



Increasing Competitiveness of Passenger Rail Transportation Amid Organizational and Structural Transformations

U.V.Myroshnychenko ^{1*}, I.V.Motsna ¹, N.V.Gritsenko ¹

¹Ukrainian Public University of Railway Transport, Ukraine

*E-mail: yuliamiroshnichenko155@gmail.com

Abstract

The decline in the volume of passenger traffic, the critical level of financial condition, and the depreciation of the material and technical base caused a significant economic downfall of the railway transport. The reorganization of structural units is intended to improve the quality of service provision, which affects the final demand of consumers, which influences the volume and profitability of passenger transportation. The author suggests applying the principles of the organization of the revenue account from passenger transportation, exempt from VAT, to reduce its loss ratio amid organizational and structural transformations during the reshaping of passenger transport segment. Increasing the competitiveness of passenger rail transportation will contribute to the economic development of the entire nation.

Keywords: Competitiveness; Loss ratio; Passenger transportation; Profitability; Railway transport; Subsidies; Taxation.

1. Introduction

The economic crisis in Ukraine has caused a substantial economic downfall in the transport. The volume of transportation has been declining, the financial condition of the industry has reached a critical level, the material and technical base is wearing out, which stresses the needs for reconstruction, repair and maintenance.

The issues of technical innovation and technological modernization are not dealt adequately, the minimum social needs of workers are not met, and potential opportunities are not fully utilized. The area of passenger rail transportation also contains unresolved problems as follows:

- a decline in demand for passenger transport, multiple increase in prices for material resources, which leads to a significant reduction in real income of transport;
- loss of the competitive edge in the transportation market;
- aggravation of the issue of financing the technical and technological modernization of the passenger sector;
- underperformance of the passenger complex operation, which is connected, first of all, with the slow resolution of issues of adjustment with the scope of work performed by maintenance personnel and fixed assets, infrastructure, as well as low rates of implementation of resource saving technologies, etc.

2. Review of Published Works

The issues of improving the efficiency of passenger rail transportation and ensuring its competitiveness were considered by such scientists as Yu.S. Barash [1], V.L. Dikan [2], G.D. Eytutis [3], M.D. Zherdev [4] and many other experts. The work [5, p. 93] emphasizes the subsidization of passenger transportation from the state budget and an understanding of the cause-to-effect connections of the loss ratio of passenger transport under reform of the railway industry. Another paper [6] puts forward that the separa-

tion of transport operators would ensure a competitive environment and create conditions for competitive selection of manufacturers, which would optimize the process of passenger transportation, and increase its efficiency.

The author [7, p.7] proposes a classification of models of passenger rail transport reform in suburban traffic service that takes into account the survey region, the degree of independence, departmental subordination and the number of owners of the future company, which will ensure the identification of their advantages and disadvantages, the zone of optimum utilization and offer rational organizational structures to manage them.

Another author [8, p.102] underlines the need to develop a legislative mechanism for subsidizing domestic passenger rail transportation, which would guarantee the retaining and maintenance of state support for unprofitable types of passenger transport after the elimination of cross-subsidization of passenger transportation at the expense of freight and development of passenger railroad complex.

At the same time, the issue of further production operation of the passenger complex is escalated by the elimination of cross-subsidization from freight transportation.

3. Purpose of the Article

To study the efficiency of passenger transport operations amid organizational and structural transformations, using the principles of organizing the revenue account from passenger transportation, exempt from VAT, which will reduce its loss ratio and increase competitive advantage.

4. Statement of Basic Materials

As a result of global economic transformations, there have been significant changes in the social organization of the Ukrainian society, which could not but affect the value orientations, lifestyle

of Ukrainians and, accordingly, reflected their consumer behavior, including the need for movement by any mode of transport.

Modern transformations in the context of global civilization dynamics, the formation of the information society convince us of the fact that the main characteristics of the modern and future society are associated with the prevailing influence of social relations on all aspects of human life. Rail transport, as part of the unified transport system, relates to the provision of passenger traffic services.

At the same time, the increasing intensity of competition in the globalizing markets naturally turns the interests of service providers, ideas to the study of consumer behavior mechanisms and the possibilities of using these mechanisms to achieve their goals.

In the context of the marked tendencies, it becomes obvious that consumer behavior in the choice of transport services is a special reality in which the social structure of society is reflected and partially constructed.

Moreover, researchers note the growing social orientation of consumer behavior, its complications and dependence on the social structure.

Passenger transportation is one of the main types of transport products holding a special place in the work of transport. This is due to its high social and economic significance in the life of society and individual citizens, the fulfillment of one of the guarantees of the state – the provision of freedom of movement. The passenger transport market provides passengers with various types of transport services that are not equal in value, speed, regularity and comfort.

Railways, in interaction with other modes of transport, must timely and qualitatively carry passengers, provide traffic safety, develop the transport services of the population.

The level of demand for passenger traffic and services is directly proportional to the nature of consumer behavior of potential passengers (users of services), which in turn depends on their level of income, the availability of services at a price, at the appropriate

level of the quality standard of the latter, from the social policy of the state, non-response to requests of passengers etc.

Transport mobility of the population is one of the most important characteristics, knowledge of which allows reasonable estimation and calculation of the need for means of transport, provision of public with public transport services, as well as measures to improve the transport services of the population.

The size of the transport mobility of the population is measured by the number of trips per capita per year and is the social standard of providing the minimum volume of transport services with the given quality indicators.

The following are socially significant daily transportation services:

- travel to and from work;
- study trips;
- personal business trips;
- trips to cultural and sporting events;
- travel to places of rest.

However, transport mobility of the population is formed not only by the need for everyday travels of different layers of the population, but also under the influence of the availability of transport services for each citizen of the country, which in turn is determined by the incomes of citizens and the level of tariffs for given passenger transportations.

In recent years, there has been a tendency towards a decline in passenger turnover in all modes of transport, which is primarily connected with the tense social and economic situation in the country, a decline in the living standards of the population, and a significant increase in tariffs. The dynamics of the number of passengers transported by modes of transport in 2013 – 2017 is shown in table 1 (from 2014 without taking into account the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and parts of the zone of the anti-terrorist operation).

Table 1: The dynamics of the number of passengers transported by mode of transport in 2013 – 2017, million passengers

Types of transport	Years					
	2013	2014	2015	2016	2017	2017 in % to 2016
Transport:	6620.0	5899.5	5175.7	4854.4	4647.2	100.3
rail	425.4	389.1	389.8	389.5	165.0	98.0
road	3340.8	2915.3	2259.8	2025.0	2018.7	99.7
water	7.3	0.6	0.6	0.5	0.6	122.9
air	8.1	6.5	6.3	8.3	10.6	127.5
tram	757.4	769.9	738.3	694.0	675.6	97.4
trolleybus	1306.2	1092.3	1080.5	1038.7	1057.8	101.8
subway	774.8	725.8	700.4	698.4	718.9	102.9

Source: [9]

An important factor influencing the outflow of passengers from the railway mode to other modes of transport is the reduction in the number of trains and cars in passenger trains, which caused dissatisfaction of people with passenger transportation during peak periods, the closure and cancellation of a number of train stops, the periodic cancellation of suburban electric multiple-unit trains and delay in the schedule of traffic. The above factors are closely related, varying in degree of influence on the size of demand and are both price and non-price character. Due to the decline in demand and the unprofitableness of passenger traffic, the industry faces priority tasks – competitive recovery and efficiency upgrading of passenger traffic [4].

Maximizing the satisfaction of transportation needs and, consequently, servicing passengers before and after the trip increases the commitment of consumers to the company and, as a consequence, increases the efficiency of its activities and competitiveness in the market of transport services.

An enterprise that needs to sell any service needs to strive to understand the true motives of consumers' needs and identify the hidden mechanisms of their behavior.

Priority in offering services and studying the response thereto is understanding the motives of potential customers. In studying the reaction of consumers to the services offered, it is necessary to

identify: the motives of acquiring services, obstacles to the implementation of the acquisition; process of obtaining information and decision-making process; the existence of leaders among other types of transport and their services; conditions and time of service use; consumer behavior in relation to services; the place and time of the services provided; typology of consumers, developed on the basis of psychosocial criteria that characterize them; changing the tastes and habits of different groups of consumers as a result of studying a certain type of service; moving to other sources of satisfaction of needs depending on lifestyle changes, etc. There are the following basic principles for the formation of a correct understanding of the behavior of consumers and their relation to transport services:

- independence of consumers in the choice of transport services;
- studying the motivation and behavior of consumers through marketing research;
- social legality of consumer behavior of users of transport services.

Independence of the consumer is manifested in the fact that his behavior has a certain aim. The offered services can be perceived or rejected by them to the extent that they correspond to their needs. Providing services is successful if they meet the needs of the consumer, provide choice and real benefits. The study of needs,

their advantages and constant adaptation to consumer behavior is one of the important conditions for filling the niche needs in the conditions of competition in the passenger traffic transport market [10].

Studies of motivation and behavior of consumers are carried out by simulating these processes. It is important to note that the behavior of different consumers in the transport market is different and depends on the needs of purchase, the nature of demand, market actions, motivation, etc. At the same time, the behavior of consumers of transport services has some similarities. In the passenger traffic market, the behavior of consumers of transport services, as a rule, is expressed through a system of economic, social and psychological factors that characterize their needs and ways of satisfaction.

The behavior of passengers is influenced by various factors. First of all, these are factors of the environment. A special place in the formation of the behavior of consumers of transport services in the passenger traffic market is the psychological process of choosing transport services on the basis of studying their benefits.

At the same time, consumer freedom is based on a number of his rights, the observance of which is the most important task not only of society as a whole, but also of individual enterprises. Social legality of passenger rights serves as a guarantee of the full satisfaction of its needs for various types of transport. It should be noted that consumer fraud, poor quality of transport services, lack of response to legitimate claims, offenses and other actions are nothing but disdain for legitimate rights and should be punished.

A transport company can't achieve market success if it ignores consumer inquiries. Transport service users are not interested in the cost of railways to improve the quality of service and methods of improving the competitiveness of transport. In evaluating the level of quality, passengers are, as a rule, not oriented to providing the services themselves, but to their opinion, which is formed during the maintenance process at each stage of the trip. They compare the service offered by the railways with the service of other modes of transport, as well as the cost of services. And on the basis of a comparative assessment, they choose the most pleasant, from their point of view, type of transport or service.

The demand and supply in the transport services are determined, on the one hand, by the ability of transport users to pay for transport services, and on the other hand, by the production capacity of the transport system to their satisfaction.

The demand of passengers is influenced by many factors that are closely interconnected. These factors can be divided into objective and subjective.

Objective factors influencing the demand of users of transport services are economic, social and natural: -

- economic factors reflect the economic stability of the country (the degree of inflation), placement of production and productive forces, development of social production in general in the country and in certain sectors (for example, tourism development) and actual income level of the population;

- social factors include the stability of the socio-political situation of the regions and the country as a whole, population growth, population structure by profession and its distribution by place of residence (in cities and rural areas), change in population distribution in time and space, migration, development of the material and cultural standard of living of the population of the country (level of education and culture of the population), national, religious, local and traditional habits (consumer tastes);

- natural factors: climate, rainfall, terrain, ecological safety of regions, etc.

Subjective factors affecting the demand of passengers by type of transport include:

- availability of various modes of transport, fares and quality of traffic, the level and nature of competition in the transport market;

- solvency of passengers, influenced by factors such as price (tariff), the quality of passenger service and a variety of services in a particular mode of transport. In conditions where travel costs occupy a significant part of their budget, the impact of cost factors on demand is the most significant.

The criteria for the quality of passenger transport services include: rhythm, regularity and speed of transportation, travel safety, comfort on the route and at train stations, convenience in purchasing and booking a ticket, the convenience of the time of departure and arrival of trains, the conformity of service to requirements, handling of transport workers with regard to passengers.

If passengers have negative thoughts about this type of transport due to the non-compliance with quality requirements, they "lose credibility" and the direction where various routes of alternative modes of transport operate. As a result, revenue is lost, and without the necessary financial resources, it is impossible to create proper service at train stations, in trains and other places of service of passengers.

Quality, along with efficiency, is one of the most complex philosophical, geopolitical, economic, social and production and technical categories. The relationship between quantity and quality in the most complete and general form is formulated by philosophers in the law on the transfer of quantity to quality. This theoretical position is important for the study of the quality category based on a systematic approach to the development and implementation of practical recommendations for the effective management of the economy of any production, including transport, in the context of regulating market relations.

The quality of products is a relative notion, since for the generalization characteristic it is important to compare its various properties among themselves, as well as with the properties of others types of similar products. An inherent property of the quality of any product is its ability to meet certain needs and to modify in accordance with the interests of consumers. Therefore, the essence of the quality of products or services consists both in their consumer value and in cost, that is, in the amount of socially or individually necessary labor costs. Thus, the notion of "quality" applies not only to objects but also to transport services and transportation processes.

That is, the quality of products or work should be understood as a collection of the most significant properties (for transport production – criteria), which determine the degree of suitability and production capabilities, services or work to meet certain needs in accordance with their purpose.

The service provider must give priority to effective interaction with the consumer in order to achieve a positive result at the time of service provision. Effective interaction, in turn, depends directly on the skills of the service providers, as well as on the technology of production and related processes that assist employees in providing services. That is, the service is created with the direct interaction between the consumer and the passenger industry.

At the present moment, when competition in the field of transport is intensified by other modes of transport, the highest possible realization of the possibilities of the available material and technical base, the large-scale implementation of the achievements of scientific and technological progress, improvement of the comfort and service at the stations, the conditions of travel in passenger trains, increase in speed, acceleration of rolling stock turnover, increase in labor productivity, use of resource-saving technologies, increase in ecological cleanliness of transport facilities, automation of management and other issues have become of high importance amidst difficult economic conditions, and they require a solution and a fundamental change in approach to maximize the yield of passenger traffic, to bring in passengers and get an effective return on investment.

One of the important areas for development and reformation of the system of provision of services to passengers is the further improvement of its management, which should recover the competitiveness of rail transport by bringing the management and production structures in line with the accomplished volumes of transportation.

The formation of a single manufacturing vertical in the passenger sector of the "Passenger Company" branch is another stage in the reform of the railway industry, when the business areas are distinguished by type of activity, and not by regional principle. The purpose of the Branch's activities is to meet the needs of the state,

legal entities and individuals in safe and high-quality rail transportation in domestic and international options, works performed and services provided [11]. Also, the structural reorganization of linear units of the passenger complex is being implemented, aimed at reducing transport costs, setting reasonable tariffs for transportation, and increasing the amount of passengers.

The long-distance passenger transportation department of Ukrainian Railways PJSC organizes a system of transportation of passengers in domestic and international options, forms and implements an effective policy of passenger transportation, provides high-quality services to passengers at railway stations and in trains.

The Department of Suburban Passenger Transportation organizes and coordinates the process of suburban passenger transport, controls the provision of quality services at train stations and suburban trains, participates in the development of schedules of traffic, organizes timely repairs of rolling stock, plans and coordinates orders for major repairs, and controls the quality of repairs and maintenance.

The main advantages of the services provided to passengers by trains of the Ukrainian Railway High-Speed Company are:

Time of travel: time between the city centers by Intercity+ and Intercity trains is comparable with the same and not much longer than when traveling by air;

Cost of transportation: despite the fact that the time of travel is significantly reduced, the cost of transportation remains at the level typical of ground transport;

Accessibility for passengers: the 9 largest cities in Ukraine, among which there are the largest passenger traffic, are already connected by Intercity+ and Intercity trains;

Accuracy and reliability: the train movement is carried out according to a well-calculated schedule. Weather conditions and other factors do not have such a significant effect on compliance with the schedule as for other modes of transport.

Comfort: traveling by Intercity+ and Intercity trains is comfortable and convenient for the passenger, which is achieved thanks to the modern rolling stock with comfortable interior and ergonomics, as well as high level of service for passengers;

Convenient timetable: the timetable is designed taking into account the maximum number of passenger requirements. In particular, it was possible to avoid too late arrival of morning trains and early departure of evening trains, which allows passengers to plan their day in a more efficient way.

Service: oriented approach to transportation. The branch of "Ukrainian Railway High-Speed Company" introduces a service-oriented approach to transportation for the first time in Ukraine, which consists in the formation of a comprehensive product for passengers, which will make the trip fast, comfortable and enjoyable.

The branch "Ukrainian Railway High-Speed Company" of Ukrainian Railways, PJSC is a powerful actor in the passenger transportation market of Ukraine, pioneering in the advance of passenger transportation segment – daytime high-speed transport.

In order to improve the quality of passenger service, Ukrainian Railways plans to purchase a new rolling stock, expand the network of high-speed trains of the categories "Intercity", "Intercity+", "Night Express Trains", optimization of their operation, introduction of new standards of passenger service up to 2021. 9 billion UAH will be allocated for the purchase of 400 cars, 11 billion UAH – for the purchase of electric trains, 3.5 billion – for diesel trains and more than 10 billion are invested for modernization and repair of existing rolling stock. It is important to note that these investments will only be possible through the development of effective mechanisms of state support.

In the passenger sector, the development strategy of Ukrainian Railways, PJSC for 2017-2021 provides the creation of six regional suburban companies and a railway company in addition to the existing ones, the Passenger Company and Ukrainian Railways High-Speed Company [12].

In 2012, Ukrainian Railways has developed a business plan for the creation of suburban railway companies. At that time, it was planned to create 11 suburban management offices that would be

part of the suburban railway companies to cover the entire territory of Ukraine. Later it was found that within the reform it is necessary to set apart the passenger vertical.

This is an internal reorganization of the company, where the establishment of a passenger subsidiary company is underway. Now the organizational structure of Ukrainian Railways contains six railways (Lviv, Donetsk, Odessa, Cisdnieper, Southwestern and Southern). The changes allow for all passenger assets of these six railways to be integrated into a separate branch which will be extraterritorial, and will cover all Ukrainian Railways. The final stage includes the establishment of an associated company of Ukrainian Railways, PJSC – Passenger Company, JSC by 2020 on the basis of the branch Passenger Company.

According to the Center for Transport Strategies, now all passenger direction financing inside the Ukrainian Railways is in the form of cross-subsidization – when the company itself funnels money from one profitable direction – freight into the other – a passenger. About 7 billion UAH are lost in the passenger traffic annually. One of the ways to solve this problem is raising tariffs to economically justified, but this is impossible, as the population's paying capacity is low. Also, unlike freight transportation, passenger transportation has a common practice of providing travel privilege for certain categories of citizens. "Travel privilege" is compensated in the form of subsidies from the budget, which are allocated to cover the planned losses from transportation of privileged categories of passengers, reaching no more than 1/3 of their total volume. In order to make the passenger transportation not as unprofitable as it is now, further internal reorganization of the company is required.

If the passenger transportation becomes a separate passenger vertical with its assets and no losses are compensated by funds from freight, then it will threaten its future operation. Long-distance passenger services are likely to be provided only in profitable directions, and in suburban option, in general, the provision of transport services will be questioned. Given that own resources will not be enough even for the movement of rolling stock (the average ratio of current tariffs for suburban options and the cost does not exceed 50%). And this situation violates the Law "On Railway Transport", which clearly states the satisfaction of the needs of the population in the movement. A private transport operator will not be interested in knowingly loss-making traffic. And the subsidies for travel privilege from the state budget are being reduced annually. It should also be noted that it is difficult to compete in the passenger transport market having such a worn-out rolling stock at all. The recovery of this critical situation is possible only with the direct financial participation of the state.

Therefore, the authors believe that it is necessary to apply the principles of revenue account from passenger transportation, exempt from VAT, in response to organizational and structural transformations.

One may apply different approaches to the regulation of tax liabilities, but it is important at the same time to be based on the classical approach to the content of the tax. It should always be part of the income already received by the payer (Law of Ukraine "On Value Added Tax") (par. 7.3, clause 7)). The payer must pay the share of earned or received income to meet the general needs, and maintain the state. But it causes only harm in formalized cases when it has to pay taxes before the moment it received a profit.

First, the payer, in this case, Passenger Company, JSC, may not get it at all and then it will not have a tax duty. Secondly, it is impossible to determine the amount of tax payable when the taxable item is practically absent (in determining the expected turnover on the basis of previous periods). Thirdly, in the end, such a mechanism is also unprofitable for the state. It is explained by the fact that the payer in this case, paying the tax not from the income received, but from his own funds (profit from freight transport), is actually forced to reduce the amount of money it allocates into production and which increases the turnover, which ultimately reduces the taxable item. By forcing it to pay a tax on reduced own funds, the state actually reduces the tax item from which the

amount of tax payable is calculated, and thus reduces tax revenues to the budgets by such actions.

If, on the basis of the results of the reporting period, the difference between the total amount of tax liabilities incurred in connection with any sale of goods (works, services) during the reporting period and the amount of tax credit of the reporting period has a negative value, then such amount shall be refunded to the taxpayer from the State Budget of Ukraine.

Budget refund is the amount to be returned to the VAT payer from the budget due to excessive payment of tax in cases specified by the Law of Ukraine "On Value Added Tax" and the Presidential Decree "On Certain Changes in Taxation".

According to the Law of Ukraine "On Value Added Tax" (Bulletin of the Verkhovna Rada, 1997, No. 21, Art. 156) (as amended by the Law as of 01.03.2018):

clause 5.1. The following transactions are exempt from taxation:

par. 5.1.13. provision of services for the transportation of passengers by city and suburban passenger transport and motor transport within the district, tariffs for which are regulated by the law, with the exception of operations for the provision of passenger transport for rent (hire).

The amounts of value added tax are credited to the state budget and used primarily for budget reimbursement of value added tax and the formation of budget amounts, allocated as subventions to local budgets. Therefore, there is a budget refund mechanism, but these funds are not received on the railway transport due to cross-financing. Funds received from the budget are paid as compensation for the cost of travel of privileged categories of passengers.

There is also no applicant on the part of the carrier in a suburban option for a budget refund, as is the case with the city representatives of passenger transportation. In a city service, if local transportation tariffs are not approved by the authorized state authorities or local self-government bodies, they are included in taxable transactions and increase the tax base in the reporting period of their receipt with the accrual of tax liabilities in a standard manner. On the basis of the foregoing, the authors propose a simplified model of the principle of revenue account from suburban passenger transport, exempt from VAT (Fig. 1), but it is possible only with effective financial and legal regulation of the state in this urgent problem.

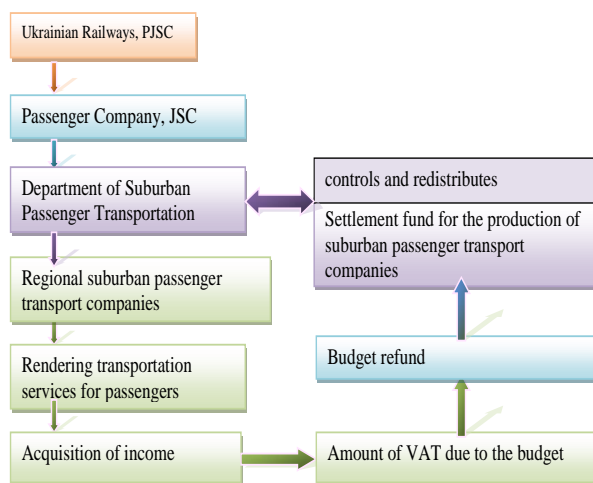


Fig. 1: Simplified model for the principle of revenue account from suburban passenger transport, exempt from VAT.

5. Conclusions

In order to eliminate cross-subsidization of passenger transportation at the expense of freight, it is necessary to introduce a mechanism of regulation of financial provision of passenger transportation in unprofitable directions, especially in suburban services.

Self-financing of Passenger Company, JSC is impossible considering the unprofitableness of passenger transportation and the emerging problems for receiving subsidies from the state and local budgets. Therefore, it is proposed to apply the principles of revenue account from passenger transportation, exempt from VAT. Passenger transportation contributes to the improvement of the quality of labor resources and the quality of life of the population, and in the suburban service, it provides a more complete use of the workforce. Therefore, increasing its competitiveness contributes to the economic development of the entire nation.

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