

ANALYSIS OF THE FREIGHT TRAFFIC VOLUME OF THE TERMEZ RAILWAY JUNCTION

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ABSTRACT:

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In the article cargo turnover of the Termez railway junction of the Surkhandarya region, an economic and statistical analysis of the effectiveness of training highly qualified personnel is carried out. The system of statistical indicators used in the analysis of dynamic series is also described. Based on the economic and statistical analysis, scientifically based proposals and recommendations have been developed.

INTRODUCTION. It is known that our country is one of the few countries in the world that does not have access to direct sea access. In this place, the main share of cargo turnover in such countries falls on railways and highways. In this place, in addition to raising the living well-being of the residents of the region by increasing the activity of the southern regions, which is the main route to the sea, as noted above, the driver in the cargo turnover remains an area.

Literature review. On such issues as the effective use of rail transport in our country, its economy, the organization of transport processes, the formation of the theory of cargo systems, many famous domestic and foreign scientists were engaged in the organization of rational cargo transportation systems and the formation of tasks in various directions of the transport system (railway Transport, motor transport, aviation, etc.). Including, S.R. Abduazizov, G.A. Kudbieva, I.A. Abduraimov, O.J. Ibrohimova [1], M.V. Balashkina [2], V.A. Bilokha [3], P.A. Ivanov [4], A.S. Kolishev [6,7], D.A. Macheret [8], D.M. Rakhimjonov [9], Z.N. Rakhmatov, Sh.V. Ergashev [10], V.I. Soldatkin [11], N.G.

Smekhova [12], S.V.Rachek [13,14] A.I. Shelokov, I.N. Shapkin, Kh.Sh. Zyabirov[15] in his scientific research, attention was paid to such issues as the effective use of rail transport, its economy and, in general, the organization of transport processes, the formation of the theory of cargo systems.

Also, Z.N. Rakhmatov, Sh.V. Ergashev[10] s considered the peculiarities of the use of blokcheyn exnologies in the process of freight transport on the railway trackport. This technology allows you to manage the database during the shipping process. At the same time, special attention in blockchain technology is paid to reducing logistic spending along with data security. This allows the shipping process to be optimized.

Research methodology.

The state views transport as a means of achieving economic, social and geopolitical goals, ensuring national security, the integrity and stability of the country's economy and transport complex.

The main share of the volume of freight turnover, one of the main tasks of rail transport, falls on the responsibility of Railways and highways. Therefore, by economically-statistical analysis of the freight turnover of the Termez railway node, it is possible to see and analyze its current operating capacity as well as its potential potential future.

Table 1.

Freight turnover in general and railways in 2000-2024¹

Years	Railway freight bypass	Total cargo turnover	Years	Railway freight bypass	Total cargo turnover
2000	15	54,6	2013	22,9	65,8
2001	15,7	55,6	2014	22,9	66,2
2002	18,4	59,9	2015	22,9	65,8
2003	18,9	63,1	2016	22,9	65,3
2004	18	64,7	2017	22,9	66,9
2005	18,1	68,9	2018	22,9	71,3
2006	19,3	73,4	2019	23,4	72,6
2007	21,6	78,8	2020	23,6	66,9
2008	23,4	83,8	2021	24,6	74,8
2009	24,2	77,8	2022	25	75,5

¹ Author's calculations based on the data of the Statistical Agency under the president of the Republic of Uzbekistan.

2010	22,3	60,4	2023	27,1	77,6
2011	22,5	62,6	Total	521,2	1638,7
2012	22,7	66,4	Medial	21,7	68,3

When analyzing Table 1, the total freight turnover for the observed 24 years is 1638.7 thousand tons, of which 68.3 thousand tons is the share of the Termez railway node. This value occupies almost 42%. And the average values are 68.3 and 21.7 thousand tons, respectively. If the value of absolute change over the years is analyzed in a chain-like way, it can be seen that freight turnover on railways decreased only by 0.1 in 2004, 1.9 in 2010, and remained unchanged in 2014-2018, increasing to positive in the remaining years. At this point, the invariance of freight turnover on railways in 2013-2018 attracts attention. Because this can be explained by the fact that the "Termez-Sariasiya" direction has completed the process of full electrification. Indeed, since 2019, freight turnover on Railways has increased significantly. If analyzed year by year, it was observed that the value of absolute change increased to 2.8 in 2008, 2.3 in 2007 and 2.1 in 2023. The value of the absolute change in the base method means that in 2023 it increased by 12.1 thousand tons or 180% compared to 2000.

In order to track its share of Railways in the total freight turnover, figure 1 was prepared.

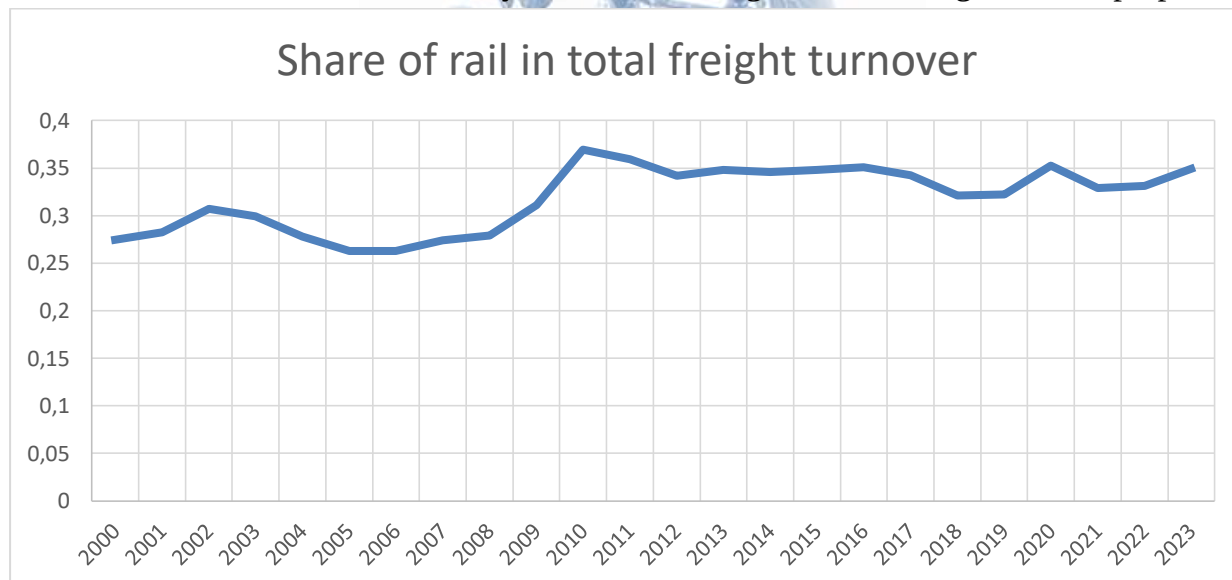


Figure 1. Share of rail in total freight turnover².

² Author development

As can be seen from the picture, the share of the railway in the total freight turnover is changing around 30%. This is exactly the share of this network, which is about a third of the exports and imports in our country.

In order for the analyzes to be detailed and complete, it is necessary to consider the values in a chain and basic way of indicators of absolute change, growth rate and incremental rate.

Absolute variation is found in the chain-like Method $\Delta Y = Y_k - Y_{k-1}$, and in the base Method $\Delta Y = Y_k - Y_{basis}$ method. The determination of the growth rate in a chain way is found by the fact that the ratio of the value of the indicator for the current year to the value of the previous year is expressed in percent $\Delta T = \frac{Y_k}{Y_{k-1}} \cdot 100\%$. In

the case of a base method, instead of the value of the previous year, the value of the year considered to be the base is obtained. $\Delta T = \frac{Y_k}{Y_{basis}} \cdot 100\%$ increment rate is the expression of absolute change in percentages of the ratio to the value of the previous year $\Delta K = \frac{Y_k - Y_{k-1}}{Y_{k-1}} \cdot 100\%$. In the basic method, the same is found as above only in which the year of the base is taken into account, and not the value 1 year before³.

Table 2.

In 2000-2023, an analysis of the absolute growth, growth rate and increase rate indicators of the load turnover of the Termez railway node in a chain-shaped and basic way⁴

Years	Car go turnover	Absolute change		Growth rate (%)		Rate of increase	
		In a chain way	In a basic way	In a chain way	In a basic way	In a chain way	In a basic way
2000	15						
2001	15,7	0,7	0,7	104,6	104,6	4,6	4,6
2002	18,4	2,7	3,4	117,2	122,7	18,1	17,2

³ Author's calculations based on the data of the Statistical Agency under the president of the Republic of Uzbekistan.

⁴ Author development

2003	18,9	0,5	3,9	102,7	126	3,3	2,7
2004	18	-0,9	3	95,2	120	-6	-4,8
2005	18,1	0,1	3,1	100,5	120,7	0,7	0,5
2006	19,3	2,1	4,3	106,6	128,7	8	6,6
2007	21,6	2,3	6,6	111,9	144	15,3	11,9
2008	23,4	1,8	8,4	108,3	156	8	8,3
2009	24,2	0,8	9,2	103,4	161,3	5,3	3,4
2010	22,3	-0,9	7,3	92,1	148,7	-12,6	-7,9
2011	22,5	0,2	7,5	100,9	150	2,3	0,9
2012	22,7	0,2	7,7	100	150	0	0
2013	22,9	0,2	7,9	100	150	0	0
2014	22,9	0	7,9	100	150	0	0
2015	22,9	0	7,9	100	150	0	0
2016	22,9	0	7,9	100	150	0	0
2017	22,9	0	7,9	100	150	0	0
2018	22,9	0	7,9	100	150	0	0
2019	23,4	0,5	8,4	102,1	156	6	2,1
2020	23,6	0,2	8,6	100,8	157,3	1,3	0,8
2021	24,6	1	9,6	104,2	164	6,7	4,2
2022	25	0,4	10	101,6	167	3	1,6
2023	27,1	2,1	12,1	108,4	180,7	12,3	8,4

Absolute growth in the analyzed years received negative values in 2004, 2010, while during 2012-2018 it acquired a value of 0, which is unchanged. For 16 years, growth was frozen. Notably 2.7% in 2002, 2.3% in 2007, 2.1% in 2006 and 2023. This trend of absolute growth is in turn evidenced by the fact that in recent years, work has been properly organized in the region on cargo turnover, in particular the Termez railway node. This is the case with the fact that our government has developed separate programs in this regard⁵.

It can be seen that the growth rate is less than 100% in 2004, 2010, even when analyzed in a chain-like way. So in these years it is possible to know that the load turnover has

⁵ President 27.11.2024 law on rail transport in the new edition of URL-1006

decreased compared to the previous 1 year. In contrast, analysis in the basic method shows an increase of 80% in 2023 by 1.8 times compared to 2000.

Like the above absolute growth, the rate of increase declined in 2004 and 2010, while it experienced a period of stagnation in 2012-2018. In the rest of the years, a slight increase was achieved. The top swing was 17.2% in 2002, 11.9% in 2011, and 8.3% in 2008.

If the absolute value of information about the share or volume of the sphere over certain years is known, then to compare them, a statistical analysis is carried out using such indicators as absolute change of the temporal series (chain-shaped and basal), growth rate (chain-shaped and basal), value of 1% additional growth (or decrease), incremental rate (chain-and basal), absolute acceleration or fading rate⁶.

The ratio of absolute change to the rate of increase in the chain method is called an additional growth value of 1%. Absolute acceleration or the rate of fading is called-the turnover of absolute change values in the chain method. The rate of acceleration or fading (%) is said to be the percentage expression of the ratio of the growth rate in the chain method to the growth rate of the next period of one period. The Optimal rate of acceleration or fading (%) is said to be the percentage expression of subtraction of 100% from the rate of acceleration or fading⁷.

The values of 1% additional growth value, absolute acceleration, acceleration or fading rate and optimal acceleration or fading rate are detailed in Table 3 below.

Table 3.

In 2000-2023 Termez's statistical analysis of the growth rate of freight turnover at the railway node, the value of additional growth by 1%, the rate of increase and the values of the acceleration or fading rate and the indicators of the optimal acceleration or fading rate.

Years	Cargo turnover	1% additional growth rate	Absolute acceleration or fading pace	Accelerati on or fading pace	Optimal acceleration or fading rate
2000	15				
2001	15,7	0,15	2	112,04	12,04

⁶ Zaripova, M.D. Algorithmic model of student knowledge control. // Actual Problems of modern Science, Education and Training 4 (2020): pp. 46-51.

⁷ Khatamov O.Q., Turaev B.E., Forecasting the volume of construction work using the Arima model (on the example of the sur-khondarya region) / Electronic Journal "UzBridge", 2021, No. 1, pp. 74-84

2002	18,4	0,15	-2,2	87,63	-12,37
2003	18,9	0,15	-1,4	92,70	-7,30
2004	18	0,15	1	105,57	5,57
2005	18,1	0,14	2	106,07	6,07
2006	19,3	0,26	0,2	104,97	4,97
2007	21,6	0,15	-0,5	96,78	-3,21
2008	23,4	0,22	-1	95,47	-4,52
2009	24,2	0,15	-1,7	89,07	-10,93
2010	22,3	0,07	1,1	109,55	9,55
2011	22,5	0,08	0	99,10	-0,89
2012	22,7	0,15	0	100	0
2013	22,9	0	-0,2	100	0
2014	22,9	0	0	100	0
2015	22,9	0	0	100	0
2016	22,9	0	0	100	0
2017	22,9	0	0	100	0
2018	22,9	0	0,5	102,1	2,1
2019	23,4	0,08	-0,3	98,73	-1,27
2020	23,6	0,15	0,8	103,37	3,37
2021	24,6	0,15	-0,6	97,50	-2,49
2022	25	0,13	1,7	106,69	6,69
2023	27,1	0,17	2	112,04	12,04

When the above table is analyzed at an additional growth rate of 1%, the selected 24 years did not have 1% in a year. There was no change in 2013-2018. And the pace of absolute acceleration 2002, 2003, 2007, 2008, 2009, 2013, 2019 and it can be noticed that in 2021 it decreased. The best growth was achieved in 2001 and 2% in 2023. The most declining value was 2.2% in 2002. The pace of acceleration or fading also acquired a changeable character, just like absolute acceleration. While stagnation was observed in 2012-2014, it reached its lowest value in 2009 at 89.07%. To its greatest value, it showed 112.04% in 2001 and 2023. The Optimal rate of acceleration or fading is known to depend on the rate of acceleration or fading. There was also no change here in 2012-2017. In 2001

and 2023, the largest increase was 12.04% while the largest decline occurred in 2002 and 2009 indicators were -12.37% and -10.93% respectively.

As a result of the analysis of the volume of freight traffic at the Termez railway depot, the following conclusions were obtained;

1. Termez railway node is an important object of our country in Freight Export-import.
2. In 2012-2018, there was stagnation in all indicators for the fact that the process of electrification of the railways in the area was observed. Another reason why freight values do not increase in 2020 is the impact of the COVID-19 epidemic, the quality of which is observed all over the world.
3. With the complete electrification of the region's rail system (as of 2019), there has been an increase in all indicators. Thus, by further moderating the railway system of the region, it is possible to increase the volume of freight traffic in terms of quality as well.
4. With increasing the distance of active railways in the area, it is possible to further increase the volume of freight traffic.

In the socio-economic development of the region as well as the country, the role of the railway sector as the main cargo carrier is great. The development of the industry, in turn, will contribute to the acceleration of the transport, infrastructure, trade of the territory, further improving the standard of living of the population and the development of socio-economic spheres.

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