

# ANALYSIS OF THE DEVELOPMENT STATE OF RAILWAY TRANSPORT IN THE PASSENGER SERVICES MARKET

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**Abstract**— In the paper have been analysed of the development state of railway transport in the passenger services market. by the author analysed passenger traffic and passenger turnover by mode of transport, dynamics of gdp and passenger turnover by all modes of transport and transport mobility of the population.

**Index Terms**— passenger traffic, passenger turnover, transport, urban electric transport, railway, airways.

## 1 INTRODUCTION

THE role of the transport complex in solving the social and economic problems of the national economy of any country, including the transport network, plays a significant role in the economy of the Republic of Uzbekistan. Passenger transportation services play a special role in the transport system. This is due to its high socio-economic importance in the life of society and the exercise of freedom of movement from the most important guarantees of the state. Therefore, the development of passenger services has an impact on the growth of mobility and living standards, as well as the development of the national economy.

The development of passenger services has remained one of the priorities of the economy in recent years. On February 7, 2017, the Decree of the President of the Republic of Uzbekistan adopted an action strategy on five priority areas of development of the Republic of Uzbekistan for 2017-2021. The adoption of the document has become a "road map" for systemic reforms in all areas of the country.

In accordance with the tasks set out in the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021, the Decree of the President of the Republic of Uzbekistan dated February 1, 2019 PF-5647 "On measures to radically improve the system of public administration in transport" development of state programs, perspective forecasts of railway transport, development and layout of facilities, implementation of tariff and transit policy in the field of freight and passenger transportation by rail, improving the capacity of railway transport, development of the market of railway transport services the adoption of measures has been identified as a priority.

## 2 ANALYSIS AND RESULTS

It is necessary to ensure the acceptability of today's consumers in terms of the quality of services provided in the market of passenger services, the modern transport market in general, the types of services, convenience in the process of using passenger services.[2;3]

It should be noted that the effectiveness of economic growth and market reforms in our country is inextricably linked with the further development of transport services, increasing its role in solving the most important socio-economic problems of society.[4;5;6]

Transport activity is closely linked to the development of other economic sectors, as well as the social and economic development of the country. Therefore, in forecasting the economic development of a country, it is important to study in depth the direct and indirect impact of the transport system and its individual sectors on the socio-economic sectors of the country or region.[12]

A number of factors affect the market of passenger services, including: internal and external environment, regional and local, cultural and educational, scientific and technical, micro-macroeconomic, population incomes and many other factors. The population and its income have an indirect impact on the market of passenger services. Because the population is the main consumer of passenger service. In 2010-2019, the real income of the population in the country increased by 5 times and in the same period the number of permanent residents increased by 18% to 33.2 million. formed a man. (Figure 1) The increase in population and income further increases the demand for passenger services. Increased demand is leading to the formation of competition between automobile, air and rail.

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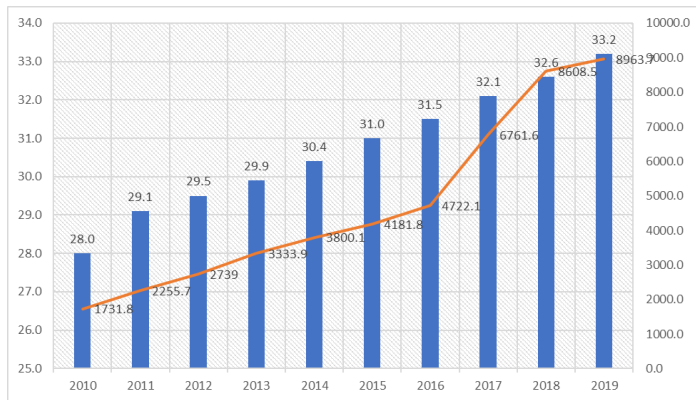


Fig.1. The dynamics of the market of passenger services (population, mln.person)

Analysis of the current state of development of the passenger services market shows a steady increase in demand in this area (Fig.2). The main share of the market of passenger transport services in the country falls on road transport, in 2019, the number of passengers transported by road accounted for more than 98.0% of total passenger traffic. Over the past 10 years, the number of passengers increased from 4,072.0 million to 6,025.1 million, an increase of 48%.

| Indicators                                | 2010   | 2011   | 2012   | 2013   | 2014   | 2015   | 2016   | 2017   | 2018   | 2019   |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Carried passengers, mln                   | 4072,0 | 4507,8 | 4763,0 | 4909,9 | 5169,9 | 5380,0 | 5560,4 | 5679,0 | 5951,5 | 6025,1 |
| including:                                |        |        |        |        |        |        |        |        |        |        |
| railway                                   | 14,5   | 14,9   | 15,9   | 17,4   | 19,1   | 20,1   | 20,5   | 21,1   | 22,1   | 22,9   |
| airways                                   | 1,9    | 2,1    | 2,5    | 2,4    | 2,3    | 2,2    | 2,1    | 2,2    | 2,6    | 3,2    |
| urban electric transport                  | 93,0   | 79,9   | 80,7   | 74,3   | 69,5   | 64,5   | 57,0   | 64,4   | 74,0   | 83,8   |
| Car                                       | 3      | 4      | 4      | 4      | 5      | 5      | 5      | 5      | 5      | 5      |
| Passenger turnover, billion passengers-km | 83,8   | 92,3   | 100,2  | 106,9  | 113,2  | 120,1  | 126,0  | 130,0  | 135,3  | 140,1  |
| including:                                |        |        |        |        |        |        |        |        |        |        |
| railway                                   | 2,9    | 3,0    | 3,4    | 3,7    | 3,8    | 3,8    | 4,0    | 4,3    | 4,3    | 4,4    |
| airways                                   | 5,8    | 6,2    | 7,0    | 7,2    | 7,0    | 6,8    | 6,7    | 7,5    | 8,8    | 11,0   |
| urban electric transport                  | 0,6    | 0,6    | 0,5    | 0,5    | 0,5    | 0,4    | 0,4    | 0,5    | 0,5    | 0,6    |
| Car                                       | 74,5   | 82,5   | 89,3   | 95,5   | 101,9  | 109,1  | 114,9  | 117,7  | 121,6  | 124,1  |
| Average transportation distance, km       | 20,58  | 20,48  | 21,04  | 21,77  | 21,9   | 22,32  | 22,66  | 22,89  | 22,74  | 23,25  |
| including:                                |        |        |        |        |        |        |        |        |        |        |
| Car                                       | 11     | 12     | 12     | 12     | 12     | 13     | 21     | 21     | 21     | 20     |
| railway                                   | 201    | 203    | 216    | 211    | 199    | 187    | 192    | 204    | 195    | 196    |
| airways                                   | 3001   | 2911   | 2743   | 2946   | 3014   | 3100   | 3206   | 3434   | 3386   | 3354   |

Fig. 2. Passenger traffic and passenger turnover by mode of transport

V.A. Gudkov [1] cites the following advantages of private cars in comparison with public transport: high speed and ease of movement, the choice of the most optimal direction of destination, the ability to "door-to-door". At the same time, they are inefficient in terms of fuel consumption and use of parking space on roads. Excessive use of cars causes serious problems such as air pollution from exhaust gases, increased noise levels, reduced traffic safety. In addition, according to the Inter-

national Public Transport Union (UITP) [10], rail transport with the same transport capacity requires 20 times less road space than a private vehicle. Modern trains pollute the air 5 times less compared to a single passenger car and consume 3 times less energy per passenger.

Statistical analysis shows that with the growing demand for passenger services, it is necessary to introduce a mechanism for effective organization of the activities of companies providing appropriate services.[7]

The market of passenger services of the Republic of Uzbekistan has a well-organized structure and is complementary in the competitive process.[8]

In the analysis of the intensity of the use of this or that mode of transport by the population of the country, it is possible to use the indicator of transport mobility of the population. [9] This figure is determined by the ratio of passenger turnover to the total population of the country. Over the past 10 years, the population of the Republic of Uzbekistan has grown by almost 19%, and passenger turnover by 68%. For each percentage point of average population growth, passenger turnover increased by 3.6%. Consequently, the increase in passenger traffic is not only related to population growth. This is largely due to technology, the systematic development of communications, leisure and real incomes of the population, cultural, domestic and social needs, their location of residence and workplaces, the growth of cities and their territories and the increase in leisure opportunities. The growth of population transport mobility is largely dependent on social factors rather than demographics. The highest share of public transport in the country is accounted for by road transport, which in 2019 was estimated at 3,739 kilometers per person per year in road transport. The transport mobility of the population for rail transport was 132 kilometers per capita. The airline, the closest competitor to rail transport, had a passenger turnover of about 11 billion passenger-kilometers in 2019, equivalent to 331 kilometers of flight per capita. The dynamics of transport mobility of the population is explained by two factors: low prices and conditions for travel. None of these factors work in favor of rail transport, especially in long-distance transportation. The growing preference of the population for the use of road transport is due to the fact that they are increasing their income and dissatisfaction with railway transport services. [10]

Many European scholars have extensively analyzed their interactions and relationships in the development of the transport system and the economy. It doesn't matter which one develops which one, the main thing is that they have a high correlation with each other. Changes in the structure and structure of the economy and its sectors affect the development of the transport system or, conversely - investment in transport infrastructure, innovative technologies in transport and its services affect the development of the economy.[11;12;13]

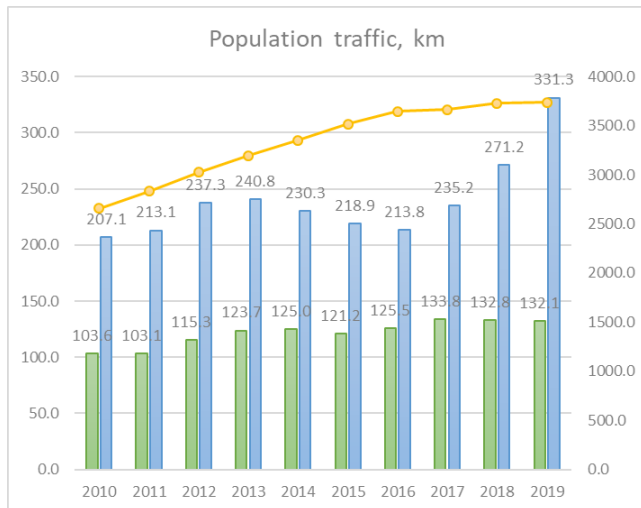


Fig. 3. Transport mobility of the population

In the European Union, the share of the transport sector in GDP averages 7%. An analysis of the transport sector and GDP showed that transport is the second or third most important sector in GDP. In the EU, an average of 6-7 per cent of passengers travel by rail each year. Therefore, the state of passenger transport by rail is directly related to the macroeconomic situation of countries and regions, public finance indicators and quality of life.

It should be noted that the demand for passenger transport services depends on various social and economic conditions characterized by certain macroeconomic indicators. And their impact on the development process can be both positive and negative.

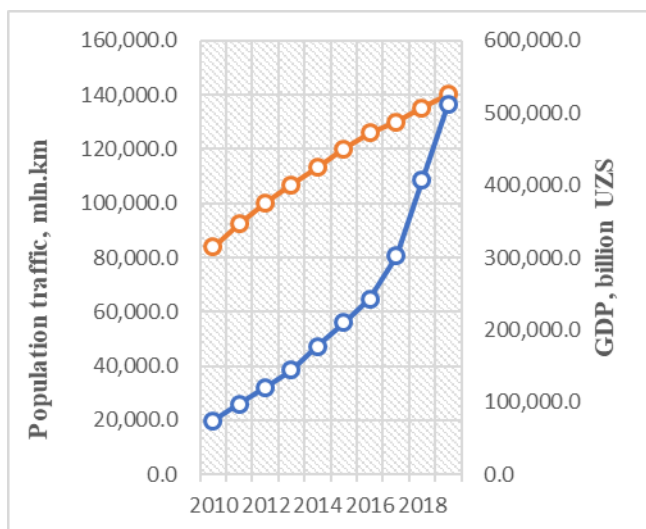


Fig.4. Dynamics of GDP and passenger turnover by all modes of transport

As can be seen from Figure 2.3, although there is a difference in growth rates between passenger turnover and GDP

across all modes of transport, there is a positive trend in both. In 2010, the GDP of the Republic amounted to 74042.0 trillion. In 2019, it amounted to 511838.1 trillion soums. During this period, the GDP growth rate was only a positive trend. Passenger turnover in 2010 amounted to 83832.1 million. passenger km. and increased by 56% over the same period to 140,142.5 million passenger-km. did.

Analyzing Figure 2.4, railway passenger turnover in 2015 increased by 44.5% compared to 2009, and by 2019 it had reached 68.7%. Rail passenger turnover increased by more than 68% between 2010 and 2019. The level of passenger car ownership in 2010 was 22 per 100 households. By 2015, it had 42 passenger cars, an increase of 100% over 2009. In 2019, it increased by 128.6% to 48 cars per 100 households. Increasing incomes are causing people to buy more cars on their side and use more private cars when going to work or travel.

One of the main indicators of rail passenger transport is passenger turnover. The passenger turnover of JSC "Uztemiryolyolovchi" in 2010 amounted to 2904.8 million passenger km, in 2011 - 3025.2 million passenger km, in 2018 - 4329.8 million passenger km, in 2019 this figure will be 4385.2 million passengers. km. Figure 2.5 shows the dynamics of change in passenger traffic in 2010-2019 on local, straight, suburban routes, which constitute passenger traffic.



Fig.5. Average number of passengers per passenger (passenger / wagon)

From 2010 to 2019, the number of passengers per wagon had a flat growth rate. In 2010 it was 33.8 passengers, in 2014 it was 39.2 passengers / wagons, and in 2019 it was 43.1 passengers / wagons. Over the years, the overall growth was 27.5%.

Uztemiryolyolovchi JSC was established on June 28, 2002 by the order of the State Property Committee of the Republic of Uzbekistan No. 187k-PO on the transformation of Uztemiryolyolovchi UK into an open joint-stock company within Uzbekistan Railways. In accordance with the Decree of the President of the Republic of Uzbekistan dated March 4, 2015 No. UP-4720, it was transformed into JSC "Uztemiryolyolovchi". The authorized capital is 51263.978 million soums. JSC "Uztemiryolyolovchi" was established to



further improve the work of railway passenger transport, to raise the culture of passenger service, to improve the management of passenger transport and to create conditions for the management of railway transport in the market economy.

Passenger transportation services are part of the state program that provides transportation services to the population of the country, daily work trips, necessary to meet the needs of leisure travel. Passenger services for Uzbekistan are not new, it has a deep tradition, so the state supports the development of the market of passenger services.[14]

**Table1. Economic indicators of JSC "Uztemiryo'lovchi"**

| Indicators                       | Unit    | 2010 y. | 2016 y.  | 2018 y.  |
|----------------------------------|---------|---------|----------|----------|
| Total income                     | mln.UZS | 132663  | 288647   | 437990   |
| Revenue from passenger traffic   | mln.UZS | 108038  | 221373   | 330861   |
| including:                       |         |         |          |          |
| straight line                    | mln.UZS | 65271   | 75343,2  | 121186,3 |
| local route                      | mln.UZS | 36692   | 136557,4 | 198820,1 |
| suburbs                          | mln.UZS | 6075,1  | 136557,4 | 10854,3  |
| Income from ancillary activities | mln.UZS | 24625,1 | 67247    | 107129   |
| Total cost                       | mln.UZS | 89638,8 | 253629   | 431660   |
| Financial result                 | mln.UZS | 44304,8 | 35017,4  | 6330,1   |

In order to further develop and modernize the railway system of the country, on December 21, 2010 "On the development of infrastructure, acceleration of construction of transport and communications in 2011-2015" No. PK-1446, July 10, 2017 "On the organization of high-speed passenger trains Karshi-Kitab Resolutions of the President of the Republic of Uzbekistan No. PP-4230 of March 6, 2019 "On electrification of the railway line" and "On measures to radically improve the system of freight and passenger transportation."

### 3 CONCLUSIONS AND RECOMMENDATIONS

The following measures have been identified in the Roadmap for the further development of passenger and freight traffic:

- Development of a draft Concept for radical improvement of passenger transport in Tashkent with the involvement of leading foreign companies;

Online monitoring of aircraft, wagon and container occu-

pancy rates and train traffic;

- make proposals for the introduction of an electronic system that allows remote monitoring of the movement of wagons and containers, including using applications for mobile phones;

- In order to bring existing railway stations in line with international norms and standards (wireless internet access, electronic queues at ticket offices, centralized passenger notification system, security measures, convenience for passengers with disabilities or those traveling with heavy luggage) creation) modernization and equipping;

- Improving the level of passenger information by developing and implementing a system of notification of public transport activities, including the placement of information on a special site, free access to databases on routes, schedules, services and other necessary information for the population and passengers;

- Take measures to attract business entities to carry out activities in the field of railway transportation, including through the outsourcing or sale of hotels and other property not related to its main activities;

- Establishment of measures of responsibility for foreign carriers for carrying passengers and cargo between points located in the territory of the Republic of Uzbekistan, as well as for exceeding the limited parameters of large dimensions.

Improving the quality of passenger services is a process that requires a good technical base, innovative technologies, organizational and economic solutions. If economic conditions do not allow to update the technical base for a certain period of time, it is recommended that the company reconsider its goals and develop a marketing strategy aimed at increasing passenger flow. In addition, this process involves the installation of a corporate governance system to improve the quality of passenger service. Its goal is to provide quality service to the target segment consumers.

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