TAX SYSTEM EFFICIENCY EVALUATION MODELING WITH REFERENCE TO V. TANZI CRITERIA

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Abstract

Due to existing contemporary economic conditions, tax system and evaluation of its efficiency becomes more relevant topic for discussions. However, there is still no instrumentation required for the analysis of the latter prepared. Many foreign and Lithuanian scientists, examining evaluation of the tax system functionality efficiency, unanimously propose several criteria which would help to evaluate the way the tax system works. One of the most popular is so-called V. Tanzi diagnostic productivity test, which, as practice reveals, is not able to reflect the efficiency of the functions performed by the tax administrator fully. Therefore, the aim of the following scientific research is to create universal tax system efficiency evaluation model which would allow evaluating not only the latter, but also the philosophy of administration, combining monographic, logical and statistical methods of analysis with comparative method. Accomplished empirical survey of the created complex model revealed that tax system evaluation model is composed properly and its application would allow reaching the essence of questions regarding the efficiency of the planned reforms, from the point of view of trade cycle participants, in the area of tax system, and efficiency of the planned reforms in the area of social politics.

Keywords: tax system, efficiency evaluation, system of diagnostic indicators.

Introduction

Administration of state functions requires financial resources, where the main resource is the state income, collected to budgets from various taxes. Therefore, for the state it is highly important to improve its tax system efficiency. In order to evaluate tax system efficiency, it is necessary to evaluate tax system efficiency in every country. Yet, tax system in one or another country is generally being evaluated according to the character it implements principles raised for taxation, according to the tax system efficiency principles, its composition and tax burden value applied to society.

Tax system efficiency and productivity evaluation and identification of areas which require refinement is not a simple nor entirely comprehensible subject for the scientists, because there is no solid evaluation system for the tax system indices, their calculation methodology created, and different authors calculate and evaluate tax system and its efficiency using distinct methods or simply presenting intuitive evaluations which are unsubstantiated with calculations. Analysts, performing tax system analysis, usually emphasize the following questions: tax system suitability for a specific country and directions of possible reforms. Though, the main function of taxes is to generate state income, taxes are frequently used to repair market mechanism gaps and redistribute the income. Making allowances for the following aims theoreticians propose few criteria referring to which it is possible to evaluate how does the tax system work. One of the most popular is so called V. Tanzi diagnostic income productivity test. It is a set of particular indicators (indices) where every indicator has its question, and according to the answers received it is possible to state whether the evaluation of the state tax system is positive, negative or satisfactory (considering the corpus of the answers received). Tax systems, their refinement perspectives have been analyzed by a small number of foreign scientists, including the foremost J.K.McNulty (1973-2000), K.R.Kumar (2002), C.C.Bauman (2000), C.Y.Chiu (2004) and others. Perfection of Lithuanian tax system, burden of taxation and its reduction, existence of shadow economy have been covered by the following authors: E.Buškevičiūtė, V.Meidas, D.Meškauskienė, G.M.Pajuodienė and M.Tvaronavičienė. However, scientific research performed by the latter few years ago is already loosing its significance both regarding the change of economical situation in the country, and rather drastic tax system reordering.

Object of scientific research – tax systems.

Aim of research – to compose a complex model required to evaluate the tax system efficiency.

In order to achieve successful implementation of research the following tasks were set:
• To examine tax system efficiency evaluation methodologies;
• To compose a complex tax system efficiency evaluation model;
• To substantiate a created evaluation model with empirical surveys and statistical methods.

The following article includes the analysis of Lithuanian and foreign scientific works, empirical
surveys and economical literature, and practical study regarding the tax system evaluation and its efficiency identification questions. Tax system efficiency evaluation methodologies were analyzed combining monographic, logical, statistical methods of analysis and comparative method. To demonstrate validity of a composed complex tax system evaluation model, statistical methods such as regression and correlation are applied. They have proven that tax system evaluation model is composed properly, and its application will allow reaching the essence of the question regarding the efficiency of the planned reforms, from the point of view of economical cycle participants, in the area of tax system and efficiency of the planned reforms in the area of social politics.

**Process of scientific research and interpretation of results received**

From systemic approach, state tax system efficiency evaluation criteria are difficult to define and, commonly, are introduced as purely intuitive evaluations. Analysts, such as Schneider F. and others, performing analysis of tax system, usually emphasize the following questions: tax system suitability for particular country and directions of the possible reforms. Although, the main function of taxes is to generate state income, taxes are often used to fix the gaps in market mechanism and to redistribute the revenue. Having in mind the following aims, theoreticians offer several criteria according to which it is possible to evaluate how – effectively or ineffectively – tax system of the appropriate country works. One of the most popular is so-called V. Tanzi (2004) diagnostic income productivity test, however, both the scientists and the market experts, unanimously agree that there is no state tax system efficiency evaluation methodology, which would also involve administration efficiency analysis, prepared; therefore, scientific literature distinguishes the following tax system and its administration efficiency evaluation indicators (see Picture 1).

**Picture 1. Systematic model of tax system efficiency evaluation indicators**

All the tax system efficiency evaluation indicators, distinguished in the works of foreign scientists, for example, V. Tanzi (2005), Naito T. (2006), reflect not only the survey of the latter, but also evaluation of entire tax system and its administration. Therefore, necessity to compose complex and systematic model, which would be intended exclusively to evaluate tax system efficiency, and, therefore, would enable to identify not
only problematic areas of the latter, but also directions of development, arises. During the formation of the latter, according to the opinion of the authors of the article, it is essential to consider particular criteria, such as macro economical situation of the country, which may both significantly distort results of evaluation, if its influence is evaluated inappropriately, and respectively affect taxpayer’s or administrator’s actions, which are one of the main constituents in tax system efficiency evaluation (see Picture 2).

![Picture 2. Selective model of tax system efficiency evaluation indicators](image)

If not properly evaluating the existing relationship between the state macro economy and the taxpayer, a created complex tax system efficiency evaluation model may not involve such important indicators as taxpayer culture, which is basically determined by state macro economical condition and the state culture. Taxpayer culture performs a big role in efficiency evaluation because the latter determines, as Schneider F. (2000) states, the scope of shadow economy, tax avoidance and concealment, fraud scheme existentialism and so on, and mainly the latter factors express inefficiency of the tax system, incapability to preclude the factors doing the negative influence on the tax collection. Therefore, necessary condition to compose a complex model is not only determination of relationship between the taxpayer, administrator, legislative base and macro economy, and its influence, together not forgetting the main and one of the cornerstones of the tax system formation standpoints, principles of taxation, but also indicators, determining efficient functionality of the system, evaluation of adaptation during the evaluation of the tax system, met in scientific literature.

Representative of International Monetary Fund, Vito Tanzi (2004), have tried to systematize methodology of efficient tax system evaluation, where distinguished eight qualifying diagnostic indicators of tax system evaluation. Some of indicators proposed by scientists sort of fall out of systematic model consistency, for example, concentration index shows whether sufficiently large part of total fiscal revenue is collected from relatively small quantity of taxes. However, number of taxes existing in the country can not reflect functionality of tax system, and, especially, its efficiency, because taxes can be collected optimally expeditiously even from few major ones; if their administration is effective, fiscal legislative base is thoroughly prepared and helps to draw clear limits of fiscal policy employment, which reflect apparent outline between the practical application of fiscal policy both in the company and the state system, avoidance and concealment, tax system is destined to function. Therefore, according to the opinion of the authors of the article, the following indicator can not reflect efficiency of tax system; accordingly, systematic model (see Picture 3) will not involve and evaluate it in further research.
Presented complex tax system efficiency evaluation model allows both to determine the exact limits between the taxpayer, tax administrator and legislation base, and evaluate influence of each of the components on tax system efficiency in quantitative aspect of evaluation indicators. The following principled operation of the model created also allows to determine the weakest elements of tax system and to identify areas of improvement of the latter easier. Into the created systematic evaluation model, applying complex statistical and logical sampling methods, indicators of tax system evaluation, widely applied and used for many years in global scientific practice, are included. According to the authors, the latter do not reflect fully evaluation of efficiency from some certain angles – taxpayer, tax administrator, legislative base, - therefore, organizing the latter, new indicators are included and calculation methodology of quantitative evaluation aspect of the latter is proposed.

Usually taxpayers of particular country, where conditionally large-scale shadow economy exists, as Feldstein M. (1999) states, conceal the taxes because they do not understand not only why the latter should be paid, but also find no long-term fiscal change perspectives. The following index may be evaluated in quantitative, but not qualitative, as it is usually proposed, aspect as relationship between the state shadow economy existence volume and fiscal revenue into national budget. The more present relative value is proximate to one, the lower is taxpayer’s culture existing in the country and fiscal change insight is to be evaluated negatively. The following method to determine the indicator shows that tax system rearrangement, which would enable to prepare such legislative base which would create minimal opportunities to avoid and conceal taxes, is necessary.

Taxpayer's potential to pay taxes is also presented by the fiscal knowledge index, though, the latter is being evaluated not form the point of taxpayer, as economic business entity, but more from the point of the worker, responsible for the company's fiscal accounting. Precisely the following method is proposed to identify the indicator, because only business subject participant, from the point of possibilities of application of burnouts, demonstrates how company is oriented towards both interest of the workers to minimize fiscal taxes, and the specter of application of fiscal policy. Accountant, who is not interested in working better, may not
even know, but also not to apply any fiscal policy in order not to increase his work load, or even to overpay the taxes payable. For example, as Jakštonytė G. (2009) states, during the calculation of tax for environmental pollution with waste of taxable items and packages, according to data presented in customs declarations, to impose a tax for the difference between gross and net weight of the cargo imported. The difference calculated should show weight of packing material of the cargo transported, however, while calculating the tax it is the taxpayer who declares and pays the tax at almost all the cases for his own disadvantage. Reasons may be different, for example, if production was imported on euro pallets and was left in the rain for few hours, weight of those wooden pallets likely will not be standard - 24 kg, and may reach even 30 kg.; in this case, business entity will pay the appropriate tax for 6 kg of water. In such situation only one person looses – the taxpayer, who does not know or does not want to know that laws and other regulations, governing the tax, allow to impose a tax for the difference between gross and net weight of the cargo imported.

Fiscal knowledge index may be expressed as the relationship between the embraced fiscal privileges and taxes payable into national state budget, which is evaluated positively approaching from evaluation expression of 0 to 1. However, conditionally great weight of the latter, when it reaches higher numeric value of relational size than 0,5, too wide field of existence of fiscal policy application medium, which is conditioned by legislative base, is present. For the following reason, while evaluating the latter applying complex systematic model, new fiscal policy index, which is enabled to show whether precisely indicated limits between the fiscal policy, avoidance and concealment exist, is proposed. Considerable indetermination of the latter may also condition existentialism of shadow economy. Therefore, evaluation of tax system and its efficiency, while estimating all the components presented in the model, requires evaluation of interrelation of the latter.

Tax administrator and evaluation of the functions he performs is not less important task than evaluation of the taxpayer, because namely structure of administrative body, resources appointed to perform certain functions, condition efficiency of tax system administration. We have to evaluate, what is undoubtedly important, as Gill J. (2000) proposes, not only the structure of administrative state body, but also not to forget the amount of expenditures of tax administration services, which not only should be, but must be minimal. Many specialists think that, speaking about the expenditure of tax administration services, they should constitute 0,5 per cent from the sum of taxes collected, in order to evaluate them positively. It is quite difficult to reach such numbers, and the most important thing is that the following methodology of calculation does not enable to identify the areas of tax system which require refinement. Collection of one certain tax may be very effective, but administration expenditure of another may present few times higher value than collected tax itself. According to the authors of the article, this can be typical not only to lesser state taxes, which deliver conditionally low absolute and relational value to national budget or target funds, but also to bigger taxes, which constitute the basic part of state fiscal revenue. This can happen when the prepared legislative base governing the taxes is intricate and requires many work resources of administrative body. Such evaluation of administration expenditures of every tax would allow not only to reveal the areas of tax system which require refinement, but also to arrange functions of administrative body in a way the latter do not duplicate and administration expenses for each of the taxes would be reduced, jus like the aggregate expenditures which, according to Gordon R. (2005), constitute conditionally large part of all administration expenses.

Both taxpayer and tax administrator actions are partially influenced by creation, organizations and development of legislation base, which regulates the taxes. The latter also contributes to the degree of efficiency of control of state monetary resources, which is reflected by fiscal revenue administration proportionality index, proposed by the authors of the article, which is evaluated as the relationship between the state indebtedness due to deficit of circulating assets and monthly fiscal revenue. The lower the latter is the more efficiently monetary resources received from the taxes are controlled on the state level. In many countries legislative base regulating the taxes is formulated in such manner that the highest revenue is received during the last quarter of the year, therefore, when there is a deficit of circulating assets during the year the state is constrained to borrow from financial institutions taking credits or from the private sector, for example, issuing bonds, paying quite high market interest rates, which later are redeemed by monetary recourses if the taxes collected. Therefore, evaluation of such indicator would allow the state to determine areas and directions of refinement of legislative base, regulating the taxes payable both to national budget and target funds, in such a manner not only minimizing value of the state indebtedness indicator, but also optimizing efficiency of management of circulating cycle of state financial resources.

Index of elasticity in respect of macro environment allows evaluating state position towards the stimulation of development of market and business subjects in respect of changing state or country macro environment, for example, with the help of means of fiscal credits or other tax advantages. It is important to notice that it is recommended to consider not only state macro economical condition and its changes, but also...
company’s macro environment – perhaps the latter, being temporarily insolvent due to circulating capital shortage, with the help of legislation is being provided with particular fiscal advantages or at least exceptions, for example, maturity postponements. Precisely such indicator, which can be measured as the relationship between the absolute value of newly created advantages and all state fiscal revenue, should be the initial indicator during the evaluation of the country’s attraction to foreign investors.

According to the opinion of the authors of the article, after selecting all constituents of complex model of tax system efficiency evaluation – all indicators applied in target research -, and including the ones proposed by the authors, and, hereby, creating appropriate system of their examination, openings for tax system efficiency evaluation are created. This model is unique because it enables to evaluate tax system and each of its efficiency conditioning elements individually, thus determining the weakest connective parts and their systems. Condition necessary for completeness of the model created is empirical evaluation of the latter, during which identified correlation coefficient between the model efficiency evaluation and one pronounced by EUROSTAT statistics is even 0.8263. Such value enables to state that the model is created properly and allows to evaluate not only tax system, but also to determine areas of the latter which require refinements, to evaluate efficiency of future social reforms both in respect of the taxpayer and the tax administrator.

Conclusions

1. The number of existing taxes is not enough to evaluate the tax system, whereas such evaluation can not reveal tax system functionality and its efficiency. In order to collect the taxes in optimal manner expeditiously, effective their administration is sufficient; also for their efficiency we should incorporate fiscal legislative base, determine precise fiscal policy application limits, which reflect clear barriers between the practical application of fiscal policy in the company and state system, between the avoidance and concealment.

2. With the help of created model the main function of taxes to generate state income is reinforced. Reinforcement of the following function from administrative point of view will help to apply taxes more efficiently not only as the tool of collection, but also to fix the gaps of market mechanism and differentiate revenue. Moreover, the created complex systematic tax system efficiency evaluation model allows determining both problematic tax system areas and directions of their refinement.

3. Accomplished empirical survey of the created complex model revealed that the tax system evaluation model is composed properly and its application would allow reaching the essence of the questions regarding the efficiency of the planned reforms, from the point of view of trade cycle participants, in the area of tax system, and efficiency of the planned reforms in the area of social politics.

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