Improving the taxation system in the field of transport services

G N Gruzdov¹, M V Tekiev¹, V Ch Revazov¹ and A V Byhtina¹

¹North-Caucasian institute of mining and metallurgy (state technological university), 44, Nikolaeva St., 362021, Vladikavkaz, Russia

E-mail: tekievmarat@rambler.ru

Abstract. Entrepreneurship is one of the most important areas of the economy. However, this is not a specific type of economic activity, but a specific direction of production. It should be noted that entrepreneurship consists of many types of economic activities that are fundamentally different from each other. Every day there are more and more new types of business activities. Sometimes in the practice of entrepreneurship, it would seem that the same types of production activities in analytical research should be evaluated by different criteria. So as a specific example, you can take transport services. Here, when using passenger transport as a criterion, which is the object of research, is the seat, and for trucks - the number of cars. But both of these criteria are subject to extensive analytical research. This analysis should be performed by economists with an industry focus. With this in mind, it should be noted that industry criteria for the production sectors of the economy are necessary when determining taxable amounts.

1. Introduction

With the transition of Russia to market reforms a lot of legislative questions have arisen and there is a necessity of state management. One of the global questions is the enhancement of the taxation. This question has arisen because of many private businesses had appeared. They were different in their activities and the system of taxation didn’t exist for each direction of the entrepreneur. So, it was introduced as time criterion for taxation of private business a single tax on imputed income. However, it was not possible to define a single criterion for all types of economic activity. Therefore, for each separate sphere of business, its own criteria were set. These criteria included:

- for the provision of household services, hairdressing services, veterinary services, service areas for the maintenance and repair of motor vehicles, delivery and delivery trade carried out by individual entrepreneurs – the number of employees involved in the technological process;
- for retail trade carried out through the objects of a stationary retail network-the area of the retail premises;
- for retail trade carried out in the objects of a stationary retail network – retail space;
- to provide transport services for the carriage of goods – number of units of trucks;
- for the provision of transport services related to the transportation of passengers – the number of seats.

The formation of indicators related to the unified imputed income tax also includes two indices, the first of which is set at the Federal level, and the second – at the local level.
2. Relevance and scientific significance of the issue
The imputed income was introduced as time criterion for small business taxation and it was a part of gross income that is the entrepreneur as a wages. There were a lot of directions of the economic activity and it was impossible to develop a mechanism for determining the tax for all kind of economic activity at once. Therefore, the average rate has been introduced as the imputed income, which is determined as multiplying the basic rate of income on two coefficients a product of revenue base rate by two coefficients (one of them is established at the federal and the other – at the regional level). However, nobody can say where and why these criteria were taken.

To avoid this situation it’s necessary to substantiate the amount of the taxable value. First of all it’s necessary to explore the manufacturing process technology of each economic activity. The second phase will be the combination the output amount of commodity with the indicators on wages. Wherein, it should be used not separately taken value as the initial data of wages but the recommendations of sectoral tariff agreements. In this case, as the private entrepreneur, so the employees of enterprises of any ownership forms will be on the same position for taxation.

As an example let’s analyse freight transportation and other services carried by trucks [1-9]. First of all, let’s analyse the technology of the transportation process.

The freight road transport is divided as by the rated load capacity (cargo weight), so by the type of rolling stock. The freight road transport depending on the type of the operational criteria is divided on the side tippers (Side dump trucks), the saddle-tractor tippers, tanks and vans.

The saddle-tractor tippers may be used with the semitrailers of any carcase type.

The time of transportation process consists of the following elements:
- the loading time;
- the time of driving with the load;
- the unloading time;
- the time of returning to the place of loading.

The main time criterion of the transportation is the time of driving [9-12]. The same distance can be overcome in different time depending of the quality of the road surface.

On their velocity the roads are divided on four categories:
- municipal;
- the 3-d category roads (the natural dirt road);
- the 2-d category roads (the hard coating road - cobblestone, crushed stone, gravel);
- the 1-st category roads (the improved surface roads – asphalt, cement, paving stone, tarring roads, clinker roads).

Each of these categories complies its value of medium technical speed (25, 28, 37 and 49 km/h).

The graphic figure of the medium technical speed change is shown below (figure 1).

![Figure 1. The change of the medium technical speed depending of the categories of roads.](image-url)
The second important temporal component in the transportation is the downtime during loading and unloading. Firstly, the duration of loading and unloading time depends on the type of the rolling stock [13-20]. On figure 2 is shown the changing of the downtime during the loading and the unloading depending on the type of the rolling stock for the vehicle with rated capacity of 10 tons.

As a measuring unit of the quality produced transport products are used four indexes at the same time:
- transported ton of cargo;
- tonne-kilometres made transportation work ton/km;
- mileage
- timepiece.

It’s impossible to monitor the cargo transportation tons and ton/km without documents. The mileage and the timepiece are fixed with the specific instruments. The kilometres are fixed with the help of speedometer and tachometer. Tachometer fixes the time spent on the route.

At the present time, the application of tariffs for kilometres of mileage and working hours is applied on an equal level with the tariffs for transported tons and completed ton-kilometres of transport work. These tariffs are accepted for use in cases when they were determined in compliance with all technological requirements.

Having the report data of actual timepiece and mileage can be determined the physical value of the medium technical speed. This criterion can be determined by formula:

\[
\beta = \frac{L}{\ell_{ct} \cdot Z_{ct}},
\]

where:
- \( L \) – total mileage, km;
- \( \ell_{ct} \) – the distance of a cargo trip (ct), km;
- \( Z_{ct} \) – the quantity cargo trips;
- \( \beta \) – coefficient of the used timepiece.

For the determination of the transportation tax the calculation is based on two transport criteria: the municipal roads (unto 50 km), the intercity roads (above 50 km).

That’s why for determination of the actual value of the average technical speed is taken into account the speed used on municipal roads.

In the most transport cases the utilization of run is 0.5 because the car carries the load on the one way and returns empty back.

The quantity of the trips is determined by the formula:
\[ Z_{ct} = \frac{t_{tt} \cdot V_{avr} \cdot \beta}{t_{ct} + t_{dt} \cdot V_{avr} \cdot \beta}, \]  

(2)

where: \( t_{tt} \) – travel time (tt), hour;  
\( V_{avr} \) – the average technical speed, km/h;  
\( t_{dt} \) – the downtime (dt) of the loading/unloading, hour.

After the transformation the formula of total mileage speed value is following:

\[ L = \frac{\ell \cdot t_{tt} \cdot V_{avr}}{\ell + t_{dt} \cdot V_{avr} \cdot \beta}, \]  

(3)

Using the formula (3), we will find out the average technical speed value:

\[ V_{avr} = \frac{L \cdot \ell}{\ell \cdot t_{tt} - L \cdot t_{dt} \cdot \beta}, \]  

(4)

Considering the given above calculation we get estimated value of imputed income:

\[ B_{ii} = \frac{12 \cdot T_{wt} \cdot T_{ti} \cdot L \cdot P}{G \cdot V_{avg.road}}, \]  

(5)

where: \( B_{ii} \) – the imputed income (ii), rub.;  
12 – the calendar duration of the year;  
\( T_{wt} \) – the wage tax (wt) of the employees of the 1-st class, ruble;  
\( T_{ti} \) – tax index (ti) of a driver [5, 6, 9];  
\( G_{af} \) – the annual fund (af) of working time, h;  
\( V_{avg.road} \) – the average technical speed according the road criteria, km/h;  
P – the district coefficient.

3. The investigation of the considering question

In the analysis of the imputed income system we take three criterions:  
- the effect of the rolling stock changing on the imputed income value;  
- the effect of the pavement quality on the imputed income value;  
- the effect of the total mileage changing on the imputed income for the tippers.

According to the data given in table 1 we find out, that the imputed income value is influenced by such operational indicator like the type of rolling stock.

| Type of the rolling stock | Road category | Total mileage, km | Rated capacity, t | Imputed income, ruble |
|---------------------------|---------------|------------------|------------------|----------------------|
| Side tipper               | municipal     | 1000             | 10               | 2866                 |
| Tip truck                 |               | 1000             | 10               | 3319                 |
| Tank                      |               | 1000             | 10               | 3319                 |
| Van                       |               | 1000             | 10               | 3319                 |

Based on the data from table 2 we can say that the category of roads renders the considerable influence on the imputed income value.

And now, let’s compare the actual imputed income value for the cargo vehicles under any operating conditions. So, in Vladikavkaz at the base profitability 6000 rubles, coefficients K1 1,798 and K2 1,000 all rolling stock of cargo vehicle is taxed by single tax under the imputed income value 10788 rubles.
Table 2. The effect of the road surface quality on the imputed income value.

| Type of the rolling stock | Total mileage, km | Rated capacity, t | Imputed income, rubles |
|---------------------------|------------------|------------------|-----------------------|
|                           |                  | municipal        | III                   |
| Side tipper               | 1000             | 10               | 2866                  |
|                           |                  | municipal        | II                    |
| Tip truck                 | 1000             | 10               | 3319                  |
|                           |                  | municipal        | I                     |
| Tank                      | 1000             | 10               | 3319                  |
| Van                       | 1000             | 10               | 3319                  |

The volume of work done renders the most important influence on the imputed income which is determined by the results of the rolling stock operation. It’s shown in details in table 3.

Table 3. The effect of the total mileage changing on the imputed income for tippers (tip truck).

| Total mileage, km | Rated capacity, t | Road category | Imputed income, rubles |
|-------------------|------------------|--------------|-----------------------|
| 500               | 10               | municipal    | 1659                  |
| 1000              | 10               | municipal    | 3319                  |
| 1500              | 10               | municipal    | 4978                  |
| 2000              | 10               | municipal    | 6638                  |

4. Conclusion
The present system of taxation of the private business as a single imputed income taxation is imperfect and needs to finalize. The imperfection is that none of the criteria, that made the imputed income value, bound with technology of manufacturing process. It concerns not only a transport but the other sectors of the economy. To solve this problem, it’s necessary to calculate each type of business. And we need to know the production technology cycle. To decide that we have to use the self-sustaining outsourcing companies specialized on the provision of the economic and technological services for specific types of economic activity.

At the same time, the entire research process should consist of several stages.
The very first step in the survey process is the study of data on the place of business activity. The following factors must be taken into account:
- the degree of innovation of this type of entrepreneurial business;
- duplication of this type of economic activity.

An important factor in the implementation of business activities is the calculation of the economic efficiency of introducing this type of business into practice. This stage of research is carried out in four stages:
1) collection of initial technological criteria;
2) determination of calculated technological criteria;
3) collection of initial price criteria;
4) determination of estimated cost indicators.

After all this, at the next stage of research, it is necessary to compare the price and quality indicators of the product type (the type of service provided) with competitors analogues.

References
[1] Sim J 2017 Journal of Cleaner Production 164 153
[2] Rijal A, Bijvank M and Koster R 2019 European Journal of Operational Research 278 752
[3] Bhoopalam A, Agatz N and Zuidwijk R 2018 Transportation Research Part B: Methodological 107 212
[4] Dulebenets M 2019 Int. Journal of Production Economics 212 236
[5] Erdinç O, Yetilməzsoy K, Erenoğlu A and Erdinç O 2019 Journal of Cleaner Production 234 1275
[6] Liu Y, Wang S and Xie B 2019 Transport Policy 76 78
[7] Strulak-Wójcikiewicz R and Lemke J 2019 Transportation Research Procedia 39 502
[8] Badland H, Rachele J, Roberts R and Giles-Corti B 2017 Journal of Transport & Health 4 208
[9] Klyuev R V, Fomenko O A, Gavrina O A, Sokolov A A, Sokolova O A, Plieva M T, Kabisov A A and Ikoeva E Yu 2019 IOP Conf. Series: Materials Science and Engineering (Tyumen) 663
[10] Kortiev L I, Klyuev R V, Kulumbegov R P, Kortiev A L, Bosikov I I, Gavrina O A and M Z Madaeva 2019 IOP Conf. Series: Materials Science and Engineering (Tyumen) 663
[11] Klyuev R V, Bosikov I I and Mayer A V 2019 Sustainable Development of Mountain Territories 11(3) 321
[12] Bosikov I I, Klyuev R V and Egorova E V 2019 Sustainable Development of Mountain Territories 11(1) 7
[13] Butko T, Prokhorov V, Kalashnikova T and Riabushka Y 2019 Procedia Computer Science 149 102
[14] Galkin A, Schlosser T, Galkina O, Hodáková D and Cápayová S 2019 Transportation Research Procedia 39 64
[15] Panchenko S, Ohar O, Shelekhan G and Skrebutene E 2019 Procedia Computer Science 149 110
[16] Fan Y, Behdani B, Bloemhof-Ruwaard J and Zuidwijk R 2019 Transportation Research Part E: Logistics and Transportation Review 130 128
[17] Balliauw M, Hilde Meersman H, Onghena E and Voorde E 2018 Transportation Research Part A: Policy and Practice 112 29
[18] Almetova Z, Shepelev V and Shepelev S 2016 Procedia Engineering 150 1396
[19] Tran T 2017 Journal of Ocean Engineering and Science 2 55
[20] Azadian F and Murat A 2018 European Journal of Operational Research 267 933