THE OPTIMIZATION OF THE TAX SYSTEM, AS ONE OF THE DETERMINING FACTORS OF PRODUCTION GROWTH

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fiscal policy, to business-cycle indicators (generally, the output gap) and other explanatory variables, such as, in particular, the public debt (Agnelloa and Cimadomo, 2012; Tarman, 2016; Popok et al., 2019; Zhuravlev et al., 2019). Tax optimization is a tool used by many countries to legally reduce the tax burden of a certain segment of taxpayers.

Research objectives: to create a graph-analytical method that allows you to evaluate various options for taxation optimizing, find options that are acceptable to both the state and taxpayers, and assess the impact of various approaches to taxation on business.

Research tasks: conducting theoretical research and building combined charts to assess and predict the optimal revenue side of the budget, taking into account the interests of the state and taxpayers.

2. Literature review

In order to resolve the contradictions of justice and efficiency, various studies were conducted, during which it was noted that when the State has no other opportunity to improve the position of some taxpayers without simultaneously worsening the position of others, they speak of achieving Pareto optimality or achieving Pareto efficiency (Stiglitz, 1987).

The concept of “utility” is used in the specialized literature on optimal taxation, no less, and maybe even more often, than the concept of “income”. K. Heidi specifically investigated this phenomenon (Heidi, 2001).

The concept of proportional taxation of income is widespread as meeting the criteria for optimal taxation. J. Mirrlees considered it axiomatic that earned income of industrial and labor origin for reasons of public welfare should not be taxed on a progressive scale (Mirrlees, 1971). However, the optimal taxation of the total income in any system of social criteria according to J. Bentham and according to J. Rawls should be progressive (Andrushchenko, 2000). If, from the point of view of J. Mirrlees, the maximum proportional tax rate can reach 60%, then in the opinion of his compatriot J. Merly - no more than 20%. Obviously, from the standpoint of the priority of efficiency, the state should choose a proportional, or even better, lump-sum tax, but there is no question of any fairness in this case. Tax evasion distorts expected effect of tax system and therefore hinders achieving social goals (Luzgina, 2017; Vandina et al., 2018; Osipov et al., 2018).

3. Materials and Methods

In the course of the study, the authors studied regulations, as well as scientific papers in the field of tax burden optimization. As research tools, methods of system, complex, and retrospective analysis, as well as economic and mathematical, and statistical methods, trend analysis, and coefficient analysis are used; for constructing tax prism models we used: expert assessment methods, absolute, relative and average methods, regression analysis and multiple ANOVA regression analysis, statistical significance analysis, data standardization for determining the significance of regressors, mathematical modeling method, as well as geometric similarity methods, mathematical analysis , including methods of graphic differentiation and integration.

4. Results

Fiscal policy is the basis of financial policy and is an integral part of the economic policy of any state. According to Keynes, the essence of fiscal policy is to manage aggregate demand by manipulating taxes and government spending. Modern economic science distinguishes two types of fiscal policy: discretionary and non-discretionary (automatic) fiscal policy.
Discretionary fiscal policy uses a method of solving economic problems, which is that individuals, as well as decision-makers, act mainly at their own discretion, depending on their vision of economic conditions. Regulators manipulate public spending and taxes to manage aggregate demand for the purpose of incentive or restrictive policies (Ivanova et al., 2019; Shatunova et al., 2019; Derkho et al., 2019; Vertakova et al., 2019).

Restrictive policy is a reduction in public procurement and an increase in taxes. Incentive policy – implies growth of public procurement and reduction of taxes.

The inclusion of rising public expenditure in aggregate demand causes the aggregate expenditure curve to shift upwards and leads to an increase in the net national product (NNP). There is also an inverse relationship when the NNP with the reduction of public expenditure in aggregate demand (Fig. 1).

The increase in taxes causes a reduction in spending, and hence a decrease in consumer spending and savings (in this case, there is also an inverse relationship). The size of the reduction is determined by the value of the marginal propensity to consume and save (MPC and MPS, respectively).

Discretionary fiscal policy has a significant drawback. It operates with a time lag (delay), because the budget is approved once a year, but the situation can change greatly over the year. Therefore, in such a situation, an automatic policy, i.e. a policy of “immediate response”, is desirable.

Non-discretionary fiscal policy provides the introduction of changes in the level of public spending and taxes through the so-called “built-in stabilizers”. The size of automatic stabilizers is commonly approximated by the ratio of general government expenditure to GDP (Debrun and Kapoor, 2010). One of them is tax stabilizer. Its action is based on the fact that the state establishes tax rates, but cannot set the amount of tax revenues, because these revenues, in addition to the tax rate, also depend on the tax base.
Analysis of dependencies, shown in Fig. 2, leads to the conclusion that – public expenditure is set for the current year \(G=\text{const}\) and is independent of the NNP, taxes revenues vary in the same direction as the NNP. The graph shows that the economy itself creates a stabilization effect (Fig. 2).

![Figure 2. Non-discretionary fiscal policy](source: authors’ research)

If there is a rise in the economy (recorded growth of the NNP and inflation), the tax system increases the exemptions, i.e., a restrictive policy. If a recession occurs (recorded decrease of the NNP), then the withdrawals are automatically reduced, i.e. a stimulating policy is applied. Thus, the built-in stabilizers, regardless of strong-willed intervention, automatically maintain such a level of state revenue and expenditure, which is desirable at this stage of the cycle. However, in practice, built-in (automatic) stabilizers tend to only mitigate the severity of economic fluctuations, but do not eliminate unwanted changes in production volumes.

There are different theoretical approaches to tax policy. The Keynesian approach relies on strong government regulation of the economy and requires large tax revenues, but this depends on a certain phase of the cycle. In the classical theory, economists believe that in order to stimulate investment, it is necessary to lower taxes. At the same time, it is necessary to abandon the system of progressive taxation, since the recipients of large incomes are traditionally leaders in the renewal of production. When rates are reduced, the tax base eventually grows. High rates reduce the base from tax revenues to the state budget. The transition from Keynesian tax policy to conservative policy is linked to tax reform.

In the framework of Keynesian theory, the Laffer curve model is considered, in which it is assumed that the excess of income over the value of total autonomous costs is taxable, i.e. the tax revenue function is: \(T = t(D - Ea)\), where \(t\) is the marginal tax rate, \(Ea = Ca + Ia + G - MPC \cdot Ta\) is the autonomous expenditure.

Then, under balance conditions, the Laffer curve is given by the formula \(T(t) = t(M*Ea - Ea)\), or \(T(t) = MPC \cdot Ea \cdot (t^2)/(MPS + MPC \cdot t)\). When the marginal tax rate is 0 or 1, the tax revenue is 0. The optimal rate is called \((t_0)\), at which tax revenues are optimal. Tax revenue increases with the marginal rate if it is less than the optimal rate and decreases if it is greater than the optimal rate.

It is worth noting that to assess the impact of certain changes on the economy, it is not enough to evaluate only the correlation between the indicators of interest. In the United States of America, the right firmly believes that low taxes are the key to economic success, but in practice, when assessing the correlation between the share of taxes in GDP and unemployment, it turns out that in years when the share of taxes could be called high, unemployment was low and vice versa. This shows that it is necessary to take into account not only the “dry” figures of individual indicators, but also the overall economic situation and the factors affecting their formation to avoid the appearance of a false correlation, an example of which was given above (Krugman, 2012). It is also worth noting that
sometimes developed countries face a “problem” when there is no political constituency for paying more in tax (Friedman, 2012; Shebashev et al., 2019).

When optimizing the taxation system, it must be remembered that this task will always face the opposite of taxpayer and state requirements, because the taxpayer always seeks to minimize the amount of deductions to the state, while the state, in turn, seeks to maximize fees while not making the taxpayer to seek tax shelters. The second part, unfortunately, is not always performed. The State benefits from the increase in revenue due to taxes. This will allow for a painless increase in government expenditure to stimulate the growth of the economy and employment, creating new jobs. Moreover, it should not ruin taxpayers. Taxpayers benefit from the lowest tax rate. Withdrawal from a taxpayer of a significant amount of income (about 40-50%) is the limit beyond which incentives for entrepreneurial initiative and the expansion of production are eliminated. Entire groups of taxpayers, engaged in the search for methods of avoiding taxation and striving to concentrate financial resources in the shadow sector of the economy, are being formed. A clear answer to the question “what effective bid value is critical?” does not exist. The introduction of certain taxes and the establishment of their size is a complex multifactorial task. Attempts to achieve the necessary and mutually acceptable solutions by trial and error leads to significant costs and most often does not give the necessary result. However, among all possible tax options there should be one (or a group of those) that would meet the requirements of the taxpayer and the needs of the state. The tax prism method can be used to determine these options. (Leontyev and Verovska, 2017; Fedulova et al., 2019; Valentim et al., 2019).

The tax prism is a geometric figure, the volume of which corresponds to the volume of taxes received by the state in the current (reporting) period, and the side corresponds to the total amount of taxes (Verovska and Leontyev, 2018). For the convenience of research, it can be divided into state-oriented and business-oriented, but in this research is described only a general concept.

Based on the described concept of the tax prism and the Laffer curve (when the Laffer curve came on the scene in the 1970s, it seemed very new. But it quickly became apparent that it was not an original idea at all. Its antecedents date back hundreds of years (Bartlett, 2012), the graphs are created, (Fig. 3,4,5,6,7). It is a graphical interpretation of the tax prism, which allows to assess and predict the impact of possible tax changes on the tax situation of the enterprise.

<table>
<thead>
<tr>
<th>Taxpayer's situation</th>
<th>Tax burden</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>A1</td>
<td>None</td>
<td>Maximum</td>
</tr>
<tr>
<td>B</td>
<td>Minor</td>
<td>Significant</td>
</tr>
<tr>
<td>C1-C2</td>
<td>Optimal level</td>
<td>Optimal level</td>
</tr>
<tr>
<td>D</td>
<td>Significant</td>
<td>Less than optimal level</td>
</tr>
<tr>
<td>E</td>
<td>Very high</td>
<td>None</td>
</tr>
<tr>
<td>After point E</td>
<td>Exorbitant</td>
<td>Loss</td>
</tr>
</tbody>
</table>

Source: Compiled by the authors.
Let’s consider every situation. While the taxpayer is at point $A_0$ (Fig. 3), there is no tax burden, as well as there is no profit. This initial provision indicates that at the time of the study the subject of taxation does not conduct any activity. In this case, the tax prism does not exist. If the taxpayer moves to point $A_1$ (Fig. 3), it means that the volume of profit is not taxed, or the studied subject applies illegal methods of the tax optimization. Either way, it should provide interest to regulators. At point $A_1$, the tax prism also does not exist, it degenerates into a plane (i.e., there is no height, which characterizes the value of the tax burden).

When moving to point $B$ (Fig. 4), the tax burden will be negligible. The area marked in pink (tax zone) represents the amount of tax burden, and the area marked in green (profit zone) shows the amount of profit after payment of all taxes established by the current legislation. The position $B$ on the graph will correspond (in general) to the tax prism with a small height and a significant base.

The points $C_1$ and $C_2$ (Fig. 5) mark the boundaries of the "optimal corridor" in which the level of tax burden allows the state to perform its functions, and the taxpayer – to be interested in continuing activities in the territory of the state without the use of illegal ways to reduce the tax burden. Point $C$ is one of the variants of the optimal ratio of the tax zone and the profit zone. The tax prism corresponding to this position on the graph will also be optimal, representing one of the best combinations of height and base.

At point $D$ (Fig. 6) the tax burden begins to exceed the upper limit of the optimal corridor and, as a result, there is a decrease in business motivation. At the same time, the subject of taxation begins to look for ways to reduce the tax burden to return to the zone of optimality $C_1$-$C_2$. In the absence of legal ways to reduce tax costs, the search for criminal solutions begins. In this situation (point D) the tax prism will have a significant height and a small base. Point $t$ on the graph indicates a "turning point" when due to the tax burden the taxpayer has no profit, including for its refinancing, aimed at the continuation of the current activities of the enterprise.
When the taxpayer reaches point E (Fig. 7), the profit for the accounting period tends to zero, the tax burden will be the maximum in comparison with all previously considered situations. The tax prism in this case will degenerate into a straight line passing through the appellate axis. This will entail the closure of enterprises, capital outflow or withdrawal of business to the shadow economy.

Consider the falling portion of the curve, located to the right of the point \( t \) does not make sense, because the tax burden on this side continues to grow, and, at the same time, the company instead of profit has a loss. The base of the prism with this approach will go into the area of negative values of the adopted coordinate system. Each option on the curve corresponds to its own unique tax prism, which will be individual for each individual enterprise.

**Discussion**

It should also be noted that the tax conditions of the enterprise are directly affected by its financial conditions and its financial stability. In the considered variants of the tax prism, it was believed that the enterprise conducts effective activities. If the company has problems, the size of the base of the tax prism will differ from the analyzed models. It is known that financial stability is the ability of an enterprise to finance its activities in the required amounts at the expense of its own or borrowed capital.

The financial stability of the legal entity in the framework of this study will be considered its capacity to maintain the ability to continue its main activity on the same scale after payment of all taxes. The subject of taxation with good financial stability, when changing any external conditions (when it is exposed to various shocks from the outside) should, first of all, stay afloat and have a margin of safety that does not allow the termination of its normal functioning. Financial stability is one of the elements of the enterprise’s viability, since its loss is associated with the most severe consequences – violation of the current rhythm of the enterprise, staff reduction, inability to fulfill its obligations to creditors.

All this has a negative impact not only on individual economic entities associated with this enterprise, but also on the entire economy as a whole, so ensuring financial stability is one of the most important tasks for both the enterprise and the state. A set of measures to maintain financial stability should be provided at all stages of the existence of the enterprise.

**Conclusion**

The combination of justice and efficiency of tax policy is a serious problem, which until now does not have a final solution, which complicates government regulation of the economy. The state should carry out an objective analysis of individual industries included in industrial production. In order to establish the most effective tax regime and stimulate industrial production, segregation can be carried out on a different basis or simultaneously on a group of criteria (for example, on a subject of the Federation). It is possible to determine the position of a certain percentile from all enterprises that fall under the specified criteria. This analysis can be carried out for each individual tax paid by the enterprise, which will allow more effective adjustment of the tax system. The state, on the basis of forecasts of the budget expenditure, establishes requirements for the tax burden. On the basis of the analysis of the financial and tax conditions of the enterprise (or enterprises belonging to the industry), the search of the optimal tax burden zone is carried out. In the case of irremediable incompatibility of claims, it is advisable to use the method of successive concessions. This approach will make it possible to more clearly define the permissible limits of the tax burden on a group of enterprises, minimizing the desire of managers to move to the shadow sector of the economy or stop investing (and/or this type of activity) due to excessive tax burden.
Also, the proposed version of the analysis will identify enterprises with an excessively low tax burden, which will enable the regulatory authorities to more clearly identify the objects of inspections. When using the option with discrete consideration of taxes, it becomes possible to identify the area of activity of the enterprise in which it carries out tax evasion. The proposed method can be used as a tool of fiscal policy. Depending on the final purpose of application, it can act as both a discretionary and non-discretionary tool.

References


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