USC 338.47:656.2 *M.I. Mishchenko*

TRENDS OF RAILWAY TRANSPORT ENTERPRISES OF UKRAINE

This paper develops the current economic state of railway transport enterprises of Ukraine. There isGDP forecast for Ukraine until 2020, based on the perspectives of the freight traffic sector functioning, which allowedto completea forecast of the freight traffic performance of railway transport enterprises up to 2020.

Keywords: railway transport enterprises, forecast, cargo turnover, goods traffic.

I.*Enterprises of railway transport are the basic industry of the national economy of Ukraine. They account for 88% of cargo turnover (excluding pipeline transport) and 50% of passenger turnover, unlike the EU countries, where the share of railways is 8%.*

Railways inability to meet the traffic needswill have a negative impact on the entire national economy of Ukraine, as well as on the competitiveness of domestic rail carriers, which cannot be allowed. It is necessary to develop measures to improve the rail network competitiveness.

Thus, the problem of rolling stock updating acquired the paramount importance [1]. According to the Law of Ukraine "On innovation activity priorities in Ukraine" №433 of 16.01.2003, the construction and reconstruction of transport systems is the strategic task of the government [2].

II. *The further increase in traffic, based on the state regulation of long-term economic development, requires the formation of a new level of transport service for the national economy and development of macroeconomic processes that are based on qualitatively new implementation of the entire complex of operations. The rolling stock renewal is induced by the increased competition and liberalization of the European freight market. The process of successful integration of Ukrainian railways into the continental transport communications and freight capacity building in this area depend directly on organizational measures and investments in the development of railway infrastructure and rolling stock [3].*

Creation and implementation of competitive types of rolling stock, which have qualitatively better performancecharacteristics, as well as reconstruction and technical re-equipment of industrial facilities for its production by domestic manufacturers will result inthe railway industry decreased dependence on imported rolling stock supply [4].

III.*When solving the urgent problem of rolling stock renovation in complex, overhauls withextension of lifetime and upgrading of existing rolling stock, as well as simple replacement of worn-out rolling stock with a new one (designed more than half a century ago), can be considered only as the supporting activities. Taking into account the need for a new level of transport strategy of socio-economic development of the national economy, as well as competition in the European transport market, these measures are not enough to solve the problem of rolling stock renewal.*

IV.*Thus, the rolling stock renewal priority should be provision of the Ukrainian railways with the new generation of rolling stock. The purpose of this paper is to study the dynamics and to complete the forecast of factors forming the demand for the railway transport products.*

This will allow to improve the technical and economic performance of the railway transport, the safety and quality of traffic, the competitiveness of railways of Ukraine, to make a breakthrough in enhancement of the sphere efficiency.

The State Program "Development of rail rolling stock of social purpose for rail transport and urban economy" allowed to develop and master the production of basic kinds and types of new generation rolling stock that were not produced in Ukraine before.

The carriage works of Ukraine have already created and produced more than 10 new models of tanks, gondola cars, flat cars, that will allowto update and thus to improve reliability and efficiency of the rolling stock in operation [5]. The creation of new generation cars is in progress; these cars will have the improved technical and environmental characteristics that guarantee the safety of trains. It will also help accelerate rail freight technology adoption according to the European standards.

Currently, the following more ambitious tasks must be fulfilled: the creation of a new generation of locomotives with increased capacity, including those with the speedup to 200 km/h. (equipped with electric transducers with computer and microprocessor control and diagnosis systems, which use the modern element base); quality production and mass production of new rolling stock; the reduction of terms for development and implementation of the advanced new generation equipment and efficient technologies for retrofitting of railway transport enterprises; the creation of a wide range of specialized andversatile cars with improved technical and economic parameters (freight capacity, tare weight, reliability [5], etc.); the facilitation of the rolling stock transition from one track width to another due to the wide use of trucks with sliding wheel sets; the researches to ensure the safe operation requirements as to the rolling stock and the environment protection, reduction of energy costs; the researches, development and introduction of new construction materials and steel; improvement and manufacture of the respective structural elements and units (trucks, brake systems, etc.); the creation of the modern national test base (polygon) for testing of rolling stock and its structural elements; development and implementation of test procedures, which are harmonized with international standards; regulatory support of railway rolling stock development.

To solve these problems we require program cooperation of scientific institutions and some spheres, appropriate training and improvement of production, re-equipment of enterprises, investment resources in addition to the own funds of Ukrzaliznytsia.

Market volume of freight transport services (primarily domestic and export shipments) is determined by the volume of production and consumption of other sectors of the national economy [6, 7]. This is evidenced by the connection of traffic volume and cargo turnover with gross domestic product, expressed in national currency - hryvnia (UAH)(GDP), presented in Table 1.

Table 1

Performance data dynamics of railway transport of Ukraine (Source: [7])

Year	GDP at comparable prices of 2013, mln. UAH	Total for all transport modes		Incl.railway transport		Relative share of railway transport,%	
		traffic volume, mln. tons	cargoturnoverbln. t-km	Traffic volume, mln. tons	cargo turnover bln. t-km	by traffic volume	By cargo turnover
2000	527238	1529	394,1	357	172,8	23,35	43,85
2001	565192	1579	394	370	177,5	23,43	45,05
2002	620075	1558	411,3	393	193,1	25,22	46,95
2003	697839	1654	457,5	445	225,3	26,9	49,25
2004	826456	1731	480,1	462	234	26,69	48,74
2005	931421	1805	473,6	450	224	24,93	47,3
2006	1052347	1873	494,6	479	240,8	25,57	48,69
2007	1235669	1990	510,2	514	262,5	25,83	51,45
2008	1298251	1972	507,7	499	257	25,3	50,62
2009	1079135	1625	395,7	391	196,2	24,06	49,58
2010	1169175	1765	418,7	433	218,1	24,53	52,09
2013	1316600	1887	445,7	469	243,9	24,85	54,72

Table 1 shows that GDP growth results in increased traffic volume and cargo turnover in general, including the railway transport. This is a natural phenomenon based on the nature of cargo transportation. Taking into account the GDP growth trends and the direct connection of railway transport performance with the operation of freight sectors, we can note a steady upward trend in transport work and the railway transport segment at the transport market of Ukraine.

The efficiency of the Ukrainian transport complex enterprises has a direct impact on the stable functioning of all spheres of social production and social-economic development of the country. The relative share of transport services in the gross domestic product (GDP) of Ukraine is about 9%. The cost of fixed assets is 8%, the number of employees in the region is 5.6% of the total number of employees in the national economy [7].

The growingGDP of Ukraine in the near future will lead to the increased demand for freight transportation, primarily by railway transport. The results of the author's forecast are presented in Table 2 and Figure 1.

Analysis of the connection of shipping goods by rail with the GDP revealed a close interrelation.

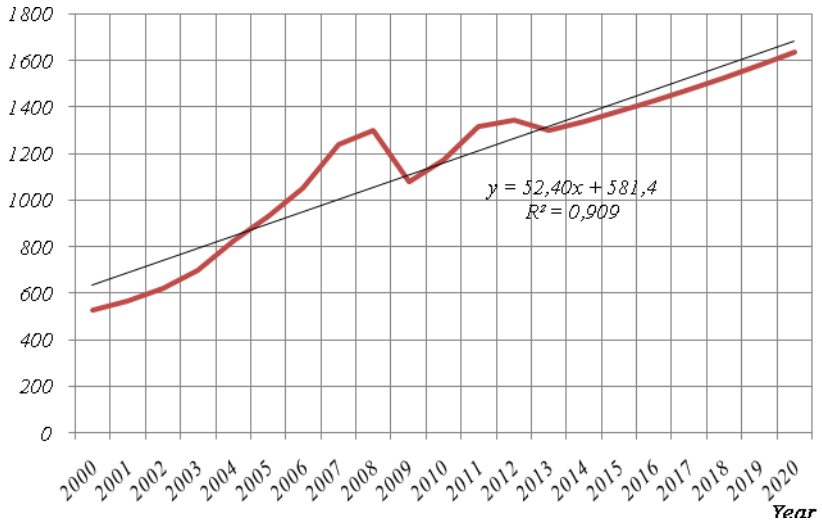

Fig. 1 Dynamics and forecast of Ukraine's GDP in 2013 prices (source: the author's formulation)

As a result of standard procedures there is a regression equation "Consignment - GDP", based on which, using the results of GDPforecast for the period 2014-2020, there is completed therail consignmentvolume forecast, the results of which are shown in Table. 2.

Table 2 and Figure 3 show that the vast majority of goods shipped by rail refers to the mass goods. Analysis of the consignment structure indicates its stability over time. So, the first place is occupied by coal, the second and third places–by iron ore and manganese ore and other cargo, the fourth place–by construction materials, the fifth place–by ferrous metal. The total share of these goods is 82% ofconsignment.

Table 2

GDP forecast, consignment and freight rate of railway transport of Ukraine (source: the author's formulation)

Year	*GDP at comparable prices of 2013, bln. UAH*	*GDP growth rate by the previous year, %*	*Consignment, mln. t*	*Cargo turnover, bln. t-km*	*Cargo turnovergrowthrate, %*
2011	*1316,60 (the fact)*	*–*	*388,7*	*243,866*	*–*
2012	*1344,25 (forecast)*	*102,10*	*389,5*	*245,516*	*100,7*
2013	*1297,76 (forecast)*	*96,54*	*387,91*	*243,1*	*99,0*
2014	*1337,39 (forecast)*	*103,05*	*389,4*	*244,73*	*100,7*
2015	*1380,30 (forecast)*	*103,21*	*391,01*	*246,5*	*100,7*
2016	*1425,68 (forecast)*	*103,29*	*392,72*	*248,37*	*100,8*
2017	*1473,66 (forecast)*	*103,37*	*394,52*	*250,34*	*100,8*
2018	*1524,38 (forecast)*	*103,44*	*396,43*	*252,43*	*100,8*
2019	*1577,995 (forecast)*	*103,52*	*398,44*	*254,64*	*100,9*
2020	*1634,68 (forecast)*	*103,59*	*400,57*	*256,98*	*100,9*

Dynamics and forecast of consignment are presented in Figure 2.

To determine the total volume of rail shipment of Ukraine we must add the reception of goods, which includes transit and import, to the consignment volume.

Forecast of import is based on the analysis of its interrelation with Ukraine's GDP. Forecast of transitlevel is made by constructing the autoregressionequation.

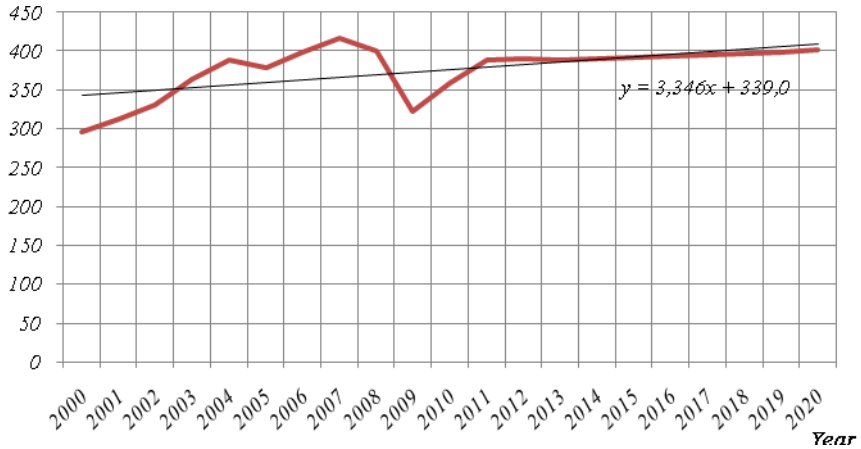

Fig. 2 Forecast of Ukraine's rail consignment (Source: the author's formulation)

Cargo turnover forecast is completed by types of messages based on the dependence of this parameter on the volume of freight traffic and average length of haul.

Dynamics and ore cast of tariff cargo turnoverarepresentedin Figure 3.

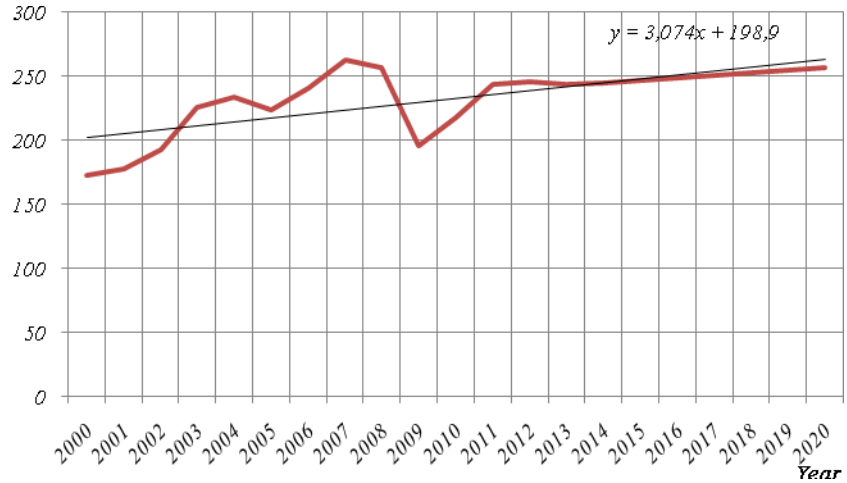

Fig.3 Forecast of Ukraine's rail cargo turnover (source: the author's formulation)

V.*In general, we can conclude that since 2010 there is a steady increase in cargo turnover, which will continue in the future. The average growth rate of cargo turnover for the forecasted period (2020) is about 1% per year.*

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