International Conference on Applied Economics, ICOAE 2015, 2-4 July 2015, Kazan, Russia

The place and role of transport infrastructure in the interregional integration of the Russian Federation regions

Landysh A. Gadelshina*, Tina M. Vakhitova

* Kazan Federal University, Institute of Management, Economics and Finance, Kazan, 420008, Russia

** Corresponding author. +7 (927) 403–7421
E-mail address: lgadelshina@yandex.ru.

Abstract

On the basis of the rail transport competitiveness analysis, which is the main mode of transport for the bulk goods carriage and plays an important role in the movement of goods across the Russian Federation one can determine the place and role of transport infrastructure in the interregional integration of the Russian Federation regions.

Introduction

Modern conditions of the Russian regions development determine the need for reconcilement of regional socio-economic interests with interregional development objectives at the federal level. Of course, there are some distinctions of historical, demographic, cultural and after all the resource potential of the region. The urgent objective of the regional economy, in our opinion, in the new geopolitical situation, strengthening the country's territorial integrity is a solution of interregional relations strengthening, smoothing of regional socio-economic differentiation.

The structural elements at the level of the region's economy may mutate and evolve, but the basic conditions of development are formed in the local markets and depend on natural, spatial conditions of specific territories. Therefore, a significant object is to ensure the availability of strategic resources for a variety of business entities in

© 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/). Selection and/or peer-review under responsibility of the Organizing Committee of ICOAE 2015.

Keywords: the transport infrastructure, economic integration of the regions, interregional trade, regional economy.
different regions. A transport infrastructure plays a significant role in the interregional integration, which, on the one hand, determines the level of interregional production of goods and services, the availability of social benefits for the whole population, on the other hand, contributes to the establishment of close interregional relations, thus bringing together the socio-economic situation of the neighboring regions.

In the Transport Strategy of the Russian Federation for the period until 2030 the main objectives are - the formation of a unified transport space in Russia on the basis of a balanced development of efficient transport infrastructure and accessibility, volume and competitiveness of transport services on quality criteria for cargo owners at the level of the innovative economic development needs of the country. [1] The condition of transport infrastructure influence on economic growth in general, the pace of export growth, especially taking into account its raw material orientation. In addition, without further infrastructure development spatial development of Russia is impossible, considering the differences in the economic development level of the Russian Federation regions.

Thus, the rational formation of interregional transport infrastructure through the use of potential transport support freight traffic of individual regions form the basis of the spatial integration of the Russian Federation regions.

The essence of rail transport competitiveness

Transport of the country serves as the material basis of the social division of labour and carries diverse connections between production and consumption, industry and agriculture, mining and manufacturing industry, economic regions and population. It affects the whole process of expanded reproduction, the duration of the production cycle, inventory (raw materials, fuel, warehouse capacity and the base) and has effect on the establishment and development of clusters. From the quality of transport depends not only on the economic situation of the transport, but also efficient functioning, the development of all sectors of the economy.

The railway network is developed in Russia, system of interregional pipelines effectively functions, water transport is going through the new birth, road trucking is also important. A railway complex historically has a special strategic importance for Russia. It is a link of a single economic system and most accessible transport for millions of citizens. Without a clear rail transport functioning it is difficult to organize a stable operation of industrial enterprises, the timely supply of essential goods to the most remote areas of the country. It also plays an important role in the process of freight transport and it is one of the most capital-intensive industries.

Intensive development of the Russian economy in recent years increases the demand for freight rail transport. In our opinion, to increase the stake in the integrated transport system of the country and improve the financial condition of the railway transport it is necessary to develop measures of its competitiveness and efficiency improving. Therefore, the main task of the Russian railways is to provide reliable transport connection of the European part of the country with its eastern regions. It should be noted that the major transport lines are quite overwhelmed.

The rail transport is the most developed in Russia (according to 2011 data it takes 85% of domestic turnover). On the railroad tracks length (86,000 km, half of which is electrified), Russia is the second after the United States. The total length of railways is 151 200 km, 86,200 km of which are public roads and 65 000 km are departmental ones.

The Russian Federation railways, having 11-12% of the total length of the world railways, perform more than 50% of freight railways. Railways carry about 1 billion tons of cargo and 120 thousand containers annually, it makes out 30% of total turnover of the country. Railways serve 1.2 million workers, the main ways are about 87 thousand km (from 158 thousand km) - 19 regional railways, which are the federal property. [3]

The main frame of Russia rail network was formed in the second half of XIX - early XX century. Railroads were built primarily for providing transport and economic relations of the Center with basic raw materials and food country bases, as well as seaports, which determined their radial configuration. Another railroads were built to ensure grain export shipments through the ports of the Baltic and Black Sea basins.

The first major railway St. Petersburg - Moscow went into operation in 1851. At the same time there was began the construction of a railroad from St. Petersburg to the south.

In the Asian part of the rail network there is a latitude and low density. The most important Transsiberian highway began to build in 1892, the movement opened in 1916.

In the European part of the country railway network has a radial view, railroads converge to Moscow.

In Russia the railway transport is divided into: railway public transport, non-public rail transport and technological railway transport.
Railways, as of the I quarter of 2012, were in 80 of the 85 subjects of the Russian Federation.

The placement of the railway network on the Russia territory has developed very unevenly. This is due not only to the vast territory of the country, but also with a great territorial differentiation of its population, the level and type of economic development.

The most dense and extensive network of railways is located in the European part of the country. Here, with the exception of the Northern economic region, the density of public railways several times higher than the European average (5.1 km per 1000 km²): it varies from 13.6 km in the Volga-Vyatka area to 27.6 km in the Central Black Earth area.

Eastern Siberia and the Far East are characterized by not only the low density of railways (respectively 2.1 km and 1.4 km per 1000 square km), but also their exceptional location in the south, the most developed regions. The railway construction in the north of Western Siberia in the 70-80s reduced the contrast in the level of saturation of its territory rail networks (3.6 km per 1000 square km, including the Tyumen region - 1.7 km).

The concentration of freight traffic on the main lines of transport and economic relations is characterized for rail transport. In this case, the main burden falls on a relatively small length of the railway network. Half of the total turnover is done by 1/6 of the railways. In an average Russian railway network congestion of 27 million. ton-km per 1 km operating length they have traffic density 2 times higher. The most congested lines includes Trans-Siberian railway, especially its length from Omsk to Novosibirsk (this is the most congested part of the railway in the world - more than 100 million. ton-km per 1 km length).

The advantage of rail transport is that it doesn’t depend on environmental conditions - the construction of railways in any area, the ability rhythmically transport all year round in comparing to river transport. Productivity of rail transport becomes even more apparent if to consider such advantages as high speed of rolling wagon traffic volume, flexibility, the ability to develop traffic flows of almost any capacity, many times less than another transport.

The following indicators most accurately characterize the mobility of rail transport: meeting the needs of the national economy in transportation for a certain period of time, timeliness of delivery, the turnover of the car, the service and technical speed rate, the average yard time of freights during one cargo operation.

In passenger transport there are such important indicators as punctuality and timetables, implementation of the passenger traffic plan.

A rail transport plays a key role in the Russian economy. The share of rail transport in the total cargo turnover exceeds 80%, the essence of railways is particularly high in the transport of goods over long distances. For most senders of bulk goods (such as coal, ore, timber, construction materials, etc.) transportation by rail is the only one alternative.

In characterizing the market relations of transport, besides assessing the level of monopolization or competition on volume of provided services, one should primarily to base on the quality of transport services. The quality indicators system of region transport services includes the following subsystems: the quality of transport provision of the region; quality of services; the quality of the transport company. All of them are connected with the system of quality indicators of life activities and management in the region. The achievement degree of a set of transport services quality indicators, livelihoods and farming in the region, mainly reflecting the intensive development of the transport mode characterizes its competitiveness.

The development of modern and competitive transport and communications infrastructure stands as one of the key conditions of high and sustainable economic growth achieving and ensuring the economic security of the country.

Since a rail transport is a strategic resource in increasing the competitiveness of the economy, to solve successfully many interrelated tasks of its operation is possible only in the event of domestic and foreign experience studying, testing fundamental hypotheses and proposals which are made in a wide range of opposing directions of economic thought.

Today, a rail transport remains the leading trend. Since the majority of the Russian mineral deposits, their processing centers and areas of agricultural crops cultivation are located in places where only railway can help to establish the connection between them and export their products. Considering the structure of carried by rail cargo (coal, ores, concentrates, ferrous and nonferrous metals, grain, timber, timber, ferrous and non-ferrous metals, oil and oil products, fertilizers, yellow phosphorus, construction materials), it can be stated that the industrial and innovative development of the country depends on the efficiency of rail transport.
Regional transport infrastructure as a basis of interregional integration of the Russian Federation regions

In modern conditions the level of interregional trade and economic relations development has become an important factor of spatial integration and scale differentiation smoothing. Successful operation of the interregional market largely depends on the regional transport infrastructure development. Since the regional transport infrastructure is a link in the process of interregional economic activity, it determines the development level of economic ties between the regions of Russia. A transport infrastructure as part of the regional market infrastructure organizes the material flows and affects the costs of production and implementation of regional goods and services.

Based on the results of the interregional freight transport analysis by railway A.B. Gusev and M.A. Jurevich substantiate that a regional transport infrastructure plays an important role in interregional integration of the Russian Federation. [2] Researchers identify target model of commerce and industry regional integration "all with all" and "chain mail". According to the authors, the connection of the regions in the format of "all with all" can not be implemented in Russia in full effect due to the economical inexpediency of regions certain pairs interaction. However, as an experiment, communication format "all with all" can be approved through all regions union. Against the background of "all with all" model the implementation of "chain mail" model, when to each administrative border between the neighboring regions correspond trade flows, it becomes optimal integration programmers for the country and in terms of both transaction costs and geopolitical expediency. In addition, in order to evaluate the degree of industrial and trade integration of the regions they use a system of indicators. In particular, an indicator showing the proportion of realized direct and reverse traffic between the regions from their potential quantity; indicator of regions interconnections network extension; indicator of the existing network relationships intensification, which reflects the dynamics of trade flows. There is a high level of concentration of trade flows in sectional view of sender and recipient regions on conventional transportation. From 40% to 50% of all received - sent freight accounts for only 10 regions. The results also indicate that the interregional integration of the Russian regions, as well as foreign trade integration, mainly based on energy. Also we can conclude that the greatest contribution to the strengthening of domestic economic space make industrial regions located at the junction of the Volga and the Urals Federal Districts.

Assessing the role and place of regional transport infrastructure in the interregional integration of the Russian Federation one should note that a significant potential of the national economy growth is the organization of the transport infrastructure providing modern facilities, in particular railway transport. As can be seen from the statistics (see. Table 1), the largest volumes of shipped cargo belong to the Siberian Federal District, which is associated with the transport of mineral raw materials, the Central Federal District, which houses the largest Moscow railway junction and the Volga Federal District, which has powerful industrial potential.

| Subjects of the Russian Federation | 2010      | 2011      | 2012      | 2013      |
|----------------------------------|-----------|-----------|-----------|-----------|
| The Russian Federation           | 1312,0    | 1381,7    | 1421,1    | 1381,2    |
| Central Federal District         | 197,5     | 211,0     | 223,8     | 221,6     |
| Northwest Federal District       | 153,3     | 162,5     | 166,0     | 163,9     |
| Southern Federal District        | 101,6     | 109,1     | 111,1     | 102,7     |
| North Caucasus Federal District  | 16,0      | 17,4      | 16,9      | 15,8      |
| Volga Federal District           | 191,2     | 193,7     | 199,9     | 192,8     |
| The Bashkortostan Republic       | 28,9      | 29,4      | 30,5      | 30,1      |
| Mari El Republic                 | 1,6       | 1,6       | 1,6       | 0,7       |
| The Mordovia Republic            | 3,6       | 3,1       | 3,3       | 3,2       |
| The Tatarstan Republic           | 10,0      | 11,7      | 16,3      | 15,7      |
| The Udmurtian Republic           | 5,2       | 4,3       | 4,0       | 2,9       |
| The Chuvash Republic             | 1,0       | 1,0       | 1,0       | 0,9       |
| The Perm region                  | 40,8      | 40,1      | 38,9      | 39,0      |
| The Kirov region                 | 7,1       | 7,0       | 6,7       | 6,3       |
The Nizhny Novgorod region  19,5  18,5  16,9  16,6  
The Orenburg region   33,2  34,8  37,7  35,2  
The Penza region   1,1  1,2  1,3  1,3  
The Samara region   21,5  23,2  23,0  23,7  
The Saratov region   14,2  13,9  14,6  13,7  
The Ulyanovsk region  3,5  3,8  4,1  3,6  
Uralian Federal District  131,1  158,5  186,8  182,4  
Siberian Federal District  418,7  428,6  436,2  435,8  
Far Eastern Federal District  68,0  71,9  73,5  59,7  

**Conclusion**

Thus, the construction and development of transport infrastructure in the region is a major element of the regional economy modernization with the aim of further national economy growth and improving the social sphere. Taking into account the integrative role of transport infrastructure, it is also strengthening of domestic economic environment on the basis of regions interregional integration of the Russian Federation.

In particular, the rail transport provides economic and strategic unity of Russia, it is the integrating and constituent sector and stabilizing factor of the economy. Therefore, at the federal level it is necessary to mark interrelated and mutually supporting industries and complexes of interacting regions; highlight features of accounting and analysis of transportation organization as between regions as within their territory; identify a set of expenditure required in each region for the development of facilities. At the regional level there should be carried out microeconomic agreement of conditions and interdepartmental agreements, which help to understand the highest potential of interregional linkages development especially of adjoining regions. Separated regions require optimization of interregional links, including the development, affecting the interests of third parties-transit regions.

**References:**

1. Development of transport infrastructure in Russia: forward game. The BCG report [electronic resource] // access mode: http://media.rspp.ru/document/1/b/e/be9521a4b0bedae86fc3600443cae68.pdf
2. Gusev A.b., Yurevich M.A. Commerce and Industry integration of the Russian regions: evaluation of strength and strengthening possibilities / Voprosy Economiki, no. 10,-2014. pp. 56-72.
3. Transport strategy of the Russian Federation for the period until 2030 [electronic resource] // access mode: http://www.mintrans.ru/documents/detail.php?ELEMENT_ID=13008