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TRANSPORT ACCESSIBILITY AS A FACTOR OF REGIONAL ECONOMIC DEVELOPMENT THEORETICAL AND METHODOLOGICAL FOUNDATIONS AND EVALUATION METHODS

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ABSTRACT:

Mazkur maqolada transport ta'minlanganligining hududiy iqtisodiyot rivojlanishiga ta'siri, uning nazariy-metodologik asoslari hamda baholash usullari ilmiy jihatdan tahlil qilingan. Hududlarning barqaror iqtisodiy o'sishi, ishlab chiqarish salohiyatining ortishi, aholi bandligining ta'minlanishi va investitsion jozibadorligining oshishida transport infratuzilmasi muhim omil sifatida namoyon bo'ladi. Tadqiqotda transport ta'minlanganligi tushunchasining mazmuni, hududiy rivojlanish bilan o'zaro bog'liqligi, logistika tizimlari va transport kommunikatsiyalarining iqtisodiy samaradorlikka ta'siri yoritilgan.

Introduction. The development of the regional economy in modern conditions is characterized by the increasing role of infrastructural factors, among which transport occupies a central place. The transport system forms the basis of the territorial organization of the economy, ensuring interaction between economic entities, access to resources, and sales markets. In the context of digitalization and globalization, transport accessibility acquires strategic importance. It affects not only economic indicators but also the social sustainability

of regions. The level of development of transport infrastructure determines the degree of integration of a territory into national and international economic processes. The purpose of this article is to systematize theoretical approaches and develop methodological foundations for assessing the impact of transport accessibility on regional development.

Theoretical foundations of the study of transport accessibility. Transport accessibility is a multidimensional economic category that includes quantitative and qualitative characteristics of the regional transport system. Several key approaches are distinguished in the scientific literature:

1.1. Infrastructure approach. This approach considers transport as a set of material objects: highways, railway lines, airports, and logistics centers. The main attention is paid to the length and density of the network.

1.2. Functional approach. It focuses on analyzing the role of transport in ensuring economic activity. Transport is considered as a factor in reducing costs and increasing production efficiency.

1.3. Systemic approach. The transport system is considered as part of a unified socio-economic system of the region, interacting with other subsystems (industry, agriculture, services).

1.4. Spatial approach. This approach emphasizes the influence of transport on the territorial structure of the economy, the formation of agglomerations, and clusters.

Thus, transport accessibility acts not only as a technical parameter but also as a key factor of spatial development.

Methodological approaches to assessing transport accessibility. Assessing the impact of transport infrastructure requires the application of comprehensive analysis methods.

2.1. Statistical Methods. Used to identify correlations between transport and economic indicators. Main indicators include:

- density of the transport network;
- share of paved roads;
- volume of freight and passenger transportation;
- level of transport accessibility.

2.2. Econometric modeling. Allows quantitative assessment of the influence of transport factors on economic growth. Variables such as investments, employment level, and Gross Regional Product (GRP) are included in the models.

Example of a model:

- dependent variable: Gross Regional Product;

- independent variables: road density, investments, population size.

2.3. Index approach. Assumes the formation of an integrated indicator of transport accessibility. It includes:

- infrastructure indicators;
- accessibility indicators;
- quality indicators of transport services.

2.4. Geographic Information Methods (GIS). Used for analyzing spatial accessibility, modeling transport flows, and identifying infrastructure bottlenecks.

2.5. Cluster analysis. Allows grouping regions according to the level of transport development and identifying typological differences.

Impact of Transport Accessibility on Regional Development. The transport system has a multidimensional impact on the regional economy.

3.1. Economic Growth. The development of transport infrastructure contributes to increased production activity, reduced costs, and improved competitiveness of enterprises.

3.2. Investment Attractiveness. Regions with developed transport networks attract more investment due to lower logistics costs and risks.

3.3. Labor Market Development. Improved transport accessibility contributes to labor mobility and reduces unemployment.

3.4. Spatial Development. Transport forms economic centers, promotes the development of agglomerations, and reduces territorial peripherality.

3.5. Social Effect. Improvement of transport infrastructure increases the quality of life through better access to education, healthcare, and other services.

Problems and Limitations of Assessment

Despite significant methodological development, the following problems remain:

- limited statistical base;
- difficulty in assessing indirect effects;
- high heterogeneity of regions;
- long-term nature of infrastructure investments;
- influence of external factors (global markets, government policy).

In addition, traditional methods do not always take into account the digitalization of the transport system and the development of intelligent transport technologies.

Prospects for Improving Methodology

Modern conditions require the development of new approaches:

- integration of Big Data and digital technologies;

- use of artificial intelligence for forecasting transport flows;
- development of sustainable transport systems;
- consideration of environmental factors;
- implementation of the concept of smart cities.

A comprehensive approach combining economic, social, and environmental aspects is becoming especially relevant.

Conclusion. Transport accessibility is one of the most important determinants of regional economic development in the modern world. It plays a decisive role in shaping the territorial structure of the economy, strengthening interregional connections, and ensuring the efficient movement of goods, services, labor, and capital. A well-developed transport system increases the competitiveness of regions, creates favorable conditions for entrepreneurship, stimulates industrial growth, and expands access to domestic and international markets. Therefore, transport infrastructure should be regarded not only as a technical support system, but also as a strategic economic resource.

The study has shown that transport accessibility has a direct and indirect influence on key socio-economic indicators. Regions with advanced transport networks usually demonstrate higher rates of investment activity, stronger business development, greater labor mobility, and improved standards of living. At the same time, territories with weak transport connections often face economic isolation, lower productivity, higher logistics costs, and reduced investment attractiveness. This confirms that balanced transport development is essential for reducing regional disparities and promoting inclusive growth.

An objective assessment of transport accessibility requires the use of a comprehensive methodological framework. Statistical methods make it possible to measure infrastructure capacity and transport performance; econometric models help identify the quantitative impact of transport factors on economic growth; spatial and GIS-based approaches reveal territorial inequalities and infrastructure bottlenecks; while index and cluster methods allow comparative evaluation of regional transport systems. The combination of these approaches provides a more accurate and multidimensional understanding of transport-related development processes.

At the same time, existing assessment methods face several challenges. Among them are limitations in statistical data, difficulties in measuring long-term and indirect effects, regional heterogeneity, and the growing influence of global economic uncertainty. In addition, traditional models often underestimate the role of digital transformation, intelligent transport systems, environmental sustainability, and innovations in logistics management.

In the future, the methodology for evaluating transport accessibility should be improved through the integration of Big Data technologies, artificial intelligence, predictive analytics, and smart infrastructure monitoring systems. Greater attention should also be given to ecological sustainability, energy efficiency, and socially inclusive mobility. Modern regional policy must consider transport not only as a means of movement, but as a tool for innovation, resilience, and sustainable territorial development.

In conclusion, transport accessibility is a fundamental driver of economic growth, investment attractiveness, labor market efficiency, and social well-being in regions. The development of modern, efficient, and sustainable transport systems should therefore remain one of the highest priorities of state economic policy. Only through balanced investment in transport infrastructure and advanced analytical approaches can regions achieve long-term competitiveness and harmonious socio-economic progress.

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