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INFLUENCE OF THE STATE AND LEVEL OF TRANSPORT DEVELOPMENT ON THE DYNAMICS OF MACROECONOMIC INDICATORS IN VITEBSK REGION

ВЛИЯНИЕ СОСТОЯНИЯ И УРОВНЯ РАЗВИТИЯ ТРАНСПОРТА НА ДИНАМИКУ МАКРОЭКОНОМИЧЕСКИХ ПОКАЗАТЕЛЕЙ В ВИТЕБСКОЙ ОБЛАСТИ

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ABSTRACT

REGION, MACROECONOMIC INDICATORS,
TRANSPORT INFRASTRUCTURE, CORRELATION,
ANALYSIS RESULTS

The article is devoted to the questions of region development and the significance of transport complex in it. The most important transport system indicators are determined. The degree of influence of transport infrastructure on the macroeconomic indicators dynamics in Vitebsk region is considered. Estimate is based on the correlation dependencies analysis.

The stability of the regions and the country as a whole is largely determined by the level of development and the efficiency of the functioning of various industries and types of economic activity. A significant place in this case is occupied by the level of region's transport system development.

It relates to the following aspects. Firstly, the development of the transport system allows us to view the accessibility of various regions of the country, its resources and production capacities. Secondly, the level of transport services indirectly affects the level of wealth of

АННОТАЦИЯ

РЕГИОН, МАКРОЭКОНОМИЧЕСКИЕ ПОКАЗАТЕЛИ, ТРАНСПОРТНАЯ ИНФРАСТРУКТУРА, КОРРЕЛЯЦИЯ, РЕЗУЛЬТАТЫ АНАЛИЗА

Статья посвящена вопросам развития региона и значимости в нем транспортного комплекса. Определены наиболее важные показатели транспортной системы. Рассмотрена степень влияния транспортной инфраструктуры на макроэкономические показатели развития Витебского региона. Оценка произведена на основе анализа корреляционных зависимостей.

the population, as it contributes to the growth of employment, lower costs of production and distribution of products, the development of tourism and trade. Thirdly, the continuous functioning of transport in the region contributes to the solution of social problems, making various benefits are accessible and providing time savings with a high level of public transport organization.

Besides, cargo transportation demand is supported by cargo-creating sectors of the economy. In the context of economic growth, increase of industrial production, growth the sales and income, the demand for freight transportation is also growing. Among the factors that increase the demand for transport there are also globalization and integration of international markets, the improvement of vehicles and transportation technologies, including the development of logistics.

On the other hand, increasing the efficiency of transport operation is possible only with the sustainable development of the region, since this creates the prerequisites for additional investment in transport infrastructure, additional opportunities for optimizing transport flows. In addition, it becomes possible to solve the environmental problems of the transport functioning.

As a result, there is a decrease of the level of the transport component in the final price of goods, the elimination of economic imbalances between individual regions, increased access to new markets, the development of cooperation among economic entities. All these factors are significant competitive advantages of the region, which influence the economic growth.

Improvement of the transport infrastructure and conditions of the formation and development the transport services market leads to decrease of the cost of goods transportation and to increase of opportunities for access to various commodity markets. The growth of export opportunities leads to an increase the production and sales, a restructuring of the production line, the creation new supply chains, and a reduction the cost of production. Reducing the cost of transportation of goods leads to greater accessibility of markets, expands the labor market [112].

So, the analysis of the interaction of transport infrastructure and the economy, and also the measurement of the effect of this interaction is relevant for the economic stability and substantiating the development directions of regions.

To assess the impact of various parameters of the functioning of the transport infrastructure on the Vitebsk region economy, the dynamics of a number of indicators was analyzed.

Effective macroeconomic indicators are considered as those which largely characterize the level of development of the region, namely:

- gross regional product;
- volume of industrial production;
- retail turnover;
- the volume of foreign trade in goods and services (export);

- average monthly salary (table 1).

It is advisable to take into account the following indicators as ones reflecting the functioning of the transport complex and the development of transport infrastructure:

- volume of cargo transportation by road, million tons;
- freight turnover of vehicles, million t-km;
- passenger turnover, million pass-km;
- the length of the automobile roads, thousand km;
- density of paved roads per 1000 square km of territory, km.
- operational length of railway tracks, km;
- investments in transport activities, % of the volume of investments in fixed assets;
- the number of accidents per 100 thousand people.

To identify the type and tightness of the connection of the analyzed macroeconomic indicators and transport infrastructure characteristics, the correlation coefficients were calculated. In the Vitebsk region the most influence on the value of the main macroeconomic indicators is exerted by the indicators of the transport sector, marked by a plus sign (table 1).

Table 1 – The results of the correlation dependencies analysis

Indicators of the region	Indicators of transport infrastructure							
	Volume of cargo transportation by road, million tons	Freight turnover of vehicles, mln. t-km	Passenger turnover, million pass-km	The length of the automobile roads, thousand km	Density of paved roads per 1000 square. Km of territory, km	Operational length of railway tracks, km	The number of accidents per 100 thousand people	Investments in transport activities, %
1. Gross regional product, million rubles	+	+	+	+	+	+	+	-
2. Retail turnover, million rubles	+	+	+	+	+	+	+	-
3. Average monthly salary, rubles	+	+	-	+	+	+	+	-
4. The volume of foreign trade in goods and services (export), million US dollars	+	-	-	+	+	+	-	+
5. Volume of industrial production, million rubles	+	-	-	+	+	+	+	+

Source: developed by the author

The degree of influence of various indicators of the transport system on the main socio-economic indicators of the region indicates that in conditions of an increase the freight traffic by 1 million tons-km, the gross regional product of the Vitebsk region may increase by 4.74 million rubles; an increase in the length of roads by 100 km GRP will increase by 510.77 million rubles; an increase in the share of investments in transport activities by 1 % GRP will increase by 89.4 million rubles. In addition, the transport safety has a significant impact to the GRP change. Thus, GRP growth by 206.8 million rubles may be due to a decrease in the number of road traffic accidents per 100 thousand people.

At the same time, the change in the volume of cargo transportation and the passenger turnover of road transport has a negative effect on the GRP, which is associated with the ineffective functioning of transport organizations in the region, and as a result, low profitability of freight transportation and unprofitable passenger transportation.

As for such an important indicator of sustainable activity in the region as the volume of exports, indicators of the development of the transport sector have a direct impact on its growth.

Thus, with an increase of the volume of carriage of goods by road by 1 million tons, the value of exports throughout the region increases by 204.97 million US dollars, an increase in passenger traffic by 1 million passenger-km contributes to an increase in exports of 9.49 million US dollars.

A significant change in exports is also had place due to the development of the transport infrastructure of the region, namely:

- an increase in the share of investments in transport activities by 1 % ensures an increase in exports by 719.1 million US dollars;
- increase in the length of roads with improved coverage by 1 % - by 1853.7 million US dollars;
- the increase in the length of the operational routes of railway transport by 10 km is associated with an increase in exports by 646 million US dollars.

In addition, the table shows that the change in the performance of the transport complex also affects the performance of other areas of the region. Their improvement contributes to the growth of trade, the volume of activity of industrial enterprises, as well as an increase in the main indicator of the socio-economic sphere - the average wage. This dependence is absolutely obvious, since transport is not only the most important sector of the national economic complex, but also a link between enterprises and regions, which is ensuring timely delivery of materials, shipment of products, commodity supply of the distribution network, population transfer, etc. In other words, it creates the conditions for effective activities of business entities and a comfortable life for people.

The combined influence of factors based on the construction of multifactor models has shown that freight turnover (t-km), passenger traffic (pass-km), the length of railway transport

routes (km) and the level of road transport have the greatest impact on the value of all indicators.

Thus, the dependence between the level of development of the transport complex and the degree of sustainability of the region, between the quality of the transport infrastructure and macroeconomic indicators is obvious. Therefore, the further development of the transport complex and the improvement of transport services are the most important tasks of the region.

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