# Tax forecasting as part of a macro financial controlling system – the case of Ukraine

## TETIANA PAIENTKO \*, KATERYNA PROSKURA \*\*

#### Abstract

The current system of forecasting and tax planning in Ukraine is oriented to the needs of the government, its goal being to calculate the desired amounts of tax revenue. Fiscal authorities apply administrative pressure on businesses to implement tax plans. In Ukraine, tax forecasting is a process that is focused on achieving short-term goals without taking into account the impact of such actions on the future economic environment, therefore negatively affecting the quality of forecasts. The aim of this article is to justify the directions of tax forecasting improvement in the macro financial controlling system. Elements of tax forecasting and the planning system are examined. The main methods of tax forecasting that are applied by the Ministry of Finance of Ukraine are analyzed. The need to improve the methodology for tax forecasting, taking into account the expectations of economic agents, is proved. Tools and criteria for effective tax planning and forecasting in Ukraine for controlling bases are developed.

**Key words**: taxes, planning, forecasting, controlling system, business entities.

## Streszczenie Prognozowanie podatków jako część systemu kontroli makrofinansowej na przykładzie Ukrainy

Obecny system prognozowania i planowania podatków na Ukrainie jest zorientowany jedynie na potrzeby rządu, który stosuje presję administracyjną podczas wdrażania podatków i nie uwzględnia oczekiwań podmiotów gospodarczych. Problemem prognozowania podatkowego jest również fakt, że proces ten koncentruje się na osiąganiu celów krótkoterminowych, a nie uwzględnia wpływu działań podatkowych na środowisko gospodarcze w przyszłości. Celem artykułu jest próba wytyczenia takich kierunków prognozowania i planowania podatkowego, które uwzględnią oczekiwania podmiotów gospodarczych na Ukrainie. W artykule poddano analizie metody stosowane przez Ministerstwo Finansów Ukrainy. Podjęto próbę opracowania narzędzi i kryteriów skutecznego planowania i prognozowania podatkowego oraz zasad regulowania kontroli podatkowej.

Slowa kluczowe: podatki, planowanie, prognozowanie, system kontroli, podmioty gospodarcze.

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## Introduction

The theme of tax forecasting and planning is most popular among Ukrainian economists. Research by Ukrainian scientists into the methodology of tax forecasting and planning is significant (Bodiuk, 2007; Ohon, 2003; Khlivniy and Stepura, 2011). However, few of the studies are based on the conceptual approaches of controlling. Most often, the problem of tax forecasting and planning is handled within the work on the government's budget for the following year. This violates the principle of consistency, because in this case, the process of forecasting is oriented only to the government's interests. Fiscal service officers put pressure on taxpayers to achieve their own goals even at the expense of the occurrence of false overpayments by taxpayers. Above all, pressure from the fiscal authorities is experienced by large taxpayers, who provide most of the tax revenues to governments of different levels. In Ukraine, tax forecasting is a process that is focused on achieving short-term goals without taking into account the impact of such actions on the economic environment in the future. This negatively affects not only the quality of forecasts, because it does not take into account the potential reaction of the taxpayers, but it essentially isolates the government from the taxpayers.

A controlling approach requires that the subsystem of tax forecasting and planning be open to both sides: government and taxpayer. It is an objective necessity which is dictated by the terms of creating a stable business environment with transparency regarding the use of taxpayer funds. Governments that already use controlling approaches develop tax plans for the purpose of obtaining objective information to plan government expenditures, and not to exert pressure on taxpayers. Good examples of macro controlling system implementation are Germany, the USA, Denmark, and New Zealand.

Ukraine was chosen as the object of study due to specific problems that the state must overcome in order to have the right to be called a democratic state which provides progressive reform. At the current stage of economic development, most economic reforms in Ukraine are ineffective or moving very slowly. This is due to the fact that most reforms do not benefit the government and its related businesses. A specific phenomenon of political power and business has coalesced in Ukraine, where a group of oligarchs control the government, many large businesses, and the media space. It is an example of an internal state having been captured by a group of influential people.

Most researchers define these types of state capture: control capture (in the case of natural monopolies) (Galang, 2011), capturing the budget (in the case when individuals control the government financial flow redistribution) (Ufere, 2012), and state enterprise capture (Grosman et al., 2015). Many countries demonstrate one or two types of state capture (for example, Bulgaria, Romania, Georgia, Moldova) (Abby, 2014). The type of capture characterized in Ukraine is a unique combination of all three types of state capture (control capture, capturing the budget, state enterprise capture) plus crony capitalism. Over the last three years, Ukraine has the dubious distinction of being ranked among the five worst nations in the area of crony capitalism. Hellman et al. (2003) consider state capture as a proactive type of corruption that takes place in order to influence the decisions of government bodies in favor of certain businesses. State capture leads to significant welfare losses and restriction of competition. Restriction of competition leads to an inefficient

use of resources in the economy and growing corruption. According to researchers (e.g. Desai, 2011), even in countries where there is only one type of capture, economic growth is lower by half compared to countries with a low probability of capture.

It should be noted that many countries have dealt with one type of state capture. However, Ukraine is a special phenomenon of state capture as it faces all three types of state capture mentioned above, combined with crony capitalism. This complex capture is based on a merger of government and business. Unfortunately, the existence of this negative phenomenon makes Ukraine a unique object of study, and therefore it cannot be compared with other post-socialist countries.

One of the main factors that has made a significant contribution to Ukraine's state capture is non-transparent government activity. What is especially dangerous is that information about the amount of taxes paid, the cost of their collection, and the actual use of the funds collected is missing or incomplete. Countries that have implemented elements of a controlling system in governance have successfully solved the problem of non-transparency. Therefore, we believe that the implementation of a controlling system in Ukraine is paramount to its successful transition to a functioning democracy.

A controlling system requires that those responsible for tax forecasting and planning think not only about the present, but also about the future. Tax revenue forecasts and plans are not only components of financial planning, but they also show the future intentions of government fiscal policy. Unfortunately, the Ukrainian government quite often focuses on instant results, not taking into account the long-term effects. The results of those decisions often contradict not only fiscal but also public priorities. The following manual controls do not just violate fiscal balance, they also complicate the processes of tax forecasting and planning, primarily on the basis of time series. As a result, ideas for medium-and long-term planning are not implemented in Ukraine.

Unfortunately, it is impossible to present the concept of macro-financial controlling in only one article, so we are focusing on just one of its components, namely tax planning and forecasting. Tax planning and forecasting was chosen as the main object of controlling due to the fact that the capture of government revenue and expenditure is a key to the capture of other facilities in the country. This is why the aim of this article is to justify directions of tax forecasting improvement in the macro financial controlling system in Ukraine. To achieve this aim, elements of the tax forecasting and planning system based on controlling principles were developed, and tools and criteria for effective tax forecasting and planning were suggested.

### 1. Methods

This article is part of a larger research project related to macro financial controlling problems. This article represents the theoretical background, the main hypothesis, and the observations in the field of tax forecasting as part of a tax controlling system. Our goal in this study is to try to identify, or otherwise construct, basic elements of a tax forecasting system as part of tax controlling activity.

Historical and comparative analyses were used in the article for a systematic evaluation of evidence in order to establish facts and draw conclusions about past events. Comparative analysis was used to compare tax forecasting methods and elements of the tax forecasting system to discover the advantages and disadvantages of the current tax forecasting methods in Ukraine.

Hypothetico-deductive reasoning was used to identify and clarify the problem, develop a hypothesis, chart implications by deduction, and suggest a basis for a solution.

The statistical data used in this study is derived mainly from the State Statistic Service of Ukraine (GDP dynamics), the State Fiscal Service of Ukraine (tax revenues planned), and the State Treasury Service of Ukraine (tax revenues collected). All information is found in the public domain. An indicator "share of tax in GDP" was used to evaluate the results of tax forecasting in Ukraine.

## 2. Theoretical and Methodological Background

Western economists explore the problem of tax forecasting and planning more broadly than is done in Ukraine, focusing more on the systemic signs of this process. They argue that the purpose of forecasting is not only to produce an estimate of tax revenue elasticity relative to tax base, but also of the potential changes in macroeconomic indicators which can be caused by changes in the tax base (Leal, Perez, Tujula and Vidal, 2007; Klay, 1983). This approach creates a basis for effective tax forecasting and planning in the medium term, which allows the business environment to be more predictable.

Ukrainian economists focus on methodological aspects of tax forecasting (Bashutska, 2007; Zvarych, 2013; Pronoza, 2015). In their publications, the shortcomings of Ukrainian tax forecasting systems are analyzed. They make adjustments to the current methods of tax forecasting and planning. However, their proposals are oriented solely to the needs of the government and do not take into account the interests of the taxpayers. The proposals of Ukrainian economists are technical in nature and do not take into account the economic expectations of taxpayers or the ethical concerns of taxation.

Publications by Western scholars over the past five years show that they pay greater attention to tax forecasting and planning as being dependent on a country's level of economic development (Abramovsky, Johnson, and Phillips, 2013; Bastagli, Coady, and Gupta, 2012). Other popular research is devoted to the ethical problems of taxation (Cabrera et al., 2014; Crivelli and Gupta, 2014). Such studies are creating the basis for the development of a government tax revenue forecasting methodology which takes into account taxpayer interests. This gives the ability to maintain social balance in the long term. Emphasis on the ethical aspects of taxation gives the possibility to avoid failures when implementing foreign-based tax forecasting. Each nation takes its own ethical stands. Taxpayers, being citizens, should not have their ethical positions excluded in the process of government revenue forecasting.

The research which was presented in the article by John L. Mikesell and Justin M. Ross (Mikesell and Justin, 2014) is most pertinent to the Ukrainian situation since

the political component of government revenue forecasting often outweighs the economic validity. Ukrainian politicians are closely associated with oligarchs, so often government tax policy represents the interests of oligarch-owned businesses only, and not for society as a whole. This disrupts the social balance and creates conditions fostering tax evasion. Ethical problems in Ukraine are also related to government bureaucratic behavior. For example, government bureaucracy can manipulate the statistical data to create an inaccurate basis for tax forecasting.

## 3. Results of empirical research

## 3.1. Analysis of Tax Forecasting in Ukraine

One of the weaknesses of tax forecasting in Ukraine is that the methodology for forecasting tax revenues is not clearly outlined; specific methods for all taxes are not authorized. In practice, the Ministry of Finance of Ukraine uses several basic approaches (Table 1).

**Table 1**. Basic methods of forecasting tax revenues, which are used by the Ministry of Finance of Ukraine

Methods	Disadvantages	Possible directions to minimize negative effects
The method of direct account	Information is based on the consolidated report of corporate and macroeconomic indicators in the mid-term forecast of economic development, approved by the Cabinet of Ministers of Ukraine. This method is time consuming, because it requires information emanating from different sources. A large number of indicators increase the risk of prognosis failure. The main source of risk is the poor quality of the preliminary information for forecasting.	Creating a single information base available to all. Regular publication of the indicators used for forecasting and planning, updating infor- mation in time.
Experts method	Subjective and complex assessment .	Method should be used only in exceptional cases, such as new tax implementation.
Method of forecasting based on the tax share of GDP	Predicted tax revenues are calculated on the basis of retrospective information on the specific share of each tax in GDP, adjusted for the value of changes in GDP. In times of economic instability, the forecasting error is significant.	The method should be used only in a period of economic stability.

Methods	Disadvantages	Possible directions to minimize negative effects
Estimate of revenue from individual taxes using effective rate (the ratio of total tax revenue to the tax base)	The effective rate is changed when the number and the amount of tax breaks are changed, and when the share of the shadow economy is changed as well.	Improving the quality of the information base and timely introduction of modern information technology in forecasting.
Methods and models of correlation analysis, time series methods	The difficulty of determining optimal time series.	
Integrated methods, methods of intersec- tor balance, simula- tion models	Low quality of retrospective information, complexity.	

**Table 1**. Basic methods of forecasting tax revenues, which are used by the Ministry of Finance of Ukraine (*cont.*)

Source: authors' elaboration based on Ishchuk O. and Katsubka M. (2002), Tereshchenko L. (2000), Ostrovetskiy V. (2006), Davydenko S. (2002), Ministerstvo Finansiv Ukrainy Metodyka prohnosuvania nadhodzhen podatku na dodanu vartist. Ministerstvo Finansiv Ukrainy; MFU 31.08.2004 N 545/315/502/637

The results of the forecasting of the major taxes in Ukraine are presented in Fig. 1.

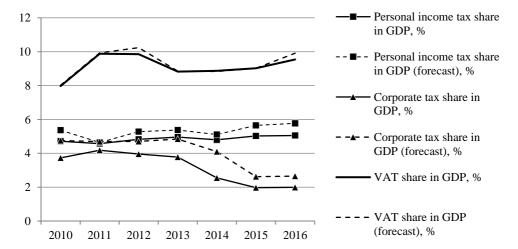


Figure 1. The share of main taxes in GDP of Ukraine in 2010–2016

Source: authors' elaboration according to data from the State Fiscal Service of Ukraine and State Treasury Service of Ukraine

It can be concluded from the graph presented in Fig. 1 that the most accurate is the VAT forecast. However, this accuracy is not achieved by quality methods, but by delaying the reimbursement of exporters. This is an example of information manipulation, government revenue capture, and crony capitalism. As a result, VAT refunds can only be received by businesses whose owners are close to those in power. After the revolution in 2013, a mechanism for fighting corruption in VAT refunds was declared, but the first steps towards disclosure of information about the VAT refunds was only made in 2017.

The inaccurate forecast of personal income tax is caused by ignoring business expectations regarding the macroeconomic situation, inflation, and the shadow economy. The least accurate is the corporate tax forecast. The main reason is the ignoring of business expectations. According to some expert surveys, businesses are concerned about the uncertain macroeconomic environment and low guarantee of property rights. Taking into account the fact that overpayment on corporate income tax is on average 25%, corporate tax forecasting accuracy is even lower than presented in Fig. 1. As already noted above, the overpayment of taxes is not voluntary. It arises as a result of fiscal authority pressure applied to taxpayers. For example, tax officers quite often illegally demand payment of corporate tax in advance. If a company refuses to do that, its digital signatures are blocked, meaning that the company cannot send any tax reports in a timely manner and cannot register VAT invoices. Fortunately, starting in 2017, tax officers do not have the power to block taxpayer digital signatures.

## 3.2. Elements of the Tax Forecasting and Planning System Based on Controlling Principles

When a government makes a decision in the field of taxation, it should consider how those decisions will affect the country's future. Will the economy function in its normal mode, create new jobs, and generate enough revenue? Will the existing infrastructure withstand the onslaught of unexpected challenges (e.g., natural disasters, military actions)? How will the fiscal decisions of today affect the quality of life of citizens in the future?

The purpose of tax revenue forecasting and planning should not be just a number which shows the amount of funds generated through taxation, but a road map in order to form forecasted indicators not through the coercion of taxpayers, but by providing conditions for real economic growth. Government orientation toward the taxpayer and the creation of stable conditions for doing business will contribute to tax base growth. This is possible to implement using the controlling approach.

The controlling approach requires that the interests of not only government bureaucracy be taken into account, but also the interests of taxpayers and potential investors in the economy of the country. So, in addition to forecasting and planning models, the controlling approach requires the inclusion of forecasting and planning additional items in the system (Table 2).

**Table 2**. Elements of the tax forecasting and planning system based on controlling principles

Component of the system	Description	Requirements
Forecasting and planning models	Extrapolating existing trends in future periods, creating economic-mathematical models of financial phenomena and processes and using these models to determine the budget indicators with expected values, as well as expert assessments.	The use of a high-quality information base. The availability of information about data prediction sources, approaches and methods of forecasting and forecasting results for all.
Procedures of interaction between government agencies and institutions involved in the forecast- ing and planning process	Rules and procedures should be legislatively approved and compulsory. The duties and competencies of the institutions which are involved in the process of forecasting should not be duplicated, their subordination must be clearly regulated.	An effective accounting system and standardized monitoring procedures for the exchange of information, which is the information base for planning and forecasting.
"Road map" for the future	Changes in key parameters of taxation must include a detailed "road map" – the impact of taxation on the fiscal health of the country.	Exceptions can be provided for, to ensure the flexibility of the system, but their number is negligible and the conditions formulated specifically.
Professional and reliable expert estimation	The accuracy of the tax revenue forecast and the consequences of its achievements have to be confirmed by a professional.	Objectivity and independence of a professional evaluation.
Measures for compliance with defined direction	Measures for rapid response to a changing economic environ- ment, development of rules for forecast adjustments.	The introduction of protective mechanisms and sanctions, which include a comprehensive system of combating violations of fiscal regulations.

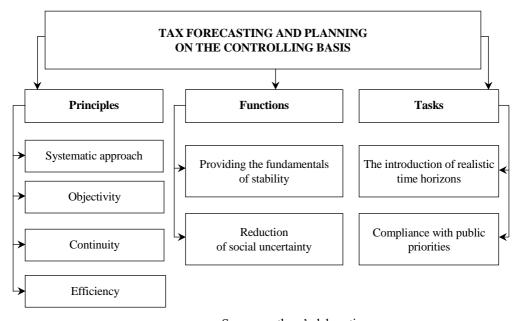
Source: authors' elaboration

As can be seen from the Western practice of fiscal regulation, one of the major mechanisms to ensure integrity in tax forecasting and planning in the system of public finance controlling is an adherence to a long-term horizon of forecasting and planning. A long-term approach involves not just technical adherence to a certain time period for calculating the forecast data, but also taking into account the long-term objectives of state development. According to modern accepted practices, tax and government expenditure

forecasts are projected out for four to five years. However, only adding the installation of a time horizon to forecasts is not enough. Forecasts, plans, and their adjustments must be regularly open to general public scrutiny.

Medium-term forecasting is an effective tool of public finance consolidation in many countries of the world. Most EU countries have implemented medium-term forecasting and planning at the legislative level. The mid-term plan is composed of a time horizon, regulated for three to five years, or a minimum of the current year plus the two following years.

Taking into account these advanced achievements in the field of tax forecasting and planning, controlling principles, functions, and tasks are systematized in (Figure 2).



**Figure 2**. The principles, functions and tasks of tax forecasting and planning in the medium term

Source: authors' elaboration

The use of a systematic approach to tax revenue forecasting means that it is not based on an amount of budget expenditures. Tax forecasting depends on the tax base and the dynamics of entrepreneurial activity. Compliance with the principle of objectivity involves the use of a high quality informational database, reliable methods of forecasting, and evaluating the reliability of forecasts by independent experts. The principle of continuity involves not just the annual construction of a forecast, but also the development of at least medium-term adjustable forecasts with constant predictive indicators to reflect a macroeconomic environment. The principle of efficiency not only provides high reliability in the forecasts, but it also provides for an optimum cost of

organizing forecasting and planning. In compliance with this principle, many EU member tax revenue forecasts are published, along with evaluations and the actual costs of collection of taxes. Compliance with these principles reduces the influence of political factors on fiscal policy, and improves the effectiveness of government expenditures and fiscal discipline.

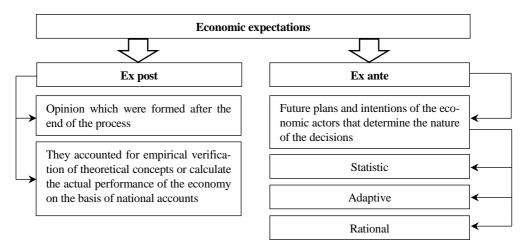
Medium-term forecasting and planning enables economic agents to make sound choices about the economic activity in a country. High quality forecasts, and their being made public, make the macroeconomic situation in a country more predictable. Firms and households understand how much tax the government expects from them and, consequently, the quantity of public services which can be funded from them. This not only improves the business climate in the country, but it increases the level of confidence in the government as a whole. These functions provide the fundamentals of stability and a reduction in the level of public uncertainty. This is an example of how controlling characteristics of tax forecasting and planning work, because these processes are able to provide information and allow analysis to support the decision making by economic agents.

## 3.3. Directions of Tax Forecasting Improvement in the Macro Financial Controlling System in Ukraine

One of the tasks of tax forecasting and planning is to provide realistic time horizons, the definition of which depends on the situation in each country. For emerging economies, such as the Ukrainian, using time horizons of five to seven years is impractical. Better, as evidenced by empirical experience, would be a horizon of three to five years. Forecasting for a period of five to seven years is possible only in conditions of sustainable economic development.

When information about medium-and long-term forecasting and planning is openly available in a society, a consequence is restraint on the opportunistic behavior of politicians and government bureaucracy. When a society has clear information about taxation, it reduces the risk of "manual control" taxes and government expenditures, because the government will be obliged to clearly substantiate the reasons for any changes in estimated indicators and bring this to the attention of citizens. This is a prerequisite for the performance of another task of forecasting taxes — compliance with public priorities.

As can be seen from Table 1, in practice, mainly mathematical methods and models are applied, most of which are based on the assumption of there being no change in the behavior of economic agents in the forecasting period, which actually ignores their expectations. However, forecasting tax revenue, while taking into account the expectations of economic agents, should be foundational to a new conceptual basis of tax forecasting and planning. This is due to the fact that the object of the tax control is not only the tax base and flow of tax payments, but also the behavior of taxpayers. Economic expectations are subjective estimates of economic agents that affect their behavior in the future (Figure 3).



**Figure 3**. Types of economic expectations

Source: authors' elaboration

According to Hüschelrath and Leheyda (2010) ex post expectations (evaluations) are a result of retrospective analysis after an action is taken. Analysis of financial practices shows the dominance of expectations ex post, which is essentially a retrospective evaluation of the behavior of taxpayers. However, only understanding expectations is not enough; retrospective analysis has altered the assessment expectations ex ante, which gives the opportunity to develop more realistic forecasts. In addition, it is necessary take into account the difference in the expectations of large and small taxpayers, because the reaction of large taxpayers will be more important to the collection of government revenue.

Statistical expectations are used mainly in Keynesian concepts and they are based on the assumption that future economic agents will act the same as in the present, focusing on the current parameters of market conditions. That is, making a decision on the future of economic entities operates the same as in the present time. This approach is quite naïve; however, it is used for developing tax revenue forecasts and plans in Ukraine.

Adaptive expectations are applied in monetarist concepts and assume that economic actors adjust their behavior with regard to past experience. These adjustments are based on erroneous estimates based on the past and then take into account obvious changes in economic conditions. As noted by economists, those economic agents who do not have enough information about changes in economic conditions, or who do not have enough knowledge to handle this information, follow adaptive expectations. They are mostly households and small businesses. Large taxpayers have greater access to information and a more highly qualified staff which is capable of analyzing this information.

The theory of rational expectations is used mainly in neoclassical concepts and is based on the assumption that economic actors shape their plans and build their behavior based on the information available at the time of the prediction. Rational expectations are based not only on past errors, but also on projections about the future. However, the theory of rational expectations has its own weak spots. First of all, it comes from the

assumption that all markets are competitive. Secondly, all economic agents have full information and transaction costs on contractual agreements are very low. Thirdly, prices on a large number of goods cannot be considered completely flexible. Fourthly, markets have belated reactions. This is why there is a need to take into account the time lag between adopted decisions and expected results.

Tax forecasting and planning in the system of tax controlling at the macro level is one of the factors used for creating a stable macroeconomic environment, ensuring optimum tax burdens, and increasing the level of performance by governments. To achieve the purposes of forecasting and planning taxes on a controlling basis, the following tools and criteria are applied in developed countries (Table 3).

**Table 3**. Tools and criteria for effective tax forecasting and planning

Tools	Criteria	
Medium – and long- term forecasting and planning of taxes and	Forecast revenues must be detailed by sources (taxes, areas, groups of taxpayers).	
spending	Forecast expenditures must be itemized by function and by level	
Fiscal notes	The government should regularly publish estimates of taxation Proposals for changes in taxation should also be accompanied by cost estimates for implementing them.	
Marginal amount of public service	The government should declare a minimum amount of social benefits based on the projected amount of taxes:  - The volume of public goods must match the amount of taxes.  - Assumptions about inflation and the national currency should be grounded in a comprehensive way and remain reliable.  - All programs of public services should be transparently detailed.	
Independence of tax forecasting	Forecasting should be a function for responsible team officials representing the legislative and executive branches of power The team responsible for forecasting should include external independent experts.  The conclusions of the group of experts responsible for forecasting should be made public.  The information base is maintained independently of a government organization (this practice is used in Belgium, the Netherlands, and Austria).  Forecasts should be published and openly available for public scrutiny.	
Independent analysis, monitoring and report- ing on the implementa- tion of tax forecasts	Performance of the forecast should obtain independent professional assessment.  Information on the actual cost of tax collection should be openly available for public scrutiny on an annual basis.	

Source: authors' elaboration based on Artis and Marcellino (2001), McNichol, Palacios and Johnson (2014), Campbell, Ghysels (1995)

Most of the described tools are not used in Ukraine for various reasons. For example, detailed forecasts by groups of taxpayers are complicated because the list of large taxpayers to be singled out for "special treatment" is approved annually. The process of forecasting is not public because government bureaucracy actively uses hidden manipulative measures while at the planning stage. What is critical, from our point of view, is to apply the criterion of independence, which will significantly improve the reliability of tax revenue forecasts and plans.

## **Conclusions**

One of the main obstacles to the controlling approach for fiscal forecasting and planning implementation is the poor quality of information and lack of transparency. The miscommunication of information is beneficial to oligarch-owned businesses and government officials who selectively disclose information to the public (or submit false information) through oligarch-controlled media. In the area of tax planning and forecasting, this problem contributes to an uncertainty of information, an increase in corruption, and it reduces the competitiveness of businesses. The main measure to solve problems outlined in the article is the implementation of controlling approaches to tax planning and forecasting on the macro level, which should be based on the following elements:

- 1. Development of unified methods of tax forecasting which take into account economic agent expectations.
- 2. A mandatory roadmap for the development of forecast compliance and plan enforcement.
- 3. The introduction of medium-term fiscal forecasting.
- 4. An independent examination of the information base for forecasting and quality of forecasts.
- 5. The development of methods for forecast adjustments in case of unforeseen circumstances (natural disasters, technological disasters, military actions).

In general, the controlling approach to forecasting tax not only answers the question of how much tax can be raised in general, but also how tax revenues are distributed between regions and government levels. It is possible at the forecasting stage to estimate the optimal distribution of the tax burden between taxpayers and, if necessary, to develop solutions for its optimization. It is also possible to calculate the costs of taxation. These ideas are worthy of further study and will be presented in our future articles.

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