

# Taxation of Motor Transport as a Tool for Environmental Management

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**Keywords:** Sustainable development, road transport, transport tax, excise taxes, environmental taxation, environmental management, state budget, greening, Euro standards, European Union.

**Abstract:** The negative consequences of the anthropogenic load exerted by humanity on the natural environment make it increasingly think about the need to further progress towards sustainable development, one of the components of which is environmental safety. The paper studies the negative impact of road transport on the environment. The analysis of the existing methodology of taxation of motor transport has shown that it does not meet the needs of mankind in its greening. Currently, Russia and European countries apply Euro environmental standards, but so far there are no tools that would encourage a car owner to improve his vehicle in order to comply with these standards. The paper proves that such tools can be: Firstly, amendments to the existing tax legislation: the rate of transport tax should depend not only on the engine power, but also on the ecological class of the car; excise taxes on fuel should depend on its type (the lower the environmental safety of fuel, the higher the amount of tax). Secondly, the introduction of a new payment – an environmental fee, depending on the design of the car engine. The paper attempts to identify the problems of ecologization of motor transport and suggests ways to solve them by changing tax legislation. However, it cannot be a "point" in solving these problems and requires additional research. The paper attempts to identify the problems of ecologization of motor transport and suggests ways to solve them by changing tax legislation. However, it cannot be a "point" in solving these problems and requires additional research.

## 1 INTRODUCTION

Relevance of the research topic. Since January 1, 2003, Chapter 28 of the Tax Code (hereinafter referred to as the Tax Code of the Russian Federation) "Transport Tax" has been in effect on the territory of the Russian Federation. At that time, a methodology for calculating this tax was developed and is still valid in this form today.

Conversations about the need to transform this tax in accordance with the needs of the modern world have been going on for a long time, in this paper an attempt is made to identify the need for environmental safety of society's development. Therefore, modern trends in the advancement of world civilization along the path of sustainable development indicate the problem of its greening. Road transport is the largest polluter of the environment. As part of this, the paper considers the following options for setting a fee for such a negative impact, proposed by researchers today:

- change of excise taxes;

- introduction by environmental dues.

That is, the first option is aimed at reorganizing the toll for the use of the road surface, and the second is to establish a fee for environmental pollution. But the needs of modern society are to develop payments that fulfill both of these roles.

The degree of study and elaboration of the problem. Based on the above, the problem of this study can be described as the search for ways to create such a payment to the state budget that would perform the functions of a transport tax taking into account the environmental needs of society.

A large number of scientists are engaged in each of these issues.

Thus, the problem of the need to ecologize the development of modern civilization is outlined in the works of Professor D. Forrester "World Dynamics", D. Meadows "Limits of Growth" (1972), as well as M. Mesarovich and E. Pestel "Mankind at the Turning Point" (1974), as well as other reports by teams of scientists commissioned by an international non-governmental organization - the Club of Rome. In

their works, these scientists tell the world community about the global problems of human development, and also prove the possibility of an environmental crisis and a global catastrophe. All this certainly points to the need for environmental protection.

These studies have proved to humanity that it is necessary to revise its development strategy, and to do it as soon as possible in order to bring it into line with the concept of sustainable development. This indicates that humanity needs to agree on common directions, which all States and each individual should clearly adhere to. At the international level, the following steps have been taken in this direction (Manokhina (Eremina), 2006):

1. 1992 – UN Conference in Rio de Janeiro;
2. 2008-2012 – Kyoto Protocol;
3. 12.12.2015 – Paris Agreement.

The largest polluter of the environment is road transport. Currently, the relationship "state – road transport" is regulated by the transport tax. But today it does not take into account the ecological class of the car, that is, the amount and composition of its exhaust gases.

The goal of the research is to study the problems of practical implementation of the norms of Euro environmental standards for road transport and the development of scientific and methodological foundations of the relationship "state - road transport".

The information base of the research consists of international and Russian regulatory and legal documentation, materials of the Federal State Statistics Service, periodical press materials, materials of Internet sites, scientific conferences, seminars on taxation and environmental safety, as well as the author's own knowledge and research.

Scientific novelty of the study:

The necessity of creating tax instruments that perform the functions of payment for the use of roads and payment for environmental pollution, the establishment of which will contribute to the greening of road transport in accordance with the Euro standard, is indicated.

## 2 MATERIALS AND METHODS

The research uses materials presented in scientific publications on the problem of regulatory regulation of taxation processes and greening of modern society, in the data of state statistics. So, the following sources served as the research materials:

- regulatory documents on taxation and issues of sustainable development of the company;

- scientific developments of scientists presented in books and articles;
- scientific and methodological literature on taxation and ecologization of the development of civilization;
- mechanisms of ecologization of modern society developed by scientists;
- statistical material;
- the author's own experience in developing a mechanism for allocating quotas for CO2 emissions.

The following research methods were used:

1. Empirical methods:
  - description – collected statistical material on the motorization of our country;
  - comparison – a study of the growth in the number of cars since 1970 has been conducted;
2. Theoretical methods:
  - analysis of the dynamics of motorization of the Russian Federation for 1970-2019;
  - generalization of the results obtained;
  - the hypothesis that the proposed event will contribute to the improvement of transport taxation from the perspective of sustainable development of civilization and Russia's compliance with the provisions of the Euro standard, because road transport causes significant harm to the environment, mainly the atmosphere, by products of combustion of petroleum products (exhaust gases).

The provisions of Chapter 28 of the Tax Code of the Russian Federation indicate that vehicles, motorcycles, scooters, buses and other self-propelled vehicles and mechanisms on pneumatic and tracked vehicles, airplanes, helicopters, motor ships, yachts, sailing vessels, boats, snowmobiles, motor sleds, motorboats, jet skis, non-self-propelled (towed vessels) are recognized as the object of taxation as a transport tax and other water and air vehicles (hereinafter referred to in this chapter as vehicles) registered in accordance with the established procedure in accordance with the legislation of the Russian Federation". (Granberg, 2002)

In accordance with the Tax Code of the Russian Federation, tax rates are set by the laws of the constituent entities of the Russian Federation, depending on the indicators shown in Fig.1.

As can be seen in Fig.1, the amount of the transport tax currently does not depend on the ecological class of the car, and this, as you know, is a kind of classification code that determines the level of emissions of pollutants by the engine.

But today one of the main problems of mankind is the containment of the processes of global climate

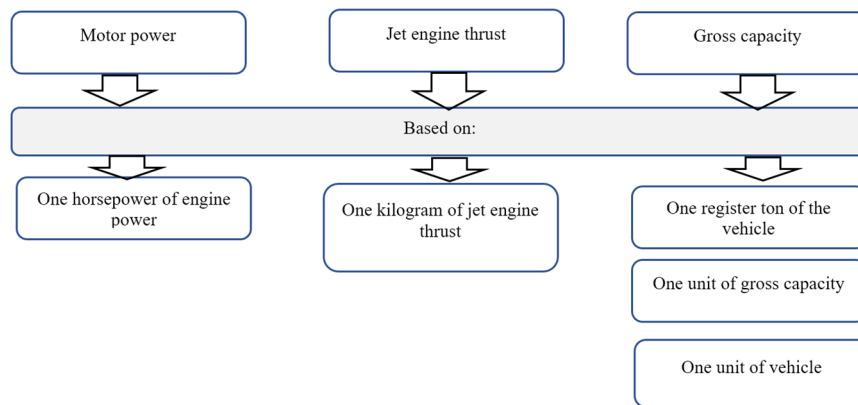


Figure 1: Indicators for setting transport tax rates.

change. Many researchers believe that this is primarily due to the continuously increasing anthropogenic load on the natural environment. This fact can be attributed to one of the main problems of humanity today, since these changes not only hinder the movement of modern civilization along the path of sustainable development, but also seriously threaten its very existence on Earth. That is why, in modern conditions, humanity needs to solve a set of tasks related to curbing the processes of climate change (Manokhina (Eremina), 2006; Federal Law No. 117-FZ, 2000).

One of these tasks is to reduce the amount of exhaust gases from cars. It is known that the number of cars on the roads is constantly increasing, which is confirmed by official statistics (see Table 1).

So, as can be seen from Table 1, there was a steady increase in the number of cars in our country until 2019 (before the COVID-19 pandemic) (after a significant increase in the 70s of last year). At the end of 2019, their number was more than 5 times higher than in 1990. At the same time, on the one hand, each car is a consumer of oxygen (its processed products are released into the air: carbon monoxide, carbons, nitrogen oxides), on the other hand, the atmosphere is also destroyed by evaporation from fuel (CO–carbon monoxide, NO–nitrogen oxide, hydrocarbons, solids of small fractions).

But, as mentioned above, the level of adverse impact of road transport on the natural environment depends not only on the number of cars, but also on their ecological class and the type of fuel used. The main standard of the ecological class of the car is the euro standard. We present an evolutionary study of this standard in Table 2, compiled by the author on the basis of information from RIA Novosti and open source data.

Since the entire world community continuously conducts scientific research in the field of greening the activities of modern civilization, the opinion about the environmental safety of road transport is constantly being transformed. Thus, in most EU countries at the end of the last century, diesel cars were considered the optimal solution in the context of sustainable development of civilization from the point of view of its greening and their use was stimulated by economic levers in the field of taxation (Ponomarev, 2019). As a result, in the EU countries, the share of diesel cars in their total number exceeded 50%. New scientific knowledge provoked the emergence of new standards: Euro-4, Euro-5 and Euro-6. These standards severely restrict the use of diesel engines. The situation is complicated by the fact that along with passenger diesel cars, the use of which can be quite easily limited by financial and economic levers, large-capacity trucks, heavy special equipment, agricultural machinery are widely used in the modern world. And there is no replacement for these groups of diesel cars yet.

### 3 RESULTS AND DISCUSSION

As the conducted research has shown, the number of cars is constantly increasing in modern Russia, which, of course, increases the volume of emissions of "exhaust gases" that have a negative impact on the environment, as a result of which environmental safety on the path of sustainable development of modern civilization decreases. At the same time, our country must adhere to the Euro environmental standards, which steadily reduce the permitted amount of these emissions. This corresponds to the concept of Federal Law No. 7-FZ of 10.01.2002 "On

Table 1: Analysis of the motorization of Russia for 1970-2019.<sup>1</sup>

| Years | Number of cars        |                               | Growth in %      |         |
|-------|-----------------------|-------------------------------|------------------|---------|
|       | Per 1000 people, pcs. | Total in Russia, million pcs. | By previous year | By 1990 |
| 1970  | 5,5                   | 0,7                           | 100,0            |         |
| 1980  | 30,2                  | 4,2                           | 600,0            |         |
| 1990  | 58,5                  | 8,6                           | 204,8            | 100,0   |
| 1995  | 92,3                  | 13,7                          | 159,3            | 159,3   |
| 2000  | 130,5                 | 19,2                          | 140,1            | 223,3   |
| 2001  | 137,2                 | 20,1                          | 104,7            | 233,7   |
| 2002  | 145,8                 | 21,2                          | 105,5            | 246,5   |
| 2003  | 153,2                 | 22,2                          | 104,7            | 258,1   |
| 2004  | 159,3                 | 23,0                          | 103,6            | 267,4   |
| 2005  | 169,0                 | 24,3                          | 105,7            | 282,6   |
| 2006  | 177,8                 | 25,5                          | 104,9            | 296,5   |
| 2007  | 195,4                 | 27,9                          | 109,4            | 324,4   |
| 2008  | 213,5                 | 30,5                          | 109,3            | 354,7   |
| 2009  | 220,8                 | 31,5                          | 103,3            | 366,3   |
| 2010  | 228,3                 | 32,6                          | 103,5            | 379,1   |
| 2011  | 242,0                 | 34,6                          | 106,1            | 402,3   |
| 2012  | 257,5                 | 36,8                          | 106,4            | 427,9   |
| 2013  | 273,1                 | 39,1                          | 106,3            | 454,7   |
| 2014  | 283,3                 | 40,7                          | 104,1            | 473,3   |
| 2015  | 288,8                 | 42,2                          | 103,7            | 490,7   |
| 2016  | 293,8                 | 43,0                          | 101,9            | 500,0   |
| 2017  | 305,0                 | 44,8                          | 104,2            | 520,9   |
| 2018  | 309,1                 | 45,4                          | 101,3            | 527,9   |
| 2019  | 315,5                 | 46,3                          | 102,0            | 538,4   |

<sup>1</sup>Sources:

1. <https://ruxpert.ru//Statistics: Motorization of Russia>.
2. author's own calculations.

Note:

1990 is the base year, relative to which the effect of carrying out measures for the greening of modern civilization is estimated (according to international legislation);

2019 is the last year of statistical information available to date.

Environmental Protection" (Federal Law No. 7-FZ, 2002), which defines the foundations of the legal state policy in the field of environmental protection, allowing to solve socio-economic problems, to preserve a favorable environment for the life and activities of the population of the Russian Federation. According to this document, atmospheric air is one of the objects of environmental protection. The Euro standard regulates exhaust emissions by motor transport. That is, within the framework of achieving the goal of this study, three ways can be proposed, as shown in Fig. 2 (Iadrennikova, 2018; Iadrennikova, 2018):

To solve these problems, the following ways can be proposed, respectively:

1. it is necessary to organize serious control over the level of exhaust gases;
2. transition to environmentally friendly fuels;
3. allow only cars with engines of a new design to be used, which significantly reduce the

harmfulness of emissions without replacing fuel.

The implementation of these ways is possible, in our opinion, through amendments to the tax legislation.

Firstly, the transport tax rate should depend not only on the engine power, but also on the ecological class of the car (Bolataeva, 2019);

Secondly, the existing excise taxes need to be amended:

- excise taxes on cars – it is necessary to take into account not only the engine power, but also environmental characteristics;
- excise taxes on fuel should depend on its type. Euro standards regulate only gasoline and diesel fuel. Currently, alternative fuels exist, but their production is more expensive than gasoline, which leads to a higher price. It is possible to stimulate the transition to these types of fuels by excise taxes and the

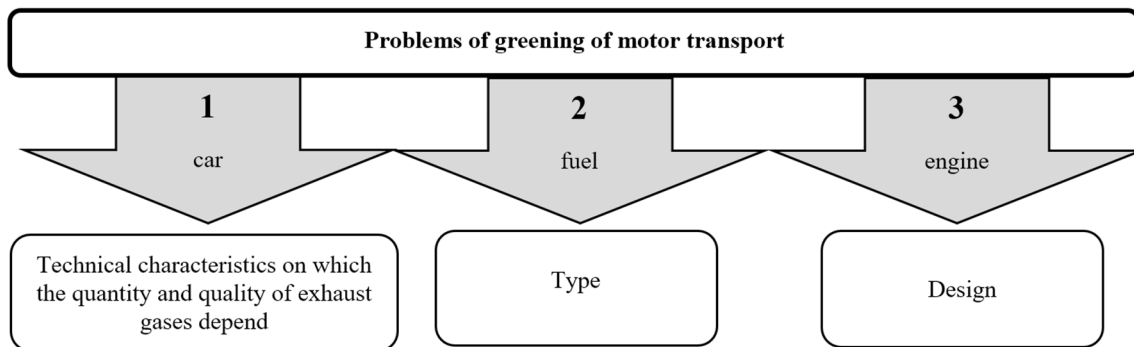


Figure 2: Problems of greening of motor transport.

introduction of an environmental fee. The use of alternative fuels should not only reduce the harm caused to the environment, but also reduce the cost of operating equipment, save valuable raw materials for the chemical industry, and in some cases solve the problem of waste disposal. (Polskaya, 2017);

Thirdly, to establish an environmental fee, depending on the type of fuel and the design of the car engine, which should allow motorists to choose: either use more environmentally friendly fuels, or use cars with engines of a new design.

#### 4 CONCLUSIONS

The necessity of greening road transport is dictated by the concept of advancing civilization along the path of sustainable development and is indicated by the Euro environmental standards (Samkov, 2021).

At the same time, the studies presented above have shown that, despite the enormous importance of this problem for the further development of Russia along the path of sustainable development (as required by the international community), a strategy for managing emissions into the atmosphere, including by road, has not yet been developed in our country.

The paper attempts to solve the problems of ecologization of motor transport and suggests ways to solve them by changing tax legislation. However, it cannot be a "point" in solving these problems and requires additional research.

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