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## Article

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**Alla Sokolovska<sup>1</sup>**

## **METHODOLOGICAL APPROACHES TO ESTIMATING THE USE OF TAX BENEFITS AND THE PRACTICE OF THEIR APPLICATION**

*Tax benefits, considering their consequences for the economy and the budget system, are the most controversial element of any tax. Therefore, policy decisions on the introduction of new, continued use or abolition of existing tax benefits should be based on reliable information about their expected or actual effectiveness and efficiency. The purpose of this article is to define methodological approaches to assessing the use of tax benefits as a prerequisite for improving the soundness of tax policy and effectiveness of public administration of the financial system.*

*The article, based on the analysis of Western literature sources, considers methodological approaches to assessing the use of tax benefits in the context of their effectiveness (achievement of goals and fulfillment of the conditions for granting, impact on the behavior of economic agents and results of their activity), efficiency (comparison of benefits and costs) and relative efficiency (comparison of the effectiveness of tax benefits and other policy instruments), as well as evaluation methods and tools. The practical application of these methodological approaches is considered on the example of investment and innovation incentives for corporate income tax and VAT incentives (reduced tax rate on labor-intensive services).*

*The author notes that the assessment of consequences of the introduction of tax benefits can be provided using methods of comparative analysis of the behavior of the beneficiary company before and after the introduction of the tax incentive; survey of the company's managers on how the tax benefit affected certain aspects of their behavior (investment decisions, implementation of R&D, employment and remuneration policies, etc.); and econometric analysis.*

*According to the results of the study, it is concluded that ultimately the choice of an approach to assessing the application of tax benefits, as well as methods and tools of analysis is determined by the*

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*available information base in open sources and access to non-public information. In addition, the reliability of the results of evaluation of the application of tax benefits substantially depends on compliance with the requirements and procedures during their implementation, in particular, the definition of objectives and, if necessary, the conditions of their granting, as well as the quality and the completeness of accounting of the provided benefits. The latter, as well as the availability of the necessary information and its disclosure is one of the main problems in assessing the application of tax benefits in countries with transition economy.*

**Keywords:** *tax benefits; effectiveness, efficiency and relative efficiency of tax benefits; model of the marginal effective tax rate; tax expenditures*

Despite the fact that benefits are an optional (non-compulsory) element of the tax, it is difficult to find a modern tax system that does not use them. The reason is the idea that tax benefits, influencing the taxpayers' behavior, contribute to the economic and social goals of tax policy: they increase investment and employment and hence increase economic growth, reduce income and wealth inequality, and encourage environmentally responsible behavior of the producers and consumers of "bad" goods, energy efficiency and energy saving, etc. However, there is no consensus among scientists on the extent to which certain effects result from the application of tax benefits. As H. Zee and others point out, referring to V. Tanzi and P. Shoma, although the impressive economic successes of a number of Asian countries (before the Asian crisis), which widely used such incentives, may have played an important role in the spread of tax benefits as an incentive tool, it is still unclear to which extent these incentives affected economic growth in these countries [1]. Among the main factors for this success, experts mainly mention high-quality bureaucracy, well-educated workforce and competitive advantages in export markets. At the same time, they suggest to avoid using selective tax regulation as an instrument of industrial policy in countries with weak government and highly politicized procedures in determining benefit beneficiaries [2, 3].

At least in regard to investment tax incentives, a growing number of scientists tend to conclude that, in determining the level and quality of investment flows, non-tax elements of the investment climate (political stability, efficient legal and judicial systems, undistorted macroeconomic policies, skilled labor and well-developed infrastructure) are much more important than tax incentives. They argue that, though the latter, in certain circumstances, really can encourage investment, the balance between benefits and costs in their application remains a matter of debate [3]. The available empirical evidence of the economic efficiency of such incentives is also insufficiently effective [1].

Analysis of the contradictory consequences of the application of tax benefits is a subject of many scientific studies. Their detailed consideration is offered, in

particular, by B. Bolnik, who provides ten arguments in favor and ten arguments against the introduction of investment tax benefits [3].

The main arguments in favor of the tax incentives of investment include:

- enhanced returns on investment: the benefits, by reducing the tax imposed on income from capital, provide investors with a higher net rate of return;
- creating positive externalities associated with new investments, such as investments in research and development, technology transfer to other sectors of the economy and improved quality of the workforce;
- in the global economy characterized by high capital mobility, tax incentives are one of the tools to reduce the effective rate of corporate income tax, which must be low enough to attract foreign investment and maintain domestic savings, by directing them to finance domestic production and preventing their outflow;
- tax benefits are needed to respond to tax competition with other jurisdictions, who try to attract the same investments by offering benefits;
- the benefits offset additional costs that foreign investors will have to face when doing business in countries with an unfavorable investment climate, while, in the absence of tax benefits, they would not at all consider investing in such countries;
- the budgetary implications of tax benefits are less obvious than the direct budget costs of implementing projects (programs) aimed at achieving the same goals, which often leads to political decisions in favor of tax benefits. This feature of tax benefits may be convenient for achieving short-term political goals, but it does not correspond to long-term interests of a country's development, so this feature can be considered as both advantage and disadvantage of tax benefits.

The main arguments against the introduction of investment tax benefits, which B. Bolnik emphasizes, include:

- lost incomes: tax benefits cause a narrowing (erosion) of the tax base either because they do not considerably affect investment decisions (if highly profitable investments can be made without additional incentives), or, when they do affect investment decisions, because their package is excessive. In the latter case, some tax benefits may lead to a real loss of the government's income, or may be used to avoid tax by those taxpayers who are not entitled to benefits;
  - economic distortions: selective tax benefits can promote low-productivity investments by diverting resources from projects with higher productivity;
  - tax incentives increase the time and money spent on tax administration by distracting highly qualified taxation personnel from tax collection, and switching them to control tax loopholes;
  - the loss of budget revenues as a consequence of the provision of tax benefits, necessitates the search for compensators such as increased taxes on other activities and persons or reduction in government spending, which may in turn worsen the investment climate (expenditures on infrastructure upgrade, education, etc.)
- According to B. Bolnik, lost income has an alternative economic cost. The latter may be low if the former is small or if the country has a strong fiscal system and sufficient funds. But such a cost can be extremely high if lost income is significant or if the

country has a weak fiscal position and very limited resources. In such circumstances, the risk of losing revenue from the introduction of tax benefits should be a major issue for policy discussion;

- selective tax policy creates injustice by providing tax benefits to some economic agents and depriving others of the rights to them;
- low transparency and accountability: the fiscal cost of tax benefit is less noticeable than the cost of an alternative investment incentive policy that involves actual budget expenditures; if the costs are hidden, it is easier for governments to take measures that are not cost effective and do not meet the declared developmental goals;
- selective tax policy encourages lobbying for the provision of tax benefits to those economic activities, regions or economic agents that do not use such benefits, which may generate a chain reaction leading to expanded system of tax benefits and increased economic and budgetary costs;
- provision of tax benefits creates opportunities for corruption and socially unproductive rent-seeking activities; these abuses are especially probable where selective tax policy is conducted, criteria for granting tax benefits are not defined, and control is absent over the effectiveness and efficiency of their use, and over direct and indirect fiscal expenditures;
- alternative tools for investment promotion can have much more favorable and lasting effects on productivity, growth and development [3].

Given the contradictory consequences of the use of tax benefits, the optimal tax system can be considered one with minimal preferences. However, since most tax systems are far from this optimum, and governments that define tax policy are in no hurry to abandon tax incentives (including for political reasons), it is important to take measures that can minimize their negative impact on economy and budget system. Among them: a high-quality and transparent legal framework, free of loopholes that make it possible to use tax benefits for tax evasion; clear criteria and transparent administrative procedures for granting tax benefits, one of whose mandatory elements should be an analysis of expected and actual effectiveness and efficiency of the proposed tax incentives; efficient monitoring mechanisms; control over the use of tax benefits; and public reporting on budget losses resulting from their provision.

The purpose of this article is to define methodological approaches to assessing the use of tax benefits. The purpose of such assessment is to raise the quality of the public administration of financial system, the consistency of tax policy, ensuring policy decisions on the introduction of new tax benefits, as well as on continued use or abolition of existing ones based on reliable information about their actual impact on economy and budget system.

Revealing the approaches to the analysis of tax benefits, D. Roca, referring to M. Tokman and others, notes that such an analysis should be made in the context of their effectiveness, efficiency and relative efficiency. In this case, effectiveness characterizes the degree of attaining the goals of tax benefits; efficiency compares benefits with the

costs of incentive measures; and relative efficiency compares economic efficiency of tax benefits and other policy instruments [2].

According to B. Bolnik, analysis of tax benefits should determine the effectiveness of various tax incentives in encouraging productive investment, and their impact on government revenues (tax expenditures), tax administration, economic efficiency, social justice and, finally, on the prospects of the country's economic growth [3]. Evaluating the effectiveness of the provision of tax benefits, beside the analysis of the achievement of policy objectives, also includes analysis of their impact on the behavior of beneficiary firms [4] and the results of their activities. The problem of evaluating the effectiveness and efficiency of tax benefits was also addressed in the works of some domestic authors [5, 6].

Analyzing different types of tax benefits, different approaches to their assessment may prevail. If the benefits of corporate income tax are mostly investigated from the standpoint of both their effectiveness and efficiency, the benefits of VAT (given that they should be provided primarily to final consumers of goods and services) and those of personal income tax are mainly studied in terms of their effectiveness. In particular, they are considered in terms of the achievement of social and distributive goals set during their introduction such as increased employment or consumption of socially important goods and services, reduced income inequality, etc. Let us consider this assessment on the example of investment and innovation benefits of corporate income tax and VAT benefits.

#### ***Assessment of the benefits of corporate income tax***

Most publications by Western scientists involve the assessment of investment related tax benefits, as well as tax benefits for R&D. Their analysis shows that the main questions to be answered in the process of assessing the effectiveness of benefits are the following: what amount of additional investment (additional R&D) was attained by the government intervention? Which firms eventually receive tax preferences? Did not the government subsidies in the form of tax benefits supplant private investments? Would the same results have been achieved (e.g. increased profit, market share, or output of goods and services) without government support using tax instruments? Does government support significantly change the firm's behavior and strategy (e.g. the pattern of research or management of innovation processes) [4]? I. Busom also offers to answer the following questions: how does the productivity of firms that receive R&D subsidies change (direct effect), and what is their impact on the productivity of other firms (indirect or spillover effect) and on consumers? [7].

Since the purpose of providing investment benefits from corporate income tax is to increase the inflow of private investments to economy, the effectiveness of this benefit is measured by their increase in response to lower effective tax rate. In this regard, the results of the conducted research are mixed. According to some, lower tax rates or higher tax benefits can be a significant factor in encouraging investments. According to others, tax benefits rarely affect the amount of viable long-term investments, while the associated distortions and abuses disguise any positive response to incentives. The

contradictory judgments ultimately indicate that investment tax incentives work well in some countries and badly in others. This is due to the fact that "the effectiveness and impact of any stimulus package depends on local economic and fiscal conditions, the characteristics of incoming investment projects, details of the Tax Code and political judgments about trade-offs between competing policy goals. Thus, decisions on tax benefits should be country-specific"[3].

As noted by B. Hall and D. van Rinen in a review of empirical research on the issue, effectiveness of tax benefits eventually depends on the tax-price elasticity of R&D private spending. Regarding the indicators of elasticity, referring to researches conducted using data at the level of US companies, the authors provide the following information: elasticity of total R&D costs at the tax price in the 1980s approached unit. Similar are the results of a study carried out in Canada, according to which a 1% increase in the federal tax credit creates an average of US \$0.98 additional spending on R&D per one dollar of lost tax revenues [8].

Researches conducted in other countries show higher price elasticities of private R&D spending. In particular, a study on the reaction of Italian firms to tax incentive measures (including the provision of tax credits) during 1992-1997 indicates that a 5% reduction of costs related to R&D spending due to tax credit causes a 7.5–8.8% increase in R&D spending by active firms, which demonstrates a high price elasticity of such costs, which exceeds 1 (1.50–1.76). And this is not the full effect. Actually, lower costs can also affect companies' output, strengthening in so doing the expansionist effect of R&D, and increasing the probability that new firms will start to invest in R&D [9].

A study of the impact of tax credit on R&D, introduced in France since 1983 as a tax incentive for private R&D (reducing the cost of R&D capital<sup>2</sup> for users, the tax credit encourages firms to spend on R&D), on their additional amount shows that raising the rates of tax credit from 50 to 60% would mean an increase in the optimal stock of R&D capital from 4.6 to 6%. This leads to an increase in the equilibrium R&D expenditure from 4.6 to 6%, or an increase in private R&D expenditure by 1.8-2.3 billion francs with budgetary cost at 570 million francs. In this case, the long-term increase in private spending on R&D is 3-4 times higher than the budgetary cost for the government, which indicates a significant encouraging effect of tax benefits [10].

I. Busom, using a sample of Spanish firms, half of which received state subsidies for R&D, analyzes subsidy programs, focusing on both the determinants of firms' participation in the program and the consequences of this participation for R&D. She reveals that public funding encourages growth in R&D spending and employment in

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<sup>2</sup> Cost of capital - the cost (price) of capital (the cost of raising capital from a particular source); measured by the level of return at which investors agree to invest in certain activities; starting from the cost of attracting invested capital, the minimum rate of return at which the investment project can be implemented is determined. Taxation affects the cost of capital, and this is the main factor determining the level of investment. In particular, a decrease in the cost of capital, for example, due to tax benefits, means an increase in investment, given their elasticity to the cost of capital. The company will finance projects where the pre-tax rate of return will be higher than the cost of capital until the pre-tax rate for the last project is equal to the cost.

most firms, however, for 30% of beneficiary firms full crowding out effects cannot be excluded. If government subsidies replace private R&D expenditures, it should be concluded that subsidy policy might be inappropriate [7].

H. Gonzalez, H. Jaumandreu and K. Pazo, using a representative sample of more than 2,000 Spanish manufacturing firms from 1990 to 1999, focus on modeling their R&D decisions, in terms of their response to government subsidies. According to the authors' conclusions, subsidies may play a role in encouraging research, but their influence is relatively modest and controversial. According to their estimates, almost half of large nonperforming firms could have been encouraged to innovative activities by funding less than 10% of their R&D, and one out of three small nonperforming companies – for up to 40% of the expenses. The effectiveness of the R&D in some small firms depends on the expected subsidy in the sense that in case of its absence they would abandon the implementation of research projects. But it should be understood that subsidies are mainly received by firms that would in any case be engaged in innovation. However, government support for such firms only causes a very small change in their private R&D expenditures. Overall, Spanish manufacturing subsidies, which amount to 4–5% of R&D expenditures, by estimates, increase total R&D expenditures by 8%, being this efficiency by a half caused by the firms that are encouraged to perform R&D, which are mostly small firms [11].

Another important point in the analysis of tax benefits is the definition of methods and instruments to assess their effectiveness.

B. Hall and D. van Rinen distinguish two assessment methods. The first one involves comparing the firm's behavior (especially its investment costs) before and after the introduction of the tax incentive. The second method is a survey of the firm's managers about how the introduction of the tax incentive affected their investment costs or R&D costs. The main problem with this method is that managers, for subjective or other reasons, might not give the correct answer to questions. In addition, surveys usually cover relatively small samples of firms due to the significant cost of data collection [8].

Both methods are very often combined with econometric analysis. As a rule, such analysis allows assessing the impact of tax variables, in particular tax benefits, on foreign direct investment and/or on the gross investments in fixed capital formation. In other words, it determines the elasticity of investment demand to tax variables. This elasticity as such is another indicator of the efficiency of tax benefits [2].

The main instruments for the analysis of tax incentive policy are the model of the marginal effective tax rate (METR), budgeting of tax expenditures (analysis of budget losses from the use of tax benefits) and specification of screening criteria for the application of selective incentives. According to B. Bolnik, these analytical tools neither provide accurate measurements of the efficiency and impact of various incentive programs, nor give the final answer to the question of whether governments should provide tax benefits to certain investment projects. The use of the above-mentioned tools can only reduce the uncertainty about the costs and benefits and provide information to those who decide on the provision of tax benefits [3].



The standard tool for assessing the impact of the tax system on investment decisions is the determination of marginal effective tax rate (METR), which is calculated by the formula:

$$\text{METR} = (\text{RORbt} - \text{RORat}) / \text{RORbt},$$

where RORbt and RORat are the real rates of return before and after tax.

The marginal effective tax rate shows how taxation reduces the real rate of return on investment. If, for example, the rate of return on investment before tax is 35%, and after tax 27%, then  $\text{METR} = (35 - 27) : 35 = 23\%$ , i.e. taxation reduces the real rate of return on investment by 23%.

Comparing the marginal effective tax rates for different types of tax incentives, it is possible to determine which of them reduces the tax burden on investment the most, which facilitates selection of the most appropriate incentive in this context. However, the value of METR itself is not indicative as to the benefit's effectiveness, i.e. how it will affect the increase in investment. In an unfavorable investment environment, even a low marginal effective tax rate might fail to provide a significant inflow of investment.

A consequence of the use of tax benefits is the reduction of tax revenues to the state budget or tax expenditures, which are analogous (alternative) to direct budget expenditures, hence need to be considered as part of the state budget expenditures and need to be included in the scope of budget control. Budgeting of tax expenditures is a tool for monitoring the amount of unearned budget revenues, which is a consequence of the provision of tax benefits stipulated by tax legislation. As a rule, tax expenditures are estimated based on tax declaration data by calculating the difference between the effective tax liability for each taxpayer and the amount of tax that would have been paid in the absence of tax benefits (at the statutory tax rate). Analysis of tax expenditures allows establishing the price (in the form of unearned tax revenues) that the state pays for each tax benefit, which, in turn, creates preconditions for a more responsible attitude to tax benefits and is an important choice criterion in decision-making on tax benefits.

One of the main problems in budgeting tax expenditures is the fact that budgeting techniques can underestimate (by failing to include indirect effects) or overestimate the direct loss of budget revenues, without considering the changes in the taxpayers' behavior under the effect of tax benefits. To understand this, let us assume that the standard company tax rate is 18% and the company has a reduced rate of 5%. If the profit received by this company is equal to 1000, then tax expenditures amount to 130 ( $1000 \times 0,18 - 1000 \times 0,05$ ). According to B. Bolnik, this is an accurate indicator of the benefits received by the firm. However, this amount may or may not serve as the true indicator of the "foregone revenues" by the Treasury. If the incentive is unnecessary, i.e. if the tax preference does not affect the firm's investment decisions, then the calculation of tax expenditures is accurate. But if the firm only exists through the use of tax benefits, then the state loses nothing, because there would be nothing to tax with the standard rate [3].

Selective tax incentives require the introduction of criteria to select projects to which such incentives can be granted. One can distinguish between criteria based on economic analysis of investment projects and criteria used in practice.

Theoretically, according to B. Bolnik, screening should be based on a careful analysis of benefits and costs, which includes estimation of both economic and financial internal rate of return<sup>3</sup> of the proposed investment project. At the same time, special incentives should be granted to projects with a high economic and relatively low financial internal rate of return. It is these criteria that will make it possible to select economically prospective projects that are only viable with state support. Tax incentives for such investment projects can be efficient, while tax benefits for investments that will be made in any case (in the projects with a high internal financial rate of return, which are viable without government support) are considered unnecessary and wasteful use of public resources [3].

However, in practice, provision of tax benefits based on the results of economic analysis of investment projects is infrequent, including due to complexity of the assessment of economic internal rate of return of the investment project. In many countries, the right to selective tax support is granted based on simpler criteria, in particular, to investments with expected favorable economic impact or to those considered strategically important for the economy. In a number of countries, selective incentives are granted based on criteria such as the size of the investment, the number of jobs to be created, the capital cost per job, "significant use" of local raw materials, net earning or saving of foreign exchange, and so on.

Efficiency of tax benefits is defined as the ratio of the benefits of their use and the cost of their provision. In the case of investment tax benefits, the direct benefit of the fiscal incentives for investments is the latter's increase due to reduced cost of capital, while the direct costs are tax expenditures, i.e. the loss of tax revenues to the state budget. If the ratio of these two values is greater than unit, then the tax benefit is considered effective (is a cost-effective way to attain a planned level of investment) [2].

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<sup>3</sup> IRR, or internal rate of return, is a discount rate at which the present value of all cash flows of an investment project is zero. This means that at this rate the investor will be able to recoup his initial investment. IRR is an important test for assessing the quality of a project in financial and economic terms and is widely used by decision makers in governments, financial institutions and industry to determine whether a project is financially and economically viable. While the financial IRR determines whether the proposed investment will generate a flow of future income sufficient to meet the investor's minimum requirements for the financial return within a reasonable time frame, the economic IRR shows whether the project effectively uses the country's resources.

The methodology and methods of calculating the financial and economic rate of return, as stated in the Guidelines, are used by World Bank staff in conducting financial and economic evaluation of industrial and mining projects for direct financing and are coordinated with more sophisticated approaches that take into account social economic and economic goals. The financial evaluation has four main objectives: (i) to evaluate alternative project configurations to determine the most attractive alternative and course of action; (ii) develop a sound financing plan to cover the costs of the project implementation phase; (iii) ensure the availability of financial resources as necessary during operations to ensure the timely availability of goods and services and to meet all financial obligations; and (iv) verify that a sufficient level of return is generated to reward investors for risk and to invest equity in the project. An economic assessment is conducted to determine the overall impact of the project on the country's economy [12].

In addition to immediate benefits and costs from using tax benefits, there are additional (indirect) benefits and costs. In particular, additional benefits of the introduction of investment tax benefits may be an increase in employment and demand for consumer and investment goods and, ultimately, in the rates of economic growth. Additional (indirect) costs primarily include the costs of administering tax benefits, including those associated with their use for tax evasion. However, the calculation of the efficiency of tax benefits is mostly based on direct benefits and costs.

Finally, it is possible to compare the increase in tax revenues, which occurs under the influence of GDP growth (which is a consequence of the increase in investment caused by the introduction of tax incentives) with tax expenditures. This ratio can be considered an indicator of "fiscal efficiency", as it is a comparison of the indirect positive effect of the introduction of tax benefits (increased tax revenues due to the impact of tax benefits on investment and the latter's impact on GDP)) and direct negative impact on tax revenues (tax expenditures) [2].

#### *Assessment of the effectiveness of VAT benefits*

Since VAT is a consumption tax, whose ultimate carrier is consumer, tax benefits can be considered justified, first of all, if they are really beneficial for the final consumer of goods or services in the first place. This explains both the list of goods and services that can be taxed at reduced rates in EU member states, defined in Annex III to Council Directive 2006/112/EC, and the list of mandatory VAT exemptions set out in Article 132 of the Directive. Most of these benefits are designed to reduce prices for goods and services for final consumers.

However, under certain conditions, VAT may affect producers' activities negatively. This occurs in the following cases: 1) competition restricts the final price of a good or service, as a result of which the producer cannot reimburse the costs of indirect tax; 2) the produced goods are not sold, due to which the producer cannot reimburse the tax paid for the price of materials used in production; 3) the government does not timely reimburse the overpaid tax; 4) due to a long production process or seasonal production, working capital paid as the VAT for materials is for a long time removed from turnover; 5) indirect tax on machinery and equipment raises the price for capital goods, in so doing increasing the cost of capital and making some investments unviable, especially for capital-intensive projects, while conversely lower taxes reduce the cost of capital and encourage additional investment and higher capital intensity [3]. Given the above, in some cases VAT exemptions may be granted to importers of equipment used in investment projects or in lengthy manufacturing, or that provided to agricultural producers. In particular, Annex III to Council Directive 2006/112/EC stipulates the possibility of taxing at a reduced VAT rate the supply of goods and services normally intended for agriculture, but excluding such capital goods as machinery or buildings [13].

All this must be taken into account when defining the goals for providing certain VAT benefits, which is important in the process of analyzing their effectiveness. Thus, provision of benefits to final consumers may be aimed at achieving certain social or distributive goals (encouraging the consumption of socially important goods or services, cheapening the goods and services, which are mainly consumed

by the poor, and thus reducing the VAT's natural regressivity), and increasing employment in certain sectors. As to the goals, the benefits to importers of equipment used in investment projects can contribute to the reduction of prices for investment goods (which can decrease the payback period of investments), while the benefits granted to suppliers of goods and services used in agricultural production can promote saving of working capital under seasonal production.

Assessment of the effectiveness of VAT benefits granted to final consumers can be considered on the example of their analysis by the European Commission on the consequences of the introduction on a temporary (experimental) basis (2000-2002) of a reduced tax rate on labor-intensive services, which mostly were local and could not lead to distorted competition. The services included: renovation and repair of private dwellings, with the exception of materials that make up a significant part of the cost of the service provided; cleaning of windows and private households; minor repairs of bicycles, footwear and leather goods, and clothing and household linen (including tuning and recycling); home care services, such as help with housekeeping and care for children, the elderly, the sick or disabled at home; and hairdressing.

The study of the effectiveness of this benefit was performed in the context of achieving the goals of its introduction, that is, increased employment and reduced shadow economy [14].

Since the link between reduction of VAT rate on labor-intensive services and achieving these goals is not direct, the latter requires fulfilment of a number of conditions. In particular, reduced VAT should lead to lower prices for relevant services. And the latter should fall so much that the demand for them increases making their supply to expand, not via increased productivity or labor intensity, but via attracting additional number of officially employed [15]. The goals of the experiment can be attained only if all these conditions are fulfilled. And the fact of their presence is a reason to doubt that with every VAT reduction they will be fulfilled.

If a reduction of the VAT rate is used by the service provider not to reduce the price but to increase profits, such a reduced rate acts as a subsidy for a particular activity. To avoid this undesirable result, one of the conditions for the introduction of reduced VAT rate on labor-intensive services was a close link between lowering prices due to the application of reduced tax rate and the projected increase in demand and employment [16].

To assess the achievement of the experiment's objectives, Member States that took the opportunity to introduce a reduced VAT rate on labor-intensive services (nine countries including Belgium, Greece, Spain, Italy, Portugal, the Netherlands, France, Luxembourg, and the United Kingdom) were obliged, by 1 October 2002, to make a detailed assessment of its impact on job creation and efficiency via submitting it to the European Commission. In turn, the Commission had to submit, by 31 December 2002 a general assessment report to the Council and the European Parliament [16].

While assessing the effectiveness of application of the preferential VAT rate, each Member State was to answer the following questions:

- whether the lower VAT rate was fully (or partially) reflected in the resulting prices;
- whether demand increased due to either lower prices or other reasons;

- whether employment increased due to the impact on demand?

The report was also to contain information on the impact of the reduced VAT rate on the shadow economy.

The assessment was made using such methods as analysis of data from national accounts or VAT returns, surveys, econometric modeling, etc. (Table 1). However, as noted in the Report, "whichever method is chosen, it is important that analysis shows the evolution of the sector and economic policy measures over time. After all, it is impossible to assess the impact of a measure without knowing what the sector was like before it was introduced" [14].

Table 1

**Methods for assessing the effectiveness of the introduction of reduced VAT rates in the countries participating in the experiment**

Countries participating in the experiment	Assessment methods
Belgium	Periodic VAT returns, surveys of the national statistical office, contacts with trade associations and statistical information of the National Office for Social Security.
Greece	Survey
Spain	Data from the National Statistical Office.
Italy	Research by CNA (Confederazione Nazionale Artigiana), ASSOEDILI (Associazione Nazionale delle Costruzioni) and CRESME (Centro ricerche economiche sociologiche e di mercato nell'edilizia). Data provided by INAIL (Istituto Nazionale per l'Assicurazione contro di Infortuni sul Lavoro).
Netherlands	Introduction of a regular monitoring system for the experiment's period. Assessment of the measure's impact on employment in the relevant sectors was carried out by the independent policy research institute "Research voor Beleid". The institute conducted a survey of a representative sample of employers in September 2000, May 2001 and May 2002. Data on employment changes came from the Association of Chambers of Commerce.
Portugal	Analysis of periodic VAT returns and a survey conducted by the building industry federation AECOPS among its members.
Luxembourg	A study by Chambre des metiers on the impact of reduced VAT rates. The Central Statistical Service STATEC participated in the assessment.
France	Evaluation methods varied by sector. Economic condition of the home care sector was assessed via a survey of companies. Three methods of analysis were used to assess the sector of maintenance and improvement of accommodation more than two years old: <ul style="list-style-type: none"> <li>• quarterly indicator of economic activity in this sector, the "maintenance barometer"</li> <li>• companies' tax returns;</li> <li>• a three-variable econometric model.</li> </ul>
Great Britain	Survey among builders selected based on periodic VAT returns and commissioning declarations. However, the survey only covered about 7% of companies that participated in the experiment.

Source: compiled based on data from [14].

Generalization of the reports of the EU member countries participating in the experiment allows drawing the following conclusions.

1. Reduction of the VAT rate on labor-intensive services in most cases was not accompanied by an adequate price response: in some countries (Greece, Spain) it had no effect on consumer prices, in other countries it was partially reflected in their levels in certain sectors (Belgium, Netherlands, Luxembourg) and largely contributed to service providers in the form of increased profits (according to the report, in Belgium about 87% of the benefits of lower VAT rates was received by producers). In some countries, the lower-prices response to lower VAT rates was rather short, while the low rate effect was used by producers to increase margins (France). Only the United Kingdom reported that in 96.4% of cases, the reduced VAT rate (which had a very narrow scope only applying to the renovation and repair of private dwellings on the Isle of Man) was fully transmitted to the final consumer via the prices<sup>4</sup>.

2. Considering that the lower VAT rate in most countries was not transmitted to consumers or was transmitted to them only partially, expansion of the demand for services taxed at a reduced rate was mainly due to other factors such as the introduction of other tax benefits (in Italy), household income growth (in Spain), etc. Only in some countries the increased turnover in certain sectors was due to reduced VAT rate (Luxembourg).

3. The reports submitted by the Member States do not provide any weighty arguments in favor of the impact of the reduced VAT rate on employment. In particular, the impossibility to establish a direct link between reduction of the tax rate and creation of new jobs is stressed in the reports by Belgium and the Netherlands. Besides, various studies using econometric models aimed at determining the impact on employment from the reduction of VAT rate, which was fully transmitted to prices, as well as from the rates of direct taxes and social employers' contributions (all three scenarios were designed as to be neutral to government revenues) showed that the policy of compensated reduction of VAT on labor-intensive services, as a rule, can only have an insignificant impact on job creation. As to the compensated reduction of direct taxation, it does not give any marked effects either. On the other hand, compensated reduction of social security contributions generally has the greatest positive effect on employment.

4. Some countries participating in the experiment (Belgium, the Netherlands, and Luxembourg) did not include in their reports any information on the impact of reduced VAT rate on shadow economy. Some countries stated that it was impossible to pinpoint the impact of this factor because it was not the only one. In particular, in Spain, a role in increasing the number of officially registered businesses was performed by a package of measures to promote the development of small and medium-sized enterprises. In the reports where information on the consequences of

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<sup>4</sup> One of the explanations for the small price response to the reduction of VAT rates during the experiment is that from the very beginning their reduction was announced as temporary, as a result of which manufacturers did not respond to it by creating new jobs [17].

the reduced rate for shadow economy was provided, it is rather assumption, not confirmed by evidence of any causal relationship between these phenomena [14].

The assessment of effectiveness in the application of reduced VAT rate on labor-intensive services conducted in a number of EU countries is indicative and interesting to study not only in terms of its content, applied methods, and organization of reporting, but also in terms of the resulting decisions. Thus, despite the fact that the report of the European Commission did not contain convincing evidence of achieving any objectives of the experiment, and hence of any effectiveness of the introduced preferential VAT rates on labor-intensive services, first their validity was extended and then the right was granted to apply them on a permanent basis. The argument in favor of this decision was that "application of reduced VAT rates... under certain conditions can have positive effects in terms of job creation and the fight against informal economy" [18]. However, the main argument was the absence of negative impact of such benefits on the functioning of the EU domestic market due to the local nature of services that are taxed at reduced VAT rates. This was the reason not to deprive EU countries of the opportunity (right) to establish reduced tax rates on certain types of labor-intensive services. And assessing the effectiveness of the use of such rates has helped each country to better understand the consequences of its choice. Thus, although the assessment of the effectiveness of tax benefits did not lead to the adoption within the EU of those management decisions that logically followed from it, it could influence the decisions of individual countries to use reduced rates or adjust the conditions for their provision. Besides, the assessment and conclusions on the impact of reduced VAT rates on prices, employment and the shadow services market add new arguments to academic debate over socio-economic effects of tax benefits.

In general, the study allows us to draw the following conclusions.

1. A necessary condition for effective (modern) tax policy is a responsible attitude to the provision and use of tax benefits, which involves the introduction of clear criteria and transparent administrative procedures of their provision, monitoring and control of use (whose initial element is a full and reliable accounting of all tax benefits), as well as public reporting about tax expenditures. An important component of monitoring the use of tax benefits should be the analysis of its socio-economic and budgetary consequences.

2. Assessment of the use of tax benefits can be made in the context of their effectiveness (attaining the goals and conditions of their provision, a certain impact on the behavior of economic agents and results of their activities), efficiency (comparison of positive impacts and costs) and relative efficiency (comparison between the efficiency of tax benefits and other policy instruments). In the process of analysis of different types of tax benefits, different approaches to their assessment may prevail. While corporate income tax benefits are mostly studied from the standpoint of both their effectiveness and efficiency, the VAT benefits (given that they should be provided primarily to final consumers of goods and services) and personal income tax benefits – mainly in terms of their effectiveness, in particular, whether they achieved certain social and distributive targets set for their

implementation such as increasing employment or consumption of socially important goods and services, reducing income inequality, etc.

3. Assessment of consequences of the introduction of tax benefits can be performed using the methods of comparative analysis of the behavior of beneficiary company before and after the introduction of the tax incentive; survey of the company's managers on how the tax benefit affected certain aspects of their behavior (investment decisions, R&D implementation, employment and remuneration policies, etc.); and econometric analysis.

The main tools for analyzing tax incentive policy include the marginal effective tax rate (METR) model, budgeting tax expenditures and specifying screening criteria for the application of selective incentives. Each of these tools is designed to solve specific challenges in the process of assessing tax benefits such as comparing the proposed incentives in terms of contribution to reducing the beneficiaries' tax burden on or in terms of tax expenditures as a basis for selecting a particular type of tax benefits.

4. Ultimately, the choice of the approach to assessment, as well as to the methods and tools of analysis is determined by the available information base in open sources and access to information that is not disclosed. Besides, reliability of the results of assessing the application of tax benefits largely depends on compliance with the requirements and procedures for the introduction of tax benefits, including the definition of goals and, if necessary, conditions of their provision, as well as the quality and completeness of provided benefits. The latter, as well as the availability of necessary information and its publication poses one of the main problems in assessing the application of tax benefits in transition economies.

#### **References**

1. Zee, H.H. Stotsky, J.G., Ley, E. (2002). Tax Incentives for Business Investment: A Primer for Policy Makers in Developing Countries. *World Development*, 30(9), 1497-1516. [https://doi.org/10.1016/S0305-750X\(02\)00050-5](https://doi.org/10.1016/S0305-750X(02)00050-5)
2. Roca, J. (2010). Evaluation of the Effectiveness and Efficiency of Tax Benefits. *Discussion Paper*, IDB-DP-136. Retrieved from <https://publications.iadb.org/publications/english/document/Evaluation-of-the-Effectiveness-and-Efficiency-of-Tax-Benefits.pdf>
3. Bolnick, B. (2004, February). Effectiveness and Economic Impact of Tax Incentives in the SADC Region. Technical Report submitted to USAID/RCSA. Retrieved from [https://www.nathaninc.com/wp-content/uploads/2017/10/Effectiveness\\_and\\_Economic\\_Impact\\_of\\_Tax\\_Incentives\\_in\\_the\\_SADC\\_Region.pdf](https://www.nathaninc.com/wp-content/uploads/2017/10/Effectiveness_and_Economic_Impact_of_Tax_Incentives_in_the_SADC_Region.pdf)
4. Caiumi, A. (2011). The Evaluation of the Effectiveness of Tax Expenditures - A Novel Approach: An Application to the Regional Tax Incentives for Business Investments in Italy. *OECD Taxation Working Papers*, 5. <https://doi.org/10.1787/5kg3h0trjmr8-en>
5. Serebrians'kyj, D.M., Zhovner, V.V. (2014). Efficiency of income tax privileges and corporate profit tax in Ukraine. *Visnyk Universytetu bankivs'koi spravy Natsional'noho banku Ukrainy – Bulletin of the University of Banking of the National Bank of Ukraine*, 1, 42-47 [in Ukrainian].



6. Ivanov, Ju., Majburov, I., Nazarenko, A. (2016). Methodological basis for assessing and modeling the effectiveness of tax benefits. *Obshchestvo i jekonomika – Society and economics*, 10, 80-96 [in Russian].
7. Busom, I. (1999). An Empirical Evaluation of the Effects of R&D Subsidies. *University of California, Berkeley, Burch Center Working Paper*, B99/05. <https://doi.org/10.2139/ssrn.170561>
8. Hall, B. Van Reenen, J. (2000). How effective are fiscal incentives for R&D? A review of the evidence. *Research Policy*, 29(4-5), 449-469. [https://doi.org/10.1016/S0048-7333\(99\)00085-2](https://doi.org/10.1016/S0048-7333(99)00085-2)
9. Parisi, M.L. Sembenelli, A. (2001, February 15). Is Private R&D Spending Sensitive to Its Price? Empirical Evidence on Panel Data for Italy. <https://doi.org/10.2139/ssrn.265394>
10. Mulkay, B. Mairesse, J. (2003, February 14). The Effect of the R&D Tax Credit in France. Preliminary Draft. Retrieved from [https://www.researchgate.net/publication/228602501\\_The\\_Effect\\_of\\_the\\_RD\\_Tax\\_Credit\\_in\\_France](https://www.researchgate.net/publication/228602501_The_Effect_of_the_RD_Tax_Credit_in_France)
11. Gonzalez, X. Jaumandreu, J. Pazo, C. (2005). Barriers to Innovation and Subsidy Effectiveness. *RAND Journal of Economics*, 36(4), 930-950. Retrieved from [https://www.researchgate.net/publication/24049332\\_Barriers\\_to\\_Innovation\\_and\\_Subsidy\\_Effectiveness](https://www.researchgate.net/publication/24049332_Barriers_to_Innovation_and_Subsidy_Effectiveness)
12. Duvigneau, J.C. Prasad, R.N. (1984). Guidelines for Calculating Financial and Economic Rates of Return for DFC Projects. *World Bank Technical Report*, 33. Retrieved from <http://documents1.worldbank.org/curated/en/567991468782148724/pdf/Guidelines-for-calculating-financial-and-economic-rates-of-return-for-DFC-projects.pdf>
13. European Commission (2006, November 28). Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02006L0112-20201212&from=EN>
14. European Commission (2003, June 2). Evaluation report on the experimental application of a reduced rate of VAT to certain labour-intensive services. Commission Staff Working Paper, COM (2003) 309 final. Retrieved from [http://ec.europa.eu/taxation\\_customs/sites/taxation/files/resources/documents/evaluation\\_en.pdf](http://ec.europa.eu/taxation_customs/sites/taxation/files/resources/documents/evaluation_en.pdf)
15. European Commission (2003, June 2). Experimental application of a reduced rate of VAT to certain labour-intensive services. Report from the Commission to the Council and to the European Parliament, COM (2003) 309 final. Retrieved from <https://ec.europa.eu/transparency/regdoc/rep/1/2003/EN/1-2003-309-EN-F1-1.Pdf>
16. European Commission (1999, October 22). Council Directive 1999/85/EC of 22 October 1999 amending Directive 77/388/EEC as regards the possibility of applying on an experiment basis a reduced VAT rate on labour-intensive services. Retrieved from <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:31999L0085>
17. European Commission (2007, June 21). Study on reduced VAT applied to goods and services in the Member States of the European Union. Final report. Retrieved

from [https://ec.europa.eu/taxation\\_customs/sites/taxation/files/resources/documents/taxation/vat/how\\_vat\\_works/rates/study\\_reduced\\_vat.pdf](https://ec.europa.eu/taxation_customs/sites/taxation/files/resources/documents/taxation/vat/how_vat_works/rates/study_reduced_vat.pdf)

18. European Commission (2009, May 5). Council Directive 2009/47/EC of 5 May 2009 amending Directive 2006/112/EC as regards reduced rates of value added tax. Retrieved from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:116:0018:0020:EN:PDF>

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## **МЕТОДОЛОГІЧНІ ПІДХОДИ ДО ОЦІНЮВАННЯ ВИКОРИСТАННЯ ПОДАТКОВИХ ПІЛЬГ ТА ПРАКТИКА ЇХ ЗАСТОСУВАННЯ**

*Податкові пільги, зважаючи на їх наслідки для економіки та бюджетної системи, є найбільш суперечливим елементом будь-якого податку. Тому прийняття політичних рішень щодо запровадження нових, продовження використання чи скасування існуючих податкових пільг має ґрунтуватися на достовірній інформації про їх очікувану або фактичну результативність та ефективність. Метою цієї статті є визначення методологічних підходів до оцінювання використання податкових пільг як передумови підвищення обґрунтованості податкової політики та ефективності державного управління фінансовою системою.*

*У статті на основі аналізу західних літературних джерел розглянуто методологічні підходи до оцінювання використання податкових пільг у контексті їх результативності (досягнення цілей та виконання умов надання, вплив на поведінку економічних агентів та результати їхньої діяльності), ефективності (порівняння вигід та витрат) і відносної ефективності (порівняння ефективності податкових пільг та інших інструментів політики) (effectiveness, efficiency and relative efficiency), а також методів та інструментів оцінювання. Практичне застосування зазначених методологічних підходів розглянуто на прикладі інвестиційних та інноваційних пільг з податку на прибуток підприємств та пільг з ПДВ (зниженої*

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ставки податку на трудомісткі послуги). Відзначено, що оцінювання наслідків запровадження податкових пільг може забезпечуватись з використанням методів порівняльного аналізу поведінки фірми-бенефіціара до і після запровадження податкового стимулу; опитування менеджерів фірми щодо того, як податкова пільга вплинула на ті чи інші аспекти їхньої поведінки (інвестиційні рішення, впровадження ДіР, політику у сфері зайнятості та оплати праці тощо); економетричного аналізу.

За наслідками дослідження зроблено висновок, що у кінцевому підсумку вибір того чи іншого підходу до оцінювання застосування податкових пільг, а також методів та інструментів аналізу визначається наявною інформаційною базою у відкритих джерелах та доступом до інформації, що не оприлюднюється. Крім того, достовірність результатів оцінювання застосування податкових пільг значною мірою залежить від дотримання вимог і процедур під час їх запровадження, зокрема, визначення цілей, а – за необхідності – й умов їх надання, а також від якості та повноти обліку наданих пільг. Саме останнє, а також наявність необхідної інформації та її оприлюднення становить одну з основних проблем оцінювання застосування податкових пільг у країнах із трансформаційною економікою.

**Ключові слова:** податкові пільги; результативність, ефективність та відносна ефективність застосування податкових пільг; модель граничної ефективної податкової ставки; податкові витрати