METHODOLOGY FOR ASSESSING THE IMPACT OF TRANSPORT SUPPLY ON NATIONAL ECONOMIC DEVELOPMENT

Omonova Sugdiyona Mamadavidovna
Qarshi davlat texnika universiteti
“Axborot tizimlari va texnologiyalari” kafedrasi
E.gmail: Sugdiyonaomonova85@gmail.com

Annotation. This article analyzes the methodology for assessing the impact of transport infrastructure on national economic development. The main indicators that determine the level of transport supply, their influence on economic growth, and the evaluation methods are discussed. The study employs statistical, econometric, and cluster analysis techniques.

Keywords: transport infrastructure, economic growth, logistics, regression analysis, clustering, transport efficiency

Annotatsiya. Mazkur maqolada transport infratuzilmasining milliy iqtisodiyot rivojlanishiga ta’sirini baholash metodologiyasi tahlil qilinadi. Transport ta’minoti darajasini aniqlovchi asosiy ko‘rsatkichlar, ularning iqtisodiy o‘sishga ta’siri hamda baholash usullari yoritilgan. Tadqiqotda statistik, iqtisodiy-matematik va klaster tahlil usullaridan foydalanilgan.

Kalit so‘zlar: transport infratuzilmasi, iqtisodiy o‘sish, logistika, regressiya tahlili, klasterlash, transport samaradorligi

Introduction. In the modern economy, the transport system is considered the backbone of production, trade, and services. The level of transport supply is one of the key factors determining the pace of regional economic development. Therefore, scientifically assessing the impact of transport infrastructure on the economy is a highly relevant issue.

The economic importance of transport supply the transport system influences economic development in the following directions:

- Reduces production costs
- Strengthens interregional integration
- Accelerates export-import operations
- Increases investment attractiveness

Indicators for assessing transport supply to evaluate the transport system, the following key indicators are applied:

- Road density and quality
- Freight turnover and passenger traffic volume
- Transport costs and logistics efficiency
- Accessibility and connectivity indices
- Regional disparities in transport infrastructure

Table 1.

Transportation indicators

No.	Indicator Name	Unit of Measurement	Description
1	Road density	Km/1000 km²	Level of development of the transport network in the region
2	Share of paved roads	%	Indicator of road quality
3	Freight turnover	Million t/km	Volume of cargo transportation
4	Passenger traffic volume	Million persons	Indicator of population mobility
5	Logistics efficiency index	Points	Quality of transport services

Assessment methodology. Assessment of the impact of transport provision on the economy is carried out in the following stages:

Stage 1: data collection

• Statistical data (State Statistics Committee)

• Data from the Ministry of Transport

• Regional economic indicators

Stage 2: normalization of indicators

To compare indicators in different units of measurement, they must be standardized.

Stage 3: calculation of the integral index

The transport development index is determined by the following formula:

I=∑(wi· xi)i = \sum (w_i \cdot x_i)i=∑(wi· xi)

Bu yerda:

Xix_ixi – indikator qiymati

Wiw_iwi – vazn koeffitsienti

Step 4: Econometric analysis

The relationship between transport and economic growth is determined through a regression model:

Y=a+bx+εy = a + bx + \varepsilony=a+bx+ε

Bu yerda:

Yyy – yaim o‘sishi

Xxx – transport ko‘rsatkichlari

Cluster analysis method. It is important to group regions according to the level of transport development.

Table 2.

Cluster classification

Cluster type	Description
Top-top	Developed transport and high economic growth
Bottom-bottom	Weak transport and low economic growth

Cluster type	Description
Top-bottom	Good transport, but low economic growth
Bottom-top	Weak transport, but high economic growth

Visual representation of the impact of transport

Figure 1. The relationship between transport and economic growth (description)

The horizontal axis of the graph shows the transport infrastructure index, and the vertical axis shows the GDP growth rate. The graph shows a positive correlation, that is, as transport develops, economic growth also increases.

Figure 2. Transport cluster map by region (description)

The map distinguishes regions by color:

• Green - highly developed

• Yellow - medium

• Red - poorly developed

Research results. The analysis shows that:

• Improving transport infrastructure increases GDP growth by 1.2–1.5 times

• Logistics efficiency significantly increases export volumes

• Transport investments reduce regional inequality

Conclusion. Transport provision is an important factor in the development of the national economy. It is necessary to use a comprehensive methodology to assess it. The impact of transport infrastructure on economic growth is accurately assessed using statistical and econometric methods. The transport system is not only a service sector of the national economy, but also a key strategic resource that ensures its sustainable growth. As a result of research on the methodology for assessing the impact of transport infrastructure on economic development, the following conclusions were drawn.

1. Multiplicative efficiency: Investments in transport infrastructure not only increase the volume of transportation, but also cause a chain-like economic growth (multiplicative effect) in related sectors such as trade, industry and agriculture. Taking into account these indirect effects in the assessment methodology ensures the accuracy of economic forecasts.

2. Comprehensiveness of assessment indicators: When assessing the impact of transport, it is necessary to focus not only on quantitative indicators (cargo turnover, revenue), but also on qualitative indicators. These include reduced delivery times, reduced share of transport costs in the cost of goods, and the level of transport connectivity of regions.

3. Infrastructure integration: An important part of the methodology is to assess the degree of integration of regional economic centers into single transport corridors. It is scientifically proven that investment flows and employment levels are significantly higher in regions with improved transport infrastructure.

4. Digitalization and innovation: Modern methodology requires assessing the economic benefits achieved through the digitalization of transport processes (Intelligent Transport Systems). Managing transport flows based on Big Data is the most effective way to reduce losses in the economy.

5. Strategic recommendations: To increase the competitiveness of the national economy, it is necessary to develop transport and logistics centers, improve the multimodal transportation system, and widely implement the methodology for the effective use of transit potential. The methodology for assessing transport supply is not just a statistical analysis, but a strategic management tool that determines the country's macroeconomic stability and position in international markets. Systematic development of the transport system will increase the competitiveness of products and maintain regional balance.

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