

Theoretical and Practical Aspects of Financing the Road Economy in the Supply Chain Strategy of Russian Federation

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Abstract— Currently the development of transport infrastructure and the road economy is an important part of supply chain policy allowing providing higher rates and quality of economic growth. However it is impossible to make it without competent definition of financing sources of the road economy. The analysis of funding mechanisms for road economy and practice of their use as well as defining the measures for improvement of the operating system of financing acted as a research objective. When carrying out a research the set of scientific methods was used: analysis and synthesis, system approach, comparison, abstraction, historical method, induction and deduction, generalization and formalization. Authors carried out classification of funding mechanisms for road economy, their merits and demerits are revealed. The carried-out analysis of processes of financing the road economy in Russia for the last ten years is showed, on one hand, growth of volumes of road construction connected with revival of road funds, creation of state programs in this sphere, on the other hand, insufficiency of the allocated funds, incomplete compliance of the operating system of financing the road economy of Russia to priorities of development of the economy is showed. Authors connect the reasons of it with shortcomings of the operating system of financing the road economy. In work the package of measures for elimination of shortcomings is defined. As those development of target financing through the three-level system of road funds, integration of municipal road funds, establishment of interrelation between consumption of the road and a payment for its use, activation of processes of attraction of private investments on projects of public-private partnership is offered what requires lifting of restrictions for distribution at the regional level of the best federal practice. Theoretical and methodical results of a research can be used in the course of financial security of the state impact on economic development.

Keywords— road economy, supply chain strategy, road funds, financing, taxes, state-private partnership.

1. Introduction

Recent research and analysis have shown that governments and policy makers typically do not account for the economic stimulus provided by supply chain benefits when they evaluate large-scale infrastructure investments [1-3]. The road economy is part of transport infrastructure of the country, along with railway, internal waterways, ports, airfields and the airports, and other constructions. At the same time road economy takes the major place in transport infrastructure as it literally penetrates all territories, including remote. High rates of automobilization against the background of unsatisfactory condition of road and transport communications are of great importance, it sets task of the accelerated development of federal and regional network of highways for the road industry. Repair and construction of road network does not correspond to continuous growth of number of cars and intensity of transportations therefore the road complex remains at a low level, and the state more than a half of roads do not meet regulatory requirements.

According to the experts, the losses of the Russian Federation caused by backwardness and low capacity of network of highways are more than 3 percent of gross domestic product that is 6 times higher, than in the countries of the European Union [1]. Thus, misfit between demand for automobile transportations and condition of road economy takes place that leads to considerable economic losses. The reason of the insufficient level of development of the road industry is in many respects connected with the operating system of financing which is not effective and not fully corresponds both to the current requirements of development of transport infrastructure, and current global trends.

These problems have found reflection in works of a number of domestic scientists. Their works can be divided into two categories conditionally: some paid attention to the budgetary financing of road infrastructure, problems of functioning of road funds; others have focused on public-private partnership in the road industry.

So, questions of formation and distribution of resources of road funds, efficiency of investments,

including budgetary, in road infrastructure are stated in works as [2], [3], [4], [5], [6], [7], [8], [9]. In the sphere of road economy, including at the regional level, [10] are devoted to the theory and practice of use of mechanisms of public-private partnership. ([11], [12], [13]). The specified problems are stated also in many foreign sources focusing attention on the sphere of road construction and problems of its financing in various countries based on the supply chain strategy [14-16].

This article will first explain how businesses reconfigure their supply chains in response to transportation infrastructure improvements that increase efficiency and reduce shipping costs, and then will use the experience of the Russia to argue that governments should target, measure, and consider supply chain benefits when deciding whether or not to fund an infrastructure project. However still questions of formation of resources for financing the road economy, interaction of the state and private business in the matter are not sufficiently worked.

2. Methods

Supply chain benefit of a transportation infrastructure project is the potential enhancement of revenues through the adoption of new business models. Use of mainly theoretical scientific methods among which became a basis of a research:

- the analysis and synthesis, system approach, comparison – at classification and synthesis of the main approaches to financing the road economy, their advantages and shortcomings;
- abstraction – when determining essence of various mechanisms of financing;
- a historical method – at identification of trends in change of volumes and structures of financing the road economy;
- induction and deduction, generalization and formalization – at creation of own conclusions.

3. Research Results

Funding mechanisms for road economy in the history and modern practice can be classified by several signs and to unite on sense in the following categories:

- road duties;
- barrier duties - "Tolls and Turnpikes";
- at the expense of tax revenues - "Road Money";
- the price for use of the road - "Road Pricing".

The oldest way – road duties – consisted in need to fulfill gratuitously on construction or repair of the road.

Barrier duties are outposts on roads for collection of a fare. In the basic they act on paid roads or bridges. Advantages – the simple mechanism of

payment, creation of jobs for new construction of paid roads, for collecting duties. Shortcomings - not contents of users of roads.

Most taxes in general and the special purpose taxes (payments, collecting) contribute significantly to financing the road economy:

- on acquisition of vehicles;
- on possession of the vehicle;
- on use of the vehicle;
- the other taxes which are directly not connected with work of transport.

The foreign systems of the special road purpose taxes are very various and include as the taxes connected with selling of fuel and the taxes connected with process of operation of vehicles and their technical characteristics. For example, in Germany the fuel tax, a property tax from engine displacement, ecological collecting depending on technical characteristics of the vehicle work. The listed taxes come to the federal budget. In the USA the similar system of taxes forms road funds [5].

The special purpose taxes and collecting have weighty advantages:

- huge number of the users capable to undertake responsibility burden on financing the road economy, not of own will, and on economic validity,
- interrelation between fuel consumption and consumption of service (road). Besides, automobile fuel is not produced in house conditions, it needs to be got therefore in its price it is appropriate to establish the corresponding rate of expenses on road needs.

Payment of determined price for use of the road carries more not target, but address character as such payment is tied to the place of trip. Such payment in fact represents alternative to the special purpose taxes and collecting, it is directly connected with use of transport infrastructure in certain place. In the long term such payments will be more accurately tied to trip kilometrage.

The majority of the countries uses all set of funding mechanisms for road economy, including budgetary funds. However even integrated approach does not cancel emphasis on formation of road funds at the expense of various sources. The system of public-private partnership, despite active development in recent years, on is only addition of this most popular and very effective gear.

Russia also uses various funding mechanisms for road economy: road funds (main source of financing), state target programs, gears of public-private partnership.

Sources of formation of federal, regional and municipal road funds are regulated by the Budgetary code of the Russian Federation [17] and represent budgetary funds and tax sources.

Road funds from the moment of their revival have helped to increase the amounts of financing the road economy considerably. So, in 2012 the

budgetary expenses on these purposes have grown by 28%; in 2013 – for 16%, then for two years rates of gain have considerably decreased, however then there was again their growth. In 8 years from 2010 to 2017 expenses of the consolidated budget of Russia on road economy have made nearly 9 trillion rubles.

Speaking about the state programs aimed at the development of road economy it should be noted first of all the Federal target program "Development of the Transport System of Russia (2010-2021)" which was existing till 2018 and "Development of the transport system" of December 20, 2017, actually replaced previous. Tasks of programs were among, among other, development of means of communication (including public highways) and development of network of highways and public high-speed highways of federal importance.

Judging by indicators of projects (taking into account their realization within both programs), they are carried out, the amounts of financing accustom. However it is how effective, it is difficult to tell. From the website of the Ministry of Finance of the Russian Federation it is possible to make conclusion of data of the budget that financing of Federal Highway Agency in the next years will decrease, and the state company "Avtodor" – will increase while it is engaged, generally with construction of paid highways in the central Russia. That is the tendency to shift expenses repeatedly to taxpayers is planned. To word we will tell, in China contractors build highways on the borrowed funds, and receive financing only upon delivery of the "turnkey" road. Thus, the conducted research has allowed drawing conclusion that the operating system of financing the road economy of Russia does not correspond fully to priorities of development of economy, does not provide it from infrastructure positions. It is connected with its shortcomings to which it is possible to carry the following:

- the budgetary expenses on financing the road economy are not always stable and predicted;
- excessive bureaucratization of processes of planning and implementation of projects in the field of road construction;
- insufficient level of financing of roads of regional and local value, the opaque system of granting financial means to authorities of appropriate level on the specified purposes;
- the underestimated level of standard requirements of financial resources on repair and the maintenance of roads and the constructions which are on them;
- the inefficient system of pricing in the road sphere;
- inefficient system of coordination of actions of governing bodies of road economy of various level.

4. Results' Discussion

Considering supply chain strategies dynamics of expenses on road economy, it is possible to notice that sharp growth of expenses has happened at revival of road funds. However the main sources of refill of road funds do not show essential positive dynamics in recent years that inevitably brings to the insufficient volume of resources on financing the road economy in general. This trend at the regional and local levels is especially noticeable; reduction in standard condition of regional and municipal roads in the short term hardly is possible. Only federal highways are in acceptable state. From 2012 to 2018 the share of the federal highways meeting regulatory requirements has grown by 41.6% and at the moment makes 83.5%, in 2021 is planned to bring this indicator to 85.3% (figure 1). And here the share of the highways of regional value corresponding to standards has increased by only 12.4% to 45.8%. Difference in condition of highways of federal and regional values essential – 84% against 43.



Regional values – Federal values
Figure 1. Share of the highways meeting regulatory requirements

For the solution of the designated problems, considering the Russian and foreign experience, it is possible to recommend developing target financing the road economy through the three-level system of road funds: federal, regional and local. It will allow accumulating, on the one hand, sufficient financial resources, and on the other hand, accurately to define the directions of investments on development of transport infrastructure. And, when determining the amounts of financing it is necessary to proceed from requirements of road economy, indicators put in state programs and projects. At insufficiency of financing sources it is necessary to find new or to increase existing.

Except these changes integration of municipal road funds as division of set of the municipal units existing in Russia leads to the fact that each of them is reached by the minimum resources is offered.

Other element of system of financing of road complex, establishment of interrelation between consumption of the road and payment for its use is. In this regard the financing sources connected with fuel consumption, that is, excises are the most acceptable (ideally – tax on fuel consumption).

Despite it, for increase in financing the road economy in Russia topical issue of attraction of private investments for construction of paid roads on projects of public-private partnership. The public-private partnership gives advantages to both participants.

So, the state has opportunity:

- to overcome the problems connected with lack of budgetary funds;
- to spread risks of the project;
- to increase quality of roads;
- to finance development of infrastructure "by installments" without increase in debt load.

Are important for the private sector:

- guarantees from the state of rather minimum profitability, return of invested funds in the form of the right to income from paid operation of object;
- division of risks with the state;
- administrative and political assistance of the state in implementation of the project;
- access to the new markets (receiving control of the state assets).

Already today among projects of public-private partnership transport infrastructure is in the lead on the volume of investment: private investments make 147.4 billion rubles at the regional level and 134.5 billion rubles at the federal level. In branch sectional view the leader is road infrastructure of which about 40% of all involved investments into development of the transport sphere and 9 large projects, including regional (round of Khabarovsk, round with the bridge crossing in Perm, the fourth start-up complex of the Central Ring Road, the Southeast highway) are the share [18-24].

For successful implementation of similar projects important point is the choice of form of the agreement which depends on type of object of transport infrastructure. Based on the analysis of the legislation, it is possible to claim that agreements on public-private partnership more are suitable for the projects focused on construction of private highways or sections of private highways and the accompanying transport infrastructure, and concession agreements – for the projects connected with federal, regional and local highways, and the accompanying transport infrastructure.

5. Conclusion

Thus, during the conducted research the following results were received based on the supply chain strategy:

1. Classification of funding mechanisms for road economy is carried out; their merits and demerits are revealed.
2. The analysis of processes of financing the road economy for the last 10 years is carried out.
3. Shortcomings of the operating system of financing the road economy of Russia are revealed.
4. The package of measures for improvement of a system of financing the road economy is defined: development of target financing through the three-level system of road funds, integration of municipal road funds, establishment of interrelation between consumption of the road and a payment for its use, activation of processes of attraction of private investments on projects of public-private partnership.

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