

# Tariff Policy of the Logistics System of the Public Transport of the City

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The article discusses the important part of the tariff policy of transportation of passengers by public transport, which plays a significant role in the formation of a general transportation tariff. The recommendations, given in the article, are mainly related to a Georgian example which may also be applicable to other countries, especially considering that in the process of preparation of the article, the current situation at the post-soviet states (Russia, the Ukraine, and Belarus) was also examined and taken into account, and the presented methodology is a combined version of that experience.

*Keywords:* tariff policy, methodology, profitability of transportation

## Introduction

The shift from the soviet planned economy model to the market economy principles was not easy for post-soviet states. Complete disruption of the management of certain areas of public agriculture had an important impact on the economies of some countries, the imprints of which are present even today. This paper would like to discuss one of such problematic issues, which refers to the tariff policy of the public transport of the city.

In order to ensure stable operations of the public transport of the city in the current conditions, it is crucial to improve the normative and legislative base, to form effective economic stimuli for its operation, and also to provide similar economic conditions for public and private transports. Development of various forms of property is an important factor for increasing competition at the transportation service market, for broadening nomenclature of this service and reducing its cost, and for attracting private capital and investments for the implementation of the transportation complex development projects.

Despite the financial support provided by regional and financial authorities, public transport enterprises are experiencing financial downfall, which depends on many factors. This article would like to focus on only one factor, namely, the tariff policy of transportation of the passengers.

The shortage of funds is considerably increasing by maintaining the low level of transportation tariffs. The tariff should be changed taking into account the improvement of the quality of transportation services and the dynamics of actual salary of people and their living standards. However, the transportation tariff is usually adjusted at inappropriate times and inadequately for the passengers, who use public transport of the city. In this regard, not only the tariff rates but also the unit volume of the transportation expenses and the general expenses of the people, travelling by public transport, are considerably different in the various cities of Georgia. It is important to consider the tariff policy of the logistics system when determining the tariffs.

### Literature Review

“The logistics approach suggests presentation of the public production as a one whole, integrated and interrelated system, rather than its division in stages and phases” (Gudkov, Mirotin, & Shiriaev, 2010, p. 351). The same may apply to the provision of transportation services. Meeting the customers’ demands is an important aspect of logistics. “Logistics aims to use the system effectively as a whole, rather than its individual parts, by maximum satisfaction of the demands” (Pticina, 2011). When talking about the principle, which is the basis of logistics – a systems-oriented approach, the process of transportation of the passengers may be presented as a system. People’s need for transportation (the demand) and the provision of certain amount of rolling stock are the inputs of the system. The output of the system is timely transportation of passengers to their places of destination. The system must have certain limitations, such as: compliance with the predetermined high-speed mode of the bus traffic, provision of comfort to the passengers, achieving the financial performance indicators by the motor transport enterprises, etc. (TRB Executive Committee, 2005). The goal of the system is to ensure timely and quality satisfaction of the demand for transportation of passengers and their transportation to the places of destination (Gudkov et al., 2010; Bauepssocks & Closs, 2008; Mirotin, 2003; Piter, 2007).

The operation of the public transport system of the city is divided as follows: the transport enterprises are interested in gaining maximum possible profit from the transport operations, municipal government bodies are interested in minimizing the load on the budget, while passengers are interested in the affordability of the services of the public transport from the standpoint of their tariff rates. Besides, the system should be focused on the high quality of the rendered services (Gruzenko & Mamaev, 2009).

### Research Methodology

The developed methodology considers the solvent demand of the population, the quality of transportation (quality indicators: capacity utilization ratio and the regularity ratio) and the profitability, the profitability of the public transport production (Flora, 1995; Schley, 2001). Under this methodology, transportation tariffs are calculated in four stages.

At the first stage, the minimum tariff of transportation is determined ( $T_{\min}$ ). This tariff rate provides the public transport enterprise with the required income. The tariff, which is lower than ( $T_{\min}$ ), will result in loss for the enterprise.

At the second stage, the maximum tariff of transportation is determined ( $T_{\max}$ ). This tariff is calculated taking into account the solvent demand of the population. In this case, the average income per person of the population and the portion of the transportation expenses in the average monthly income of the city residents are considered. If the tariff is above ( $T_{\max}$ ), the population cannot pay the transportation fare at the public transport.

At the third stage, the transportation tariff must be calculated taking into account the quality indicator ( $T_q$ ). In the calculation of ( $T_q$ ), the following quality indicators are included: the capacity utilization ratio of the rolling stock and the traffic regularity indicator. This will ensure satisfaction of the population’s demands for all transportation routes, the use of the rolling stock with proper capacity in order to provide appropriate quality services, regularity of the traffic (by considering the regularity ratio in the calculation of the transportation tariff), and provision of appropriate comfort to the passengers during transportation (if the correlation of the normative ratio with the factual ratio of the rolling stock capacity utilization is high).

The fourth stage includes comparison of the tariff, calculated taking into account the quality indicator ( $T_q$ ), to the minimum ( $T_{\min}$ ) and maximum tariffs ( $T_{\max}$ ). On the basis of this comparison, the following recommendations are drawn up by applying the logistic approach related to the calculation of the transportation tariff. Besides, it is assumed that the transportation tariff equals to the tariff, which is calculated taking into account the quality ( $T_q$ ):

(1) If  $T_{\min} < T_{\max}$  and  $T_q > T_{\min}$ , the municipality can determine the transportation tariff according to the quality of provided services, taking into account the quality ( $T_q$ ) from the minimum tariff ( $T_{\min}$ ) to the maximum tariff ( $T_{\max}$ );

(2) If  $T_{\min} < T_{\max}$ , but  $T_q < T_{\min}$ , in such situation, the enterprise experiences loss. The transportation tariff must be increased considering the ( $T_q$ ) to the minimum tariff ( $T_{\min}$ ), and also the transportation quality must be improved. In this case, more rolling stocks may be used on a route, which will result in lower capacity utilization ratio and the reduced passengers' expectation time at the stops, i.e., the public transport movement intervals will be reduced. Or the traffic regularity ratio should be increased by performing the number of travels which is closer to the planned number of travels;

(3) If  $T_{\min} < T_{\max}$ , but  $T_q > T_{\max}$ , it is advisable to reduce the transportation tariff to the maximum tariff ( $T_{\max}$ ) taking into account the transportation quality ( $T_q$ ), but the appropriate quality must be maintained.

### Conclusion

According to the logistics approach, the interests of all the parties, involved in the process of transportation of the passengers, should be taken into consideration and also the expenses must be minimized. In this regard and in light of the above stated problems, the principles of the tariff policy may be developed regarding the transportation of passengers in the city, which will be based on the logistics approach:

(1) Profitability of transportation. In the formation of the transportation tariff, the interests of the public transport enterprises must be taken into account. The following must be included in the calculation of the transportation tariff: the forecast expenditures related to the transportation of passengers, the planned profit, the amount of the subsidy related to the transportation of the preferential category passengers, and the insurance additive for life, health, and property insurance. In addition, the forecast expenditure related to the transportation of passengers must be determined taking into consideration the inflation processes (i.e., the inflation index);

(2) The affordability of the services provided by the public transport to the population from the standpoint of the level of transportation tariffs. The passengers' interests must be taken into account in determining the transportation tariff. Thus, the following must be taken into account in the calculation of the transportation tariff: average monthly salary of the city residents, the level of expenses of the population related to the services rendered by the public transport of the city, and monthly average number of travels;

(3) Considering the quality in determining the tariff. The performed analysis showed that basic indicators, which may be included in the calculation of the transportation tariff, are the capacity utilization ratio and the traffic regularity ratio of the rolling stocks.

Therefore, when organizing transportation of the passengers, taking into account the tariff policy principles and the tariff calculation methodology, the level of the transportation tariff will be determined, which is based on the logistics approach. Of course, other alternative methods may also be applied, but I think that in the formation of the tariff policy, more attention must be paid to the calculation of the transportation tariff by logistics approach.

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