicates the ongoing problems associated with determining "what to measure";

secondly, the regional-statistical component, although it is being actively developed theoretically, has not yet been used to the required level in regional management practice;

thirdly, institutional-management issues are considered in fewer sources, but they determine the ultimate effectiveness of the methodologies.

Discussion

Systematizing methodological issues allows them to be analyzed in the context of broader trends noted in the reviewed sources.

Some authors emphasize the need for standardization to ensure comparability, while others insist on taking into account the specific characteristics of each region. This contradiction cannot be resolved by a simple "either/or" choice. A.I. Tatarkin, A.A. The solution proposed by Kuklin and E.M. Bukhvald, A.V. Kolchugina is the transition to modular assessment systems: the universal core (the main indicators that are mandatory for all regions) is supplemented by a variable component reflecting specialization and development priorities. However, as E.M. Bukhvald, A.V. Kolchugina noted, such modularity is rarely used in practice due to the inertia of the state statistical system and the lack of legal mechanisms that allow regions to introduce additional indicators.

The works of M.D. Sharygin, I.P. Chupina and N.V. Zubarevich, S.G. Safronov radically change the optics: if regional differences were previously perceived as an obstacle to calculating average values, in the new paradigm they become an object of analysis. The proposed clustering methods allow us to identify homogeneous zones where unified management approaches can be applied, and even more so, noting that digital technologies allow us to move from discrete assessments by administrative units to continuous regional analysis[12]. However, as the authors rightly point out, a methodology for working with such data has not yet been developed, and the need to develop algorithms that integrate regional data, protect information, and take into account network interactions has not yet been realized. Most of the existing methods assess the state of the territory at a given date, which is insufficient for making management decisions[13]. The exception is integrated approaches to strategic planning, which include monitoring the achievement of goals. However, Ye.M. Bukhvald and A.V. As Kolchugina noted, “the lack of a single methodological basis for assessing regional development within the strategic cycle leads to fragmentation of management decisions” [14]. The dynamic aspect is especially important for assessing efficiency: regions should be compared not by the absolute values of indicators, but by the speed of their change and the stability of the development trajectory.

An interesting point identified by O.P. Ivanov and E.V. Vasilyeva is that even the most sophisticated methodologies can be ineffective if they are not integrated into the decision-making process[15]. This leads to the phenomenon of “assessment for reporting”, where indicators are collected, but do not affect resource allocation or policy change. To close this gap, not new methods are required, but changes in the institutional environment - the introduction of responsibility for the use of assessment results.

If we compare the resulting systematization with the generalizations that existed in the regional economy until 2020, we can note an increased focus on regional and numerical dimensions. Early studies focused mainly on methods for selecting indicators and analyzing factors.

Modern studies emphasize issues of scale, autocorrelation and network interaction. This reflects the general evolution of regional studies towards a “regional turn” and the recognition that the region is not just a resource carrier, but an active factor shaping development trajectories.

Conclusions and Suggestions

The conducted study allows us to draw the following conclusions.

1. The methodology for assessing territorial development is facing a systemic crisis caused by the discrepancy between the complexity of the object and the simplicity of the tools used. The identified problems are grouped into four blocks: indicator-measurement, regional-statistical, institutional-management and specialized (territorial typology). None of these blocks can be considered fully resolved.

2. The main contradiction is the conflict between the desire for universality (comparison) and the need to take into account specificity (sufficiency). Attempts to resolve this conflict through modular systems or differential boundaries [3; 5; 7] has not yet been widely adopted due to the lack of a regulatory framework and methodological recommendations.

3. The introduction of regional econometric methods and digital technologies is fraught with difficulties not only with technical, but also with methodological factors: there are no regional aggregation standards and algorithms for integrating various data have not been developed.

4. The institutional gap between assessment and management remains the main obstacle to improving the effectiveness of regional policy. As shown by Ye.M. Bukhvald

and A.V. Kolchugina, even complex methodologies are not used without synchronizing monitoring and strategic planning systems.

Based on these findings, the following proposals were formulated:

it would be appropriate to develop a classifier of methodological problems similar to that presented in Table 1, which could serve as a basis for auditing existing methods;

for each group of problems, standardized methods should be proposed to overcome them (for example, the mandatory use of factor analysis for multicollinearity, the calculation of the Moran I index for regional autocorrelation, etc.);

it is necessary to create a generalized open regional data system not only for administrative-territorial divisions, but also for functional zones (agglomerations, clusters), which will allow implementing proposals for the transition to a continuous regional analysis;

it is necessary to include not only target indicators, but also monitoring methods in strategic planning documents, and to legalize the requirement to provide mandatory feedback to adjust the provision of resources.

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