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**IMPACT OF REGIONAL TRANSPORTATION SYSTEM ON
LIVING STANDARDS OF POPULATION**

S.V. Fedorova (a)*

*Corresponding author

(a) Irkutsk national research technical university, 83 Lermontov street, 664074, Irkutsk, Russia,
fsta65@yandex.ru,89148855292)

Abstract

Transport is an important element of the regional production and social infrastructure. The regional transportation system is a multi-element system which consists of all modes of transport, a transport infrastructure and other elements. Modern quality characteristics of the transportation system, particularly transport infrastructure, prevent the growing economy from solving production and social tasks.

The transportation system influences the living standards of the population in the region. The term “living standards” has been used by international organizations since the 1970s. The United Nations Organization (UN) uses this term for describing a national development level. However, for Russia with its large territory and population size, it is unreasonable to assess living standards using one index for the whole country. Regional differences are crucial.

Living standards of the population in Russian regions are different. It is necessary to monitor and assess the current situation in the regions and determine key factors causing regional differences in living standards in order to make timely decisions at federal and regional levels, and improve living standards in Russian regions. The parameter “living standards” allows regional government authorities to develop target programs and strategic development plans.

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Keywords: Transport, living standards, transportation system, region, mobility, transport accessibility.

1. Introduction

Transport as an element of the economic system is a powerful catalyzer. It directly or indirectly enhances the level of manufacturing and commercial activities in all areas, increases a production volume, helps develop new territories and use new resources. It also connects manufacturing systems and product markets. Transport as a multielement system has a positive impact on the synergetic effect, boosts economic development of the region by involving different natural resources into the economy, makes them available, and increases mobility of labor resources. Transport is crucial for life-supporting industries and enterprises of cities and regions.

2. Problem Statement

The transportation system is an element of the production and social system of the country and its regions. Sustainable, efficient development of the transport system improves living standards of the population. Many researches deal with the effects of automobile and railway transportation on the economy, costs of internal and external trade. However, the issue of impacts of the transportation system on the regional economic development remains unaddressed, except for the works by Golskaya (2013). The present article seeks to study relations between the regional transport system and living standards of the population.

3. Research Questions

The present research aims to solve the following tasks: to define the concept of a transport system; to describe components of the transport system; to assess the role of the transport system for social and economic development; to describe relations between the transport system and living standards of the population; to identify challenges of the regional transport system; to develop recommendations for improving the regional transport system.

4. Purpose of the Study

The transport system performs two key tasks: transportation of goods and transportation of passengers. Therefore, performance of the transport system is influenced by contradictory demands of the economy and society.

Regional transport systems are components of the national transport system. The regional transport system is a multi-industry spatially organized system of regional transport sub-sectors. It consists of transport enterprises, transport logistics enterprises, regional industrial control bodies, and infrastructure institutes (Admetova, 2013).

The topicality of the issue of regional transport systems is due to the following factors: unequal distribution of production forces, natural resources, capital assets, population, etc.; regional differences in sales volumes; need for a consolidated national transport system.

The transport system level depends on the economic development level.

For example, the developed transport infrastructure is a key factor of economic performance in developed countries. It decreases production costs and increases a technological level of manufacturing industries.

The social role of the transport system is based on the priority of living standards of the population rather than on a production profile. Living standards involve sustainable transport services, mobility of the population, additional jobs, transport accessibility.

In current conditions, improvement of living standards of the population is a priority task for many areas. It is a target parameter of social and economic development of the country. It has been included in the national security strategic program for the period up to 2020. According to the program, improvement of living standards aims to ensure personal security and high standards of life necessities.

5. Research Methods

The article analyzes Russian and foreign research on the regional economy and economy of transport industries, federal and regional legislative acts and standards regulating regional development and transport development in Russia, mass media publications, scientific and practical conference proceedings.

6. Findings

The transport system is an element of the regional system. It influences the regional economy, connecting all enterprises into one system. Smooth functioning of the transport system ensures stability of the economic space, freedom of transportation of goods, improves living standards of the population at regional and national levels. The transport system consists of several components.

Living standards of the population are influenced by one component of the transport system - transport infrastructure. It ensures required living standards (Laparev, 2013; Ivanov, 2015; Zadvorny, 2012; Vinokurova, 2017).

Regional factors can intensify or weaken transport infrastructure effects on the regional economic development (Bubnov & Golskaya 2013).

Table 01 shows the relations between transport infrastructure and regional factors and their influence on social and economic development of the region.

Table 01. Influence of regional factors and transport infrastructure on social and economic development of the region

Effects of transport infrastrucure	Regional factors	Level of social and economic development of regions
Creation of new producing units or transformation of old ones	Natural and climatic conditions	Entrepreneurship development level
Development of regional systems	Economic and geographical location	Investment and innovation activity level
Levelling or strengthening of regional social and economic development differences	Natural and resource potential	Social and economic integration of the territorial space
Development of spatial connections	Industrial structure and specialization of the region	Financial level
Variation in territorial distribution of the population	Demographic potential	Level of living standards of the population
Transport service demand satisfaction	Population density and structure	Interegional cooperation development level

As can be seen, the developed transport infrastructure ensures sustainability and accessibility of transport services; free movement along the territory of the region, interregional mobility, migration system development, creates new jobs and recreation conditions (Vakhrameev, 2014).

Impact effects can be used to assess the influence of the regional transport system on social and economic development, including living standards (Table 02).

Transport infrastructure involves resources of regional territories in the real economic sector. Therefore, it contributes to economic space management, ensures further territorial labor division, development of new territories. Transport infrastructure creates a feedback effect, attracts new business units, expands limits of exploitation of natural resources focusing on the population influx.

Table 02. Effects of regional transport system impact on the regional development

Type of impact	Regional factors
Direct	<ol style="list-style-type: none"> 1. Decrease/increase in production costs. 2. Decrease/increase in performance of local companies. 3. Growth/control of mobility of recreation resources of the population, social contexts. 4. Expansion/restriction of interterritorial impacts.
Indirect	<ol style="list-style-type: none"> 1. Regional production growth. 2. Levelling of regional territories. 3. Investment climate improvement. 4. Investment activity increase. 5. Increase in efficiency of using other production factors. 6. Development of the total demand.
By duration	<p>Long-term impacts: satisfaction of business and population needs for quality services, increase in transport infrastructure tax revenues; transportation of the population to working places; delivery of goods.</p> <p>Short-term impacts: increase/decrease in costs; satisfaction of needs for transport services.</p>
By duration	<p>Endogenic impacts: improvement of transport services; improvement of the investment attractiveness of the region as a residency.</p> <p>Exogenic impact: involvement of the region into interregional and external economic relations.</p>
By impact level	<p>Local level: development of internal transportation, expansion of local markets, increase in demand for business; increase in population mobility.</p> <p>Regional level: business expansion, improvement of agglomeration development conditions, population mobility and staff resources.</p> <p>National level: national security efforts.</p>

A regional transport infrastructure level is often assessed by transport accessibility. Transport infrastructure connects economic spaces due to provision of transport services to businesses and population. The Federal Target Program “Development of the Transport System in Russia (2010-2020) aims to increase the transport accessibility level and ensure accessibility of transport services.

However, there are no consolidated assessment tools. A regional transport infrastructure level is assessed using private methods (Nikulina, 2012). For many Russian regions, the issue of transport accessibility is crucial (Ivanov, 2013; Amirov, 2016; Makhneeva, 2013).

Most countries assess the transport accessibility level using the following parameters: 1. Total access time (access level of workplaces, leisure and learning areas; public transport service frequency; a share of the population who can get to destination points at a time rate). 2. Ability of disabled people to use transport services; 3. Price and economic accessibility (comparison of public transport fares, taxi costs and own car costs); 4. Transport mobility (number of travels, mean amount of passenger kilometers, amount of travel hours, year/resident).

The transport accessibility level can be assessed based on the transport accessibility of social services (Penshin, 2012; Saenko, 2013). Many rural settlements are distant from centers of social services. Transport infrastructure ensures territorial and social mobility of the population, manages the economic space ensuring spatial labor distribution, development of new territories. The developed transport system of the region can create a feedback effect. It attracts business units, intensifies mineral resource extraction, etc. However, the influence of the transport system can be negative. Among the negative impacts of the transport system are: 1. road congestion leading to speed decrease and time loss; 2. a high level of road accidents; 3. fast road wearing leading to reducing inter-repair periods.

Development of the transport system of Irkutsk oblast is regulated by the following documents: the concept of social and economic development of Irkutsk oblast for the period up to 2020; the strategy of social and economic development of the Far East and Baikal region for the period up to 2025; the concept of social and economic development of Irkutsk oblast for the period up to 2020 approved by Governor Order No 34-r of June 4, 2010; the transport strategy of the Russian Federation for the period up to 2030; the strategy of railway transport development for the period up to 2030; the Federal Target Program "Russian transport system development (2010-2015)".

The strategic purpose of Irkutsk oblast is to create comfortable living environment and approach the level of living standards of the population to the one in developed countries. Irkutsk oblast development depends on the regional transport system. The regional territory is large. The population distribution and economic development of territories are unequal.

Transport of Irkutsk oblast is a key economic development factor. Transport infrastructure development is required for development of natural resources. It can turn Irkutsk oblast into a key region of Siberia.

Currently, the transport system develops in the south and central parts of Irkutsk oblast, while north territories lack transport services. To develop producing sectors, programs aimed to improve road transport infrastructure should be developed as far as key mining areas are distant from each other.

Irkutsk oblast experiences the following problems of transport infrastructure:

1. low level of railway transport development;
2. airline service development: a) development of Irkutsk airport which is the main transport hub of Irkutsk oblast is restricted. The poor quality of runways and location in the city area cause the need for a new airport; b) development of internal airline services; c) high airline transport fares;
3. improper transport infrastructure management;
4. a low level of the logistics system, including the lack of certified warehouses;
5. a worn-out state of inland water transport.

The main problem of Irkutsk oblast is low living standards of the population.

Among key causes of this problem are:

1. the inefficient economic structure with a large share of workers employed in low-paying industries;
2. the low tax efficiency which causes a low level of the regional budget capacity which is 1,5 times less than the national average;
3. the low entrepreneurship level resulting in the low income of the population, narrow range and poor quality of regional goods and services, a large share of import products;
4. the low urban environment development level (The strategy of social and economic development of Irkutsk oblast for the period up to 2030).

One of the strategic tasks for Irkutsk oblast is improvement of living standards of the population (Figure. 01)

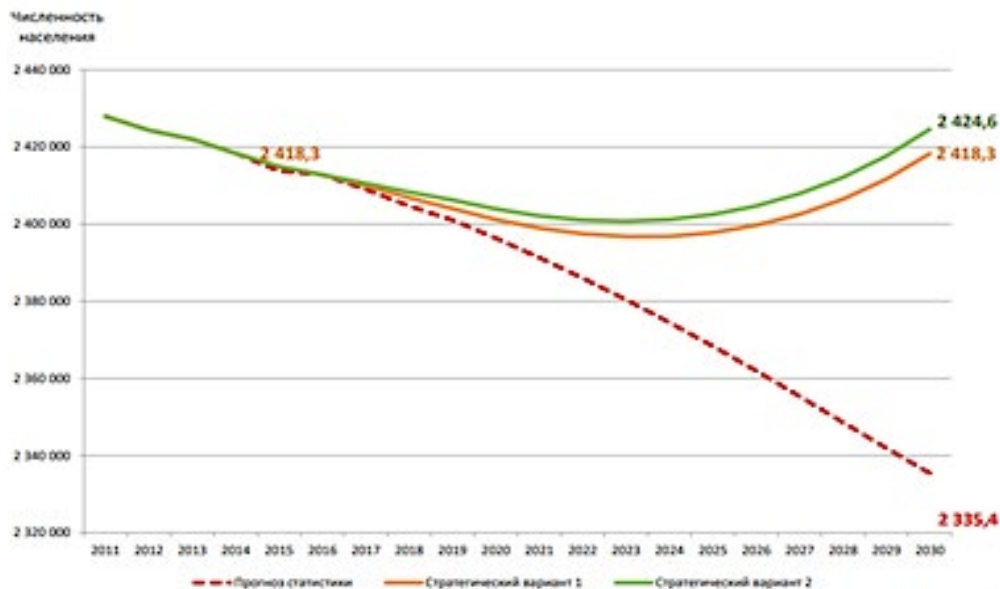


Figure 01. Strategic purpose of Irkutsk oblast is improvement of living standards

Let us list the problems of inland water transport. They are:

- underdeveloped water transport infrastructure in the Baikal-Angara Basin (a modern river-boat station and a fueling station need to be built);
- poor conditions of federal docks on the coast of Lake Baikal (Listvyanka, Port Baikal, Rogatka) (these facilities are being transferred into the ownership of the regional ownership);
- wastewater issues (waste treatment facilities have to be constructed in Listvyanka, Bolshoe Goloustnoe, Olkhon).

The following steps may be helpful in improving efficiency of the regional transport system and living standards of the population:

1. along with economic criteria, social efficiency indices (e.g., transport accessibility parameters) should be used when developing and implementing transport system development programs. They can ensure equal access to the transport infrastructure and improve living standards. A

- socially oriented transport system is a must for the socially oriented market economy of Russia (according to the Constitution of the Russian Federation);
2. different (inter-city, inter-district, suburban, urban) transport services need to be developed. Resources of small rivers need to be used (use of air cushions, hydrofoil crafts, etc.);
 3. universal, multimodal regional transport tickets need to be developed;
 4. production capacities of the transport system need to be exploited;
 5. integration processes of the transport system need to be supported;
 6. most environmentally-friendly means of transport need to be supported;
 7. rational application of each mode of transport and each technology (electric engines, contact networks, railroad tracks) with regard to the current infrastructure (including use of railway tracks for several modes of transport) is recommended. Economic and social efficiency can be assessed for a 30-year operation cycle.

7. Conclusion

Thus, the transport system of Irkutsk oblast is far from ideal. First, it is unequally developed in its territories. Second, each element of the transport system experiences some problems. However, it should be noted that regional government authorities solve these problems using regional and federal financial resources.

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