FORECAST THE RESONABLE SCALE OF STATE BUDGET COLLECTION IN VIETNAM IN THE PERIOD OF 2021-2025, ORIENTATION TO 2030

Hoa Thi Nguyen, University of Finance – Marketing

ABSTRACT

Forecasting the reasonable scale of state budget collection is one of the important tasks in the administration of macroeconomic policy in general and budgetary financial policy in particular. In budget management, a reasonable scale of state budget collection is the basis for directing and administering budget management and at the same time a basis for researching and promulgating policies and directions for socio-economic development, especially in the context of the COVID-19 epidemic, which began to occur at the end of 2019 in China and the beginning of 2020 in Vietnam, caused difficulties and challenges for the world economy and society as well as in Vietnam. The current focus of Vietnam is to effectively implement the "dual goal" of preventing and fighting epidemics, protecting people's health, and recovering and developing social economics in a new normal state; completing the socioeconomic development and state budget estimation plans. The article uses the ARIMA method to forecast the ratio of state budget collection to GDP in Vietnam for the period of 2021-2025 and orientation to 2030, thereby giving some implications in forecasting Vietnamese state budget collection.

Keywords: ARIMA, Forecast, State Budget Revenue, Vietnam

INTRODUCTION

The forecast of state budget revenue is one of the important stages in planning and operating fiscal policies in the medium and long term in every country. First of all, forecast budget revenue is the basis for making and developing budget estimates. Base on forecasting revenue sources and budget revenues, the Government can estimate budget expenditures. In other words, the forecasting work must be done before determining the tasks for each field.

In particular, in some countries that apply the medium-term fiscal framework, the forecast of budget revenue is significantly important. The forecast of budget revenue in the medium term will be the base for the development of budget allocation options in the medium term in order of priority, appropriate with the socio-economic development strategy in each period. And that will help to restrict spreading, wasteful investment, or lack of funds when the investment project is incomplete. Besides, in the budget administration, the budget revenue forecast is the basis for directing and operating the budget management and at the same time as the basis for the research, issuance of policies, and orientations on distribution socio-economic development.

The article goes into a forecast of the State budget revenue rate on GDP in Vietnam during 2021-2025 and orientation for 2030. In addition to the introduction, Part 2 is a review of previous studies, Part 3 is the goal and orientation of Vietnam's budget revenue in the period of 2021 - 2030, and Part 4 is the result of the model predicting the size of state budget revenue, Part 5 is the conclusion and policy implications.

LITERATURE REVIEW

IMF (2019) on "Revenue Forecasting in Developing Countries: Biases and Potential Remedies" indicates that the forecast of revenue is an important component of budget

preparation and reasonable public financial management. Over the past decade, the national and local debt burden is related to many countries with significant deviations in the forecast of fiscal deficits. An important contributing factor is the overdue of revenue sources in a systematic way, causing governments to propose higher spending in the budget and then approved it by the legislature. Due to the implementation of revenue not reached compared to the forecast, restraining spending proved difficult in many countries. The deviation of this revenue prediction may be the result of the lack of accuracy in the macroeconomic forecast models, the weak institutional capacity of the central budget management agency, and what most important is a manifestation of political incentives. In low and medium-income countries, these factors may have more sense and hinder the development of an effective PFM system.

Williams, et al., (2019) on "The Palgrave Handbook of Government Budget Forecasting" summarizes the situation forecasting in 26 countries with low and medium-income countries, using the average of three years in 2012-17, Focus on checking the presence and scale of predictive deviations and potential remedies. Research shows that 85% of countries (22 out of 26) tend to estimate too high revenue. On average, 8 countries have overrated their revenue by over 10% a year. Absolute forecast errors (only measuring magnitude, not measuring the direction of errors) are also significantly high - with an average absolute error of 8.6%. More than 40% of national reports have a difference of more than 5% between the forecast and actual revenue. This study also shows the ability to predict correctly revenue sources that can depend on a number of technical, institutional, and context factors. Another factor such as better cooperation between the Ministry of Finance and the tax authorities can contribute to better forecast performance. The establishment of predictive agencies and fiscal assemblies, in some countries with a clear role in confirming the government's macro-financial forecasts, can also help minimize the forecast revenue and budget deficit. The lack of research on the forecast of collection of the state budget and determining how in the future is a problem in low and medium-income countries. One of the challenges in implementing such research is the lack of data to compare the estimation of the old revenue and the later revenue in many countries.

World Bank (2018) on "Forecasting Tax Revenues: An Overview" Introduction methods forecasting the budget collection include (i) GDP-based methods; (ii) Monthly revenue forecast model; (iii) Micro Simulation Model (Micro Simulation Model based on GDP forecasts VAT revenue, which relies on national accounts; based on I-O boards; micro-simulation model forecast income tax revenue); (iv) Forecast of export and import taxes; (v) Method of forecasting total tax revenue; (vi) forecast Total tax revenue according to the function (dependent variable) of the tax base (independent variable); (vii) Estimated tax-collecting elasticity according to tax institutions using regression analysis and then use it to forecast budget collection in the future. Models forecast that the budget revenue is to have a simple and complex level and are capable of high applicability.

Two important indicators used to predict the budget revenue number are: (i) the floating level of tax and (ii) the elasticity of the tax. An elastic system means that the government can meet the demand of spending over time when GDP or consumption increases. If a "floating" system but "does not elastic", it means that we need to adjust the tax system (tax base, tax rate) to continue with enough revenue. These characteristics of a tax system are also useful in future tax collection forecasts. If they know elasticity, it multiplies its expected GDP growth or another tax base will bring the forecast of the state budget revenue.

Sarah LeeAnn Smith (2017) About "Revenue Forecasting: Indian's Method and the Results IT Produces" Only that the method forecasting the budget collection and complexity of the forecast models associated with the specific process of state agencies. More complex models are not necessarily used to contribute to reducing errors in forecasts. However, it is expected that the collection will become difficult when the period of economic recession or the skyrocketed economic growth occurs. Therefore, being based on the trend of previous years does not fully show what will happen. At that time, stabilizing the economy helps forecast more accurately.

Valerija & Maruska (2012) about "Forecasting Fiscal Revenues in a Transition Country: The Case of Croatia" affirmed that fiscal forecast is important because most countries have undergone uncertainty stages. The economic structure of the economy changes rapidly causing the forecasting of the scale of budget revenues to become more urgent. This study compared time-series forecasts on revenue source with forecasts obtained by using expert judgment and found that the combination of modeling according to the model and according to the expert will bring the projection Report more reliable. Testing forecasting forecasts with many models such as trend models, random models, Arima models, regresses and models of error correction for each tax revenue such as revenue from PIT, collection from CIT, Thu VAT, collecting property taxes, and import duties. The results show that the restrictions relating to the quality and availability of data are not converted by policymakers in countries that apply complex forecasts. However, they also did not apply simple time series methods, a random trend, or a random model despite the superior forecast of these models.

The European Central Bank ECB (2007) on "Fiscal Forecasting: Lessons from the Literature and Challenges" has shown: Reliable revenue forecasts help develop a reasonable spending plan. The forecast of certain tax revenues, especially the CIT sets out many questions about the level of the tax base (surplus of the economy and nominal GDP) is captured in models. A problem receiving a lot of recent attention is unstable budget elasticity. Standard models often estimate or impose tax-revenue elasticity (grasping the relationship between tax revenue sources and tax facilities), such as income, when before tax rates are usually set to the average value for all years. Assuming that tax elasticity is subject to large fluctuations in the short term, mainly due to changes in the general demand component (for example, changing demand from a net export to private consumption or consumer goods taxes from low to high) and shifted income distributions between household subject to different marginal tax rates, the standard assumptions on exogenous and fixed elasticity can be the source of the Error in the forecast of collection in short term.

Rudzkis, et al., (2007) on "Econometrical Modeling of Profit Tax Revenue" presented forecasts to collect budget from New Zealand's CIT has used econometric models. CIT regression analysis is carried out in 02 stages: (1) Early-stage: Modeling CIT revenue with the main profitability indicators (called income tax base); (2) Stage two: The algorithm forecast the income tax base is formed when the macroeconomic indicators are used. The results showed that the CIT revenue increased by 8%/quarter and 7.2%/year (in the period 2003-2005), the error was 6.4%, so the accuracy of this model is not high due to Less observation but in the future, the accuracy of the model will be improved if there is more data observation and modify the coefficients of the equation accordingly.

IMF (2005) About "Revenue Forecasting - How Is It Done? Results from a Survey of Low-Income Countries "has summarized the analysis of the budget collection in low-income countries and provides a comprehensive view of the process of forecasting the budget collection. Based on the data set over 34 low-income countries, the study lists the forecast practices until submitting the report, focusing primarily on institutional and processes. The study also summed up 03 main characteristics of the revenue forecast: forecasting revenue practice, forecasting, and transparency levels. Understanding the practice of collection is necessary to evaluate the budget plan and management process. It is forecasted that the budget revenue creates a basis for the medium-term plan more effectively. The collection is forecasted to know both the ability to expand revenue and limitations in budget revenue, facilitating the allocation of spending according to different use purposes.

Most countries have low scores in the process of forecasting due to the forecasting responsibility often not clearly defined and have a few rules and regulations officially adjusted forecasts. Forecasting revenue sources usually late in the budget process and rough estimates. The making of forecasts involves many executives outside the Ministry of Finance, so it is necessary to have high coordination between relevant agencies and units. The existence of many revenues from many agencies is quite common. Public responsibility, in terms of access to data

forecast or through the participation of non-governmental agencies during the prediction process is often limited.

Forecasting revenues in low-income countries will have a much different range. Half of the countries are involved, mainly forecast revenues for the central government. Some countries make a forecast for Social Security and the Annual budget. In some countries where there are medium-term forecasts, the most common is forecast for 3 years. Higher-income countries often forecast more on medium-term revenue. Data and restrictions on human capital in a large number of countries lead to the forecasting revenue sources are still simple and qualitative. About 85% of countries are assessed using simple extrapolation techniques as the main method to forecast budget revenue. Because economic techniques require a lot of reliable and relatively detailed data, they are only applied in some countries (12.9%). In addition, the forecast of revenue is mainly implemented on a general basis (75-80% of countries). Most countries with higher incomes use separation data, as well as synthetic data in the forecast to develop tax base facilities. This study also shows the use of a qualitative approach possible when economic conditions are unstable or policies that are constantly changing to prevent the estimate of stable relationships between economic variables. In this case, through briefing meetings of experts, experienced staff can provide reliable and more accurate forecasts.

George Chun-Yan Kuo (2000), 'Estimation of Tax Revenue and Tax Capacity', specifying 3 models used primarily to forecast tax revenue in China are macroeconomic models, Microsimulation models, and monthly revenue level models. Currently, China does not have a full data system related to economic variables. These data are inherently important to estimate the elasticity of tax to accurately identify tax revenue. Therefore, the method of using macroeconomic models also has certain limitations when applied in China. Meanwhile, the method of using the micro-simulation model is best applied in forecasting revenue from Value-Added Tax (VAT). Revenues from VAT are still the largest proportion of China's total budget revenue. The data system used for this model is collected since 1994 when China issues VAT systems. In addition, this model is also used in conjunction with macroeconomic variables as forecast GDP growth and forecast average industry growth to consider the impact of replacement policies on total VAT revenue.

Nguyen Ngoc Tuyen (2004), "Forecast of state budget revenue from GDP by econometric", referring to the method of analyzing rapidly forecasting the state budget revenue from GDP targets by econometric and forecasting Budget revenue in 2004 and 2005.

Do Van Thanh, Do Nguyen Son Tung, Nguyen Van Thuat (2014), "Revenue-budget expenditure in the period 2005-2013 and forecast 2014 budget revenue", did forecasting economic growth according to 3 scripts of economic: low growth, average growth, high growth. Thereby forecasting the rate of increasing the state budget revenue corresponding to the GDP growth rate.

In general, studies focus on the overview, forecast, and conduct methods in some countries around the world. In Vietnam, there are few studies on forecasting budget revenue. There is no research to forecast the ratio of state budget revenue to GDP for the period of 5 years or 10 years. Especially, in the post-Covid-19 stage, the forecast of the budget revenue becomes more necessary.

OBJECTIVES AND ORIENTATIONS FOR THE SCALE AND STRUCTURE OF STATE BUDGET COLLECTION IN VIETNAM IN THE PERIOD OF 2021-2025, ORIENTATION TO 2030

Sustainable state budget collection combined with strategic state budget expenditure is two key contents of sustainable fiscal policy. State budget collection/expenditures that are actively operated and controlled will ensure that the State has resources to achieve strategic economic goals (fast and sustainable growth, fulfilment of financial obligations according to regulations). commitment), strategic social goals (Social security, Gender equality, Narrowing

the gap between rich and poor, ...) and strategic environmental goals (limiting exploitation and use of non-renewable resources, ensuring a safe environment, not abusing natural resources as a development factor).

Based on the above development perspectives, in the upcoming time, the objectives and orientation of the scale and structure of state budget collection should focus on the following:

Targets for the Scale and Structure of State Budget Collection

In the upcoming time, Vietnam needs to build a stable scale and structure of state budget collection, ensure a reasonable level of encouragement to create sustainable state financial resources, suitable to socio-economic conditions. Serving the cause of industrialization and modernization of the country, contributing to promoting the socio-economic development and realizing the goals of social justice.

Orientation towards the Scale and Structure of State Budget Collection

Firstly, the study determines a reasonable level of state budget collection, in order to create conditions to promote domestic production and be one of the effective macroeconomic management tools of the Party and State.

Secondly, the unified, effective management of taxes, fees and charges contributes to creating A favourable business and investment environment based on four basic foundations (transparent tax law, simple, easy to understand and practical); simple and scientific tax administrative procedures in line with international practices; application of modern, interconnected, integrated and highly automated information technology on the basis of maximizing the achievements of the fourth industrial revolution.

Thirdly, developed and implement a policy on reasonably mobilizing from taxes, fees and charges, in order to promote production development and increase the competitiveness of the economy; promoting Vietnamese enterprises to participate in the global value chain in high value-creating segments.

Fourth, the system of tax, fee and fee policies shall be amended and supplemented in accordance with the development orientation of the market economy under the management of the State; well meet the requirements of proactive integration and international economic integration; encourage the attraction of both domestic and foreign investment.

Fifth, the structure of state budget collection needs to shift from collecting sources from exporting raw materials to collect from new fields and activities such as e-commerce and new economic platforms. Take measures to control and reduce tax loss from FDI enterprises, e-commerce activities, and cross-border trade.

Tasks on the Scale and Structure of State Budget Collection

Strengthening propaganda and extensive education to create a unified awareness and action on the observance of tax obligations, the law on the state budget, public debt management, thrift practice, prevention and fight against corruption and waste charges in order to create a drastic change in the whole political system, uphold the responsibility of the leader and strictly handle violations.

Develop a synchronous and transparent collection system in line with international practices; sustainable collection structure; ensure adequate, proactive and reasonable mobilization of collecting sources for the state budget, and at the same time promote sustainable economic development in the context of extensive international integration.

Complete the collection policy in association with the restructuring of state budget collection in the direction of covering all collecting sources, expanding the collecting base, especially new sources of collection, in line with international practices; increase the proportion

of domestic collection, ensure a reasonable ratio between indirect taxes and direct taxes, make good use of taxes collected from property, natural resources, and protect the environment; minimize the integration of social policies in taxes and policies on tax exemption, reduction and relaxation, ensuring tax neutrality, contributing to create a favourable and fair investment and business environment, encourage investment, regulate reasonable income. Strengthen the management, exploitation and mobilization of resources and improve the efficiency of the use of public assets.

Accelerate restructuring and improve the efficiency of public investment. Concentrating state budget capital to invest in key projects with great pervasiveness and solving national, regional and inter-regional development problems, creating favourable conditions to attract private investment and foreign direct investment.

MODEL RESULTS ON FORECASTING REASONABLE SCALE OF STATE BUDGET COLLECTION IN THE PERIOD OF 2021-2025, ORIENTATION TO 2030

The article uses the ARIMA model to forecast state budget collection in the period of 2021-2030.

In order to determine a reasonable ratio of Vietnam's state budget collection to GDP in the period of 2021-2025 with a vision to 2030, the article is based on the data of the Ministry of Finance's state budget collection for the period 1991-2020 and makes a combined forecast with factors affecting economic growth: In the context of stable economic development, the situation due to the impact of COVID-19 will be controlled in 2023; at this time, enterprises return to normal business activities, leading to more stable collecting sources; Macro investment factors do not have much fluctuation. The forecast results of state budget collection for the period 2021 to 2030 are shown in the table below:

Table 1
FORECAST RESULTS OF RATIO OF VIETNAM'S STATE BUDGET COLLECTION TO GDP FROM 2021 TO 2030

Year	Ratio of Vietnam's state budget collection to GDP
	(%)
2021	18,40
2022	17,78
2023	17,47
2024	17,59
2025	18,18
2026	18,70
2027	19,09
2028	19,21
2029	19,01
2030	18,55

According to the forecast results, it can be seen that from 2021 to 2030 the scale of state budget collection is lower than the previous period, there is not much change between years, the ratio of state budget collection does not have a breakthrough, fluctuates around 17 5% - 19.2%. This is because: (i) Impact of the Covid-19 pandemic: Long-lasting effects from the Covid-19 pandemic, although it is expected that in the next 2-3 years, the epidemic will be under control, but its effects will be long-lasting. Over the next decade, Vietnam's economy needs time to nurture collection streams. In fact, to overcome difficulties caused by the Covid-19 epidemic, the State has operated fiscal policies to respond to the pandemic to support the economy, remove difficulties for businesses, business households and people. ensure social security through the

exemption, reduction and relaxation of a number of taxes and some state budget collections such as extension of land rent, registration fee...; when the epidemic is under control, businesses, organizations and individuals also need time to recover and develop again, accordingly, the scale of budget collection will be narrowed; (ii) Currently, two important taxes, CIT and VAT, are approaching the maximum collection threshold, so in the upcoming time, the collection scale of these two taxes will be stagnant, not tending to increase; (iii) Vietnam's population starts at the threshold of an aging population with less consumption. At the same time, the shortage of young workers with good skills to meet the 4.0 technology era, reduces the rate of economic growth and technical improvement; (iv) Major global problems that Vietnam in particular and the world in general are facing, including: population explosion, climate change, environmental pollution, … will also be major challenges for state budget collection in Vietnam in the future.

CONCLUSION

This is the forecast result of state budget collection in the coming period, in order to achieve better collection results, the State needs to adjust fiscal policies accordingly, improve the management apparatus and have solutions to overcome problems, difficulties, shortcomings and limitations in state budget collection. However, the State's fiscal policies also need to follow the law of development, have increase and decrease, avoid balance owed to ensure sustainable finance and economic growth.

The direction, tasks, and solutions for socio-economic development in the 2021-2030 period are to build and perfect the national finance; restructuring, strengthening supervision, and regulation of financial markets. Restructure the state budget towards ensuring a safe and sustainable national finance, contributing to stably stabilizing the macro-economy, the state budget deficit by 2030 is about 3% of GDP; at the same time, it must be included in the overall economic restructuring, associated with the renewal of the growth model, effectively mobilizing, allocating and using financial resources to promote socio-economic development. Continue to restructure state budget revenues and expenditures, increase domestic revenue, increase accumulation from the state budget for development investment spending; increase resilience, ensure safety and national financial security.

To well implement the above-mentioned directions and tasks, the current content of Vietnam's budget revenue forecast should pay attention to the following issues:

The tax policy system is complex, the tax incentives are spread out, but detailed statistics on the cost of implementing these preferential policies are lacking. This has made it more difficult to define and build a forecasting model for Vietnam's budget revenue. In addition, the integration of social goals into tax policies is still found in various tax laws. This fact has created more difficulties and complications for tax collection management. At the same time, it also makes forecasting budget revenue more difficult. Another distinctive feature that makes it difficult to build forecasting models for budget revenue in Vietnam is that the tax policy system is often adjusted. Accordingly, when analysing data sources on budget revenues from specific taxes, it is difficult to separate which part of revenue increase (decrease) is due to the impact of policy changes and which part is caused by macroeconomic fluctuations.

Within Vietnam's revenue structure, there are many revenues that in themselves contain characteristics that make forecasting difficult, such as revenues from land and aid. The scale of budget mobilization from land revenues depends a lot on subjective factors as well as the policies of localities in exploiting and using the land fund in the area, and the revenue movement may not follow the usual rules. The reality of the past years shows that these are the amounts that tend to increase sharply when the housing market develops rapidly. Accordingly, forecasting revenue for these revenues is very difficult in both theory and practice (how much revenue is mainly based on the policy of the local government). Aid revenues also share some similar characteristics. The revenue from aid, in general, depends heavily on the policies as well as the priorities of countries and international organizations.

REFERENCES

Box, G.E.P., & Jenkins, G.M. (1976). *Time series analysis: Forecasting and control*. Holden Day, San Francisco.

Cangiano, M., & Rahul, P. (2019). Revenue forecasting in low-income and developing countries: Biases and potential remedies. New York: Palgrave Macmillan: The Palgrave Handbook of Government Budget Forecasting.

ECB (2007). Fiscal forecasting: Lessons from the literature and challenges.

IMF (2019). Revenue forecasting in developing countries: Biases and potential remedies.

IMF (2005). Revenue forecasting – how is it done? Results from a survey of low-income countries.

Kuo, C.Y. (2000). Estimation of tax revenue and tax capacity (No. 2000-08). *JDI Executive Programs.*

Rudzkis, R. (2007). Econometrical modelling of profit tax revenue.

Sarah, L., & Ann, S. (2017). Revenue forecasting: Indiana's method and the results it produces. Retrieved from http://indianafiscal.org/resources/IFPI%20Forecasting%20Brief.pdf.

Valerija, B., & Maruška, V. (2012). Forecasting fiscal revenues in a transition country: The case of Croatia. *Zagreb International Review of Economics and Business, 15*(1), 23-36.

World Bank (2018). Forecasting tax revenues: An overview.

Van, T., Nguyen, S.T., & Nguyen, V.T. (2014). Budget revenue and expenditure for the period 2005-2013 and the forecast of 2014 budget revenue. *Journal of Socio-Economic Information and Forecast, 1*, 18-24.

Nguyen, N.T. (2004). Forecast of state budget revenue from GDP by econometrics. *Journal of Financial - Accounting Research, 2004*(12), 53-56.