REPUBLIC of AZERBAIJAN

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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

THE IMPACT OF FISCAL POLICY ON ECONOMIC GROWTH IN AZERBAIJAN

Speciality: 5301.01 – Internal fiscal policy and state finance

Field of science: Economic sciences

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Baku – 2025

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GENERAL CHARACTERISTICS OF THE WORK

Relevance and degree of elaboration of the topic. One of the main priorities of the economic policy conducted in our country has been reducing dependence on oil revenues and developing the non-oil sector since independence. As a result of this policy, the poverty level in the country has decreased from 50% to 5%, the welfare and living standards of the population have increased significantly, large-scale financial reserves have been created to ensure the sustainability of economic development, important successes have been achieved in the direction of the development of economic institutions, the revenue and expenses of the state budget have been increased multiple times, a favorable environment for the development of the private sector has been formed, and state support has been provided in multiple areas for the creation and development of national entrepreneurship.

Azerbaijan has been one of the countries experiencing a period of rapid economic growth since the beginning of the 2000s due to the increasing oil revenues. However, the instability of macroeconomic success related to the increase in the export of natural resources showed itself more prominently in 2014-2015 with the fall in the price of oil in the world markets and the beginning of the economic crisis in the economy of Azerbaijan. In 2015, macroeconomic processes such as the devaluation of our national currency in several stages, the beginning of crises in the country's banking system, the increase in inflation and the decrease in economic growth show how sensitive natural resource-based economies are to fluctuations in world markets.

In Azerbaijan, a substantial portion of government revenue and GDP is sourced from the oil sector. However, with anticipated decline in oil production in the near future, it has become increasingly crucial to stimulate the non-oil economy. Considering that declining oil production will also drag the government revenues, it will also limit funds available for the stimulation of the non-oil economy. At the same time, the decline of oil revenues may lead to a reduction in the aggregate demand for other sectors of the economy,

resulting in the decrease in the economic potential gained as a result of the economic policies and the efforts of entrepreneurs in those sectors.

These issues related to the economic and financial security of our country show that strategic issues such as diversification of the national economy, increasing the share of tradable sectors in economic growth and exports, and strengthening the stability of non-tradable sectors are still relevant.

Fiscal policy, as one of the regulatory instruments of the state, has an important role in solving the mentioned issues. Fiscal policy, which complies with principles such as efficiency, transparency, result orientation, and other regulatory principles, can play an exceptional role in solving the economic challenges of the modern era. In this context, the study of the relationship between fiscal policy instruments and economic growth in Azerbaijan is of particular importance.

Fiscal policy has long been used to regulate economic cycles and support economic growth. The theoretical and methodological foundations of this policy are considered to be one of the most enduring topics in the focus of economic scientists. Mercantilists focus on the use of taxes and customs duties of the fiscal policy in the regulation of import and export, representatives of the physiocrats and classical schools focus on the functions of taxes and its impact on the economic behavior of people, neoclassicists focus on the impact of fiscal policy on the macroeconomic balance in goods markets and the limitations of this intervention, representatives of the institutional school focus on the state regulation of the economy, they paid more attention to the study of the factors affecting the effectiveness and efficiency of the policy. Keynes and his followers emphasized the government response to economic conditions through fiscal policy, the stimulation of aggregate demand through budget spending in times of crisis.

In a number of modern studies conducted with the wide application of econometric methods, theoretical and empirical results have been obtained about the nature of the relationship between fiscal policy and its individual components and economic growth.

Robert Barro linked the impact of public spending on economic growth with its weight in the economy and found that after a certain point, the increase in budget spending has a negative impact on economic development.

In addition, the scientific results obtained by economists such as Milton Friedman, James Buchanan, Paul Krugman, Joseph Stiglitz, Olivier Blanchard, Christina Romer, Dani Rodrik, Ricardo Hausman and others had a special role in enriching theoretical knowledge about the impact of fiscal policy on economic processes.

The unique economic structure, institutional evolution, natural-geographical and socio-cultural features of the Azerbaijani economy, whose budget revenues depend on oil production and prices, make Azerbaijan unique for studying the relationship between fiscal policy and economic growth. Topics such as fiscal policy planning, management of the budget deficit and government debt, budget treasury, preparation of budget projects are extensively studied in the works of Azerbaijani economists such as Avaz Alakbarov, Yashar Kalbiyev, Saleh Mammadov, Zahid Mammadov, Nizami Khudiyev, Elnur Sadigov, Miralam Hasanli, Azer Babayev, and others.

The relationship between individual components of fiscal policy and macroeconomic indicators in Azerbaijan was studied in the research of Yashar Kalbiyev, Fakhri Hasanov, Ilgar Seyfullayev, Khatai Aliyev, Jeyhun Abbasov, and others. However, in the last 20 years, there have been no studies devoted to the systematic analysis of the fiscal policy carried out in our country in terms of its effect on economic growth. On the other hand, factors such as increasing turbulence in the world economy, globalization and digitization are creating new challenges for the fiscal policy. In this regard, the study of the impact of fiscal policy on economic growth in Azerbaijan is of both theoretical and practical importance.

The object and subject of the research. The impact of budget revenues and expenditures on economic growth in Azerbaijan was taken as the object of the study, and the economic relations arising as a result of the state's fiscal policy and the theoretical and methodological foundations of their study were taken as the subject of the study.

The purpose of the research. The study aims to investigate the impact of fiscal policy on economic growth and, based on this, to identify directions for improving the fiscal regulation mechanisms applied in Azerbaijan. The tasks set to achieve the goal of the research are as follows:

- theoretical and methodological generalization of the relationship between fiscal policy and economic growth;
- review of the literature on linear and non-linear relationship between budget expenditures and economic growth;
- identification of factors that may impact the relationship between fiscal policy and economic growth;
- the analysis of dynamics and composition of budget revenues and expenditures in Azerbaijan;
- the empirical analysis of the relationship between economic growth, budget revenues, and expenditures;
- the analysis of fiscal policy characteristics in other oil-exporter countries;
- the comparative analysis of the fiscal rules in Azerbaijan and identification of potential improvement directions;
- the improvement of fiscal policy in the contexts of environmental protection and sustainable economic growth.

Research methods. The theoretical framework on the subject, along with the results of research conducted by local and international economists, has facilitated the development of the research strategy and the selection of applied methods. Quantitative methods, comparative analysis, and logical generalization techniques have been extensively employed for analysis and generalization. The ARDL Bounds Testing (Autoregressive Distributed Lag Bounds Testing) method has been applied to investigate linear and non-linear relationships between fiscal policy variables and economic growth, with the quality of the econometric models being assessed through appropriate tests. Additionally, correlation analysis was conducted to determine the strength and direction of the relationship between various categories of government spending and economic growth. A comparative analysis method, based on statistical indicators such as standard deviations, was used to identify differences in fiscal policies

among oil-rich countries. For the quantitative methods' information provision, data from international financial institutions, the State Statistical Committee of the Republic of Azerbaijan, the Central Bank, and the annual budget execution laws of the Republic of Azerbaijan were utilized.

Main provisions put forward for defense:

1. In the economic literature, while the positive impact of fiscal policy on economic growth is noted, there are also observations of negative outcomes. In some cases, there is substantial empirical evidence indicating that the relationship between fiscal policy and economic growth is not significant.

2. The weight of the budget expenditures in GDP, public debt, and the governance quality have a significant impact on the efficiency of fiscal policy to stimulate economic growth.

3. Despite the regular implementation of tax reforms supporting entrepreneurship in Azerbaijan, the non-oil sector has not yet achieved sustainable dominance in the structure of the national economy. The expected negative impact of budget tax revenues on economic growth is not statistically significant.

4. In Azerbaijan, there is a positive correlation between the economic activity expenditures of the budget and economic growth.

5. There is a negative relationship between budget expenditures and economic growth in Azerbaijan in the short term, and such a relationship can be explained to a certain extent by the "reverse causality" relationship.

6. In the long-term perspective, there is a positive relationship between budget expenditures and economic growth in Azerbaijan.

7. During the period covered in the research, it was found that the relationship between budget expenditures and economic growth in Azerbaijan did not exhibit a nonlinear nature.

8. Fiscal policy volatility is higher in natural resource exporting countries, including Azerbaijan, compared to other countries. Fiscal rules can be an effective tool to stabilize fiscal policy in natural resource-exporting countries.

9. Low indebtedness in Azerbaijan allows the state to employ a combination of the "non-resource primary balance rule" and the "golden rule," thereby providing greater budgetary room for economic activity expenses. In planning these expenses, it is recommended to prioritize productivity criteria and projects that enhance the investment attractiveness of the non-oil sector.
10. Well-founded recommendations have been proposed for enhancing the impact of fiscal policy on green economic growth in Azerbaijan.

Scientific novelty of the dissertation includes:

1. Unlike many other countries, there is no statistically significant evidence for the BARS curve (non-linear) relationship between budget expenditures to GDP ratio and economic growth in Azerbaijan.
2. The reverse causality effect creates a negative relationship between budget expenditures and economic growth in Azerbaijan in the short term, and the existence of this fact indicates that fiscal policy in Azerbaijan is countercyclical.
3. Budget expenditures in Azerbaijan has a positive impact on economic growth in the long term. This positive relationship reflects the possible reduction in government revenues and expenditures as a result of the expected decline in oil revenues in the coming decades, and thus the possibility of increasing threats to the sustainability of economic growth.
4. The negative impact of budget tax revenues on economic growth in Azerbaijan is not statistically significant. This result contradicts accepted theoretical assumptions and suggests that our country's tax policy has little restrictive effect on economic growth.
5. A positive relationship has been found between the increase in oil prices and Azerbaijan's non-oil GDP. This fact confirms the sensitivity of our country's non-oil sector to oil prices formed in world markets.

Theoretical and practical importance of the research. The expected decline in oil production in Azerbaijan may result in a reduction in government spending in the coming decades, despite the

financial reserves created. In such circumstances, studying the relationship between fiscal policy variables and economic growth is of great importance for the optimal use of limited fiscal resources. The results of the study provide empirical examples for the theoretical basis of the fiscal policy impact on economic growth in countries rich in natural resources.

These results can be used to improve fiscal policies and regulations applied to stimulate economic growth in Azerbaijan and other oil-based economies.

Approbation of the dissertation. The main results of the dissertation work were presented at conferences held in Azerbaijan and abroad, and the main scientific innovations of the research were reflected in articles published in reputable local and foreign journals.

The dissertation was completed at the Department of "Economic and Technological Sciences" of the Azerbaijan State University of Economics.

Volume and structure of the dissertation. The dissertation consists of an introduction, three chapters, conclusions, and a list of references. The dissertation consists of 227297 (Introduction - 11919, Chapter I – 66466, Chapter II – 57074, Chapter III - 60138, Conclusion - 5498, Literature list - 24437).

Content
Introduction

Conclusion
References list

MAIN CONTENT OF THE RESEARCH

In the first chapter of the dissertation, titled "**Theoretical and methodological foundations of studying the relationship between fiscal policy and economic growth**" the main characteristics of regulatory fiscal instruments and the factors affecting the linear and nonlinear relationships between these instruments and economic growth were studied.

The economic literature provides ample empirical evidence that fiscal policy has a positive effect on economic growth and that the relationship between them is not significant. Some studies have found a negative relationship between government spending and economic growth.[1].

Some studies have found evidence confirming the Keynesian view - a positive link between economic growth and government spending, and a negative link between tax revenues and economic growth[2].

The literature review shows that there are no unanimous views on the impact of the components of public expenditure on economic growth: there are studies that confirm the positive relationship between government capital spending and economic growth[3], while in developing countries there are studies that confirm the negative relationship between public capital expenditure and economic growth[4]. Some studies show that when variables related to public debt are included in econometric models, the long-term positive

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[1] Seyfullalı, C.İ. Fiskal siyasətin tənzimləyici funksiyasına nəzəri baxışların təhlili // - Bakı: İqtisadi İslahatlar Elmi-Analitik Jurnal, -2023. №3 (8), - s.88-99

[2] Rivero, S., and Guerrero, J.J. The economic effects of fiscal policy: Further evidence for Spain. [Electronic resource] / The Quarterly Review of Economics and Finance. Volume 86, November 2022: 305-313 https://doi.org/10.1016/j.qref.2022.08.002

[3] Easterly, W., Rebelo, S. Fiscal policy and economic growth: An empirical investigation. [Electronic resource] / Journal of Monetary Economics, Volume 32, Issue 3, December 1993: 417-458 https://doi.org/10.1016/0304-3932(93)90025-B

[4] Devarajan, S., Swaroop, V., Zou H. The composition of public expenditure and economic growth. [Electronic resource] Journal of Monetary Economics. Volume 37, Issue 2, April 1996, Pages 313-344. https://doi.org/10.1016/S0304-3932(96)90039-2

effect of government capital spending on economic growth disappears [5] . Since interest rates on public debt in developing countries are usually higher than in developed countries, inefficient investment spending financed by high-interest debt can have a negative impact on the economy in developing countries.Some studies have also provided evidence for the "crowding out" effect, which reflects the decrease in private investments caused by increasing government spending[6].

The results of theoretical and empirical studies aimed at investigating the effects of fiscal policy on economic growth can be summarized as follows[7]:

➢ The Keynesian view of the relationship between fiscal variables and economic growth cannot be accepted as an axiom. Many studies present results that contradict the Keynesian view;

➢ The effectiveness of government capital spending in terms of stimulating economic growth is questionable, especially in developing countries - weak institutionalization can hinder the success of government capital expenditure to support economic growth;

➢ Sources of financing of all types of budget expenditures (including capital spending) and interest rates of public debt financing the government spending must be considered. The capital projects that do not have sufficient productivity may cause more harm than good to economic growth;

➢ The fiscal multiplier can be asymmetric in response to the increase and decrease of budget spending. It is more sensitive to

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[5] Gupta, S., Clements, B., Baldacci, E., and Mulas-Granados, C.Fiscal policy, expenditure composition, and growth in low-income countries. [Electronic resource] Journal of International Money and Finance, April 2005, 24: 441-463 http://dx.doi.org/10.1016/j.jimonfin.2005.01.004

[6] Easterly, W., Rebelo, S. Fiscal policy and economic growth: An empirical investigation [Electronic resource] / Journal of Monetary Economics, -1993, 32(3),-p. 417-458. https://doi.org/10.1016/0304-3932(93)90025-B

[7] Seyfullalı, C.İ. Fiskal siyasətin tənzimləyici funksiyasına nəzəri baxışların təhlili // - Bakı: İqtisadi İslahatlar Elmi-Analitik Jurnal, -2023. №3 (8), - s.88-99

the decrease of government spending than to the increase of government spending;

➢ High public spending and borrowing may necessitate a reduction in public spending in later years, creating the need for a more contractionary fiscal policy (reducing the budget deficit to prevent higher borrowing);

➢ Fiscal policy of developing countries is usually more pro-cyclical.[8] In the expansion phase of the business cycles, the reason for pro-cyclical fiscal policy may be weak institutionalization and focus on short-term goals. The reason for the pro-cyclical fiscal policy during the economic contraction phase may be the lack of resources to increase government spending to stimulate the economy in times of crisis. Underdevelopment of local financial markets and poor access to international financial markets in developing countries may be the main reasons for this situation. Considering that the State Oil Fund of the Republic of Azerbaijan (hereinafter - SOFAZ) has significant reserves to use in such conditions, we can say that this situation is not so relevant for Azerbaijan.

➢ In resource-rich countries, resource revenues may be the main driver of economic growth rather than government spending. However, since government spending and resource revenues are generally positively correlated, excluding resource revenues from econometric models may result in their positive effect being attributed to government expenditures as well.

➢ The direction of the relationship between budget expenditures and economic growth may be different in the short and long term. A separate evaluation of these relationships for the short and long term can help to better understand the dynamics of the relationship.

➢ Contrary to the Keynesian view, in practice there may be a positive relationship between tax revenues and the economy. A decline in tax revenues when GDP decreases can be interpreted

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[8] Culha,A.A. Asymmetric government expenditure: A comparison of advanced and developing countries [Electronic resource] /- London: Journal of Economic Policy Reform. -2017, -p.164-183. https://doi.org/10.1080/17487870.2017.1374863

as a fiscal response (either through automatic stabilizers or through discretionary fiscal policy). This case can be cited as an example of "reverse causality".

The weight of the budget expenditure in GDP, public debt, and the governance quality have a significant impact on the efficiency of fiscal policy to stimulate economic growth.

In economic theory, there are thoughts regarding the optimal point for the state's size (budget expenditure *to* GDP) in economy[9]. This non-linear relationship between fiscal policy and economic growth is depicted in such studies as an inverted U-curve. The analysis of literature on non-linear relationship between economic growth and government spending allows us to draw the following conclusions[10]:

➢ The optimal point of the weight of budget expenditure in GDP is greater in developing countries than in developed countries - this situation can be explained by the fact that in developing countries the state needs more investments in production and social infrastructure.

➢ When the budget expenditure is greater than the optimal threshold level, the negative effect of excess public spending is greater in developing countries than in developed countries;

➢ When the weight of the budget expenditure in the economy is higher than the optimal level, the governance quality becomes a decisive factor;

➢ The influence of natural resource wealth on the relationship between fiscal policy and economic growth depends on the country's level of institutionalization. Developed countries with established institutions are able to use natural resources more efficiently.

In the second chapter of the dissertation, entitled "**Investigation of the relationship between fiscal policy and economic growth in**

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[9] Barro, R. Government Spending in a Simple Model of Endogenous Growth. [Electronic resource] / Journal of Political Economy, 1990, 98, p.103-125 https://www.jstor.org/stable/2937633

[10] Seyfullalı, C.İ. Büdcə xərclərinin iqtisad artıma qeyri-xətti təsiri // Gənc tədqiqatçıların VIII Respublika elmi konfransının materialları, - Bakı: - 14 mart, - 2025, - s.360-362

Azerbaijan", a study was conducted of tax policy, the dynamics of budget revenues and expenditures, and the relationship between budget expenditures and economic growth.

Despite the regular implementation of tax reforms supporting entrepreneurship in Azerbaijan, the non-oil sector has not yet achieved sustainable dominance in the structure of the national economy[11].

The conducted research shows that most of the budget expenditure is financed by the SOFAZ transfers in the last 2 decades. The share of tax revenues in the total budget revenue exceeded 60% only in 2022[12]. Such a situation shows that the budget revenues are still highly dependent on oil revenues, and the non-oil sector does not have sufficient potential to meet the growing budget spending.

Looking at Chart 1, it can be argued that Wagner's law (as economic growth strengthens, budget revenues increase, which in turn allows budget expenditures to increase) is justified in Azerbaijan.

The increase in nominal GDP by approximately 28 times, budget revenues by 43 times, and tax revenues by 38 times during 2000-2023 can be considered a great achievement. However, the fact that this increase was mainly due to the increase in oil production and oil prices in the country's oil and gas sector suggests that the role of tax policy in this increase is not so great.

The budget revenues from the oil sector is more volatile and unpredictable than budget revenues from the non-oil sector. Therefore, it is proposed to increase tax concessions that can create incentives for the development of the non-oil sector, to create a digital database that reflects information on the application, use and results of tax concessions.

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[11] Seyfullalı, C.İ. Azərbaycanda vergi siyasətinin iqtisadi artıma dəstək kontekstində tədqiqi //- Bakı: Azərbaycanın vergi jurnalı,-2023. №1 (144),- s.31-42
[12] Laws on the implementation of the state budget of the Republic of Azerbaijan – www.e-qanun.az
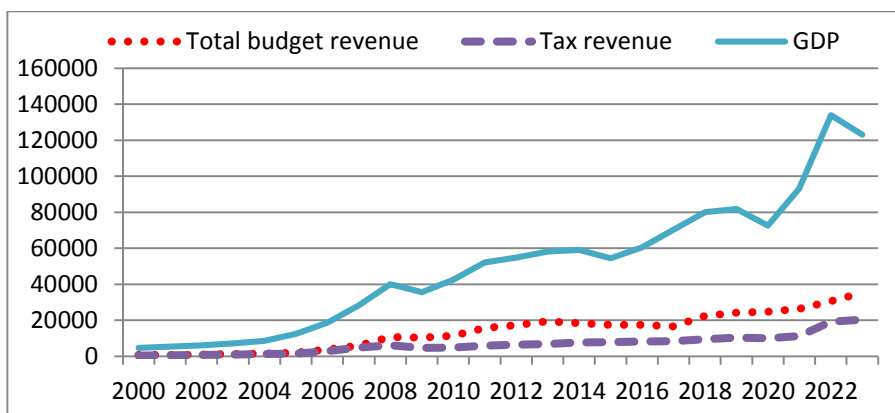
Chart 1. Fiscal consequences of tax policy and GDP (mln AZN, current prices)[13]

In order to take into account the effects of inflation and other factors in the mentioned growth rates, let us look at the dynamics of the relative indicators - the share of budget and tax revenues in GDP (Chart 2).

The fact that the highest levels of the ratio of budget revenues to GDP coincided with 2013-2015 and 2020, the most acute period of the pandemic, gives rise to a number of considerations. In 2013, one of the highest levels of transfers from SOFAZ to the state budget was recorded - 11.5 billion manat. It was this indicator that determined the ratio of budget revenues to GDP in that year to 33.5%. The decrease in transfers from SOFAZ in 2014-2017 (to 9.3 billion manat in 2014, to 6.5 billion manat in 2017) was accompanied by a decrease in budget revenues.

The next peak of the ratio of budget revenues to GDP (34%) coincides with the pandemic year, 2020, and this increase is again associated with the record transfer of SOFAZ, 12.2 billion manat. If we take into account that the share of oil sector enterprises in the budget's tax revenues is also quite large, then we can say that the

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[13] Compiled by the author based on data from the State Statistical Committee of the Azerbaijan Republic (SSCAR)

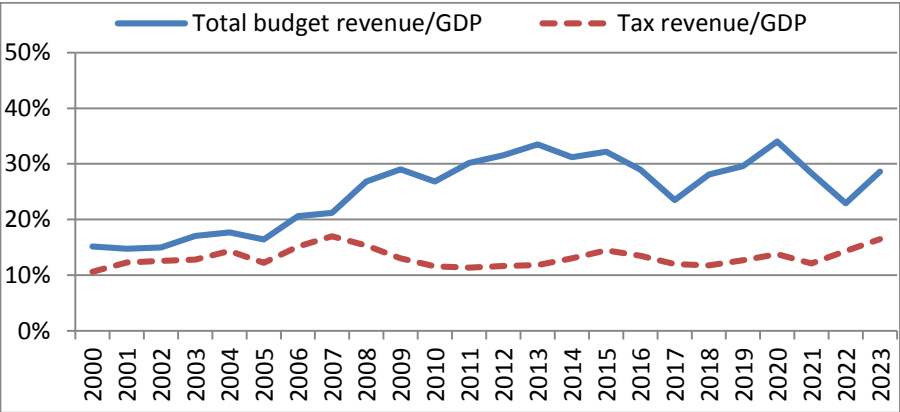share of the oil factor in Azerbaijan's budget revenues is still decisive.

Chart 2. Specific weight of budget revenues and tax revenues in GDP (%)[14]

Chart 3 presents the share of domestic taxes and taxes and duties levied on imports in the budget's tax revenues. As can be seen from this graph, the average share of import taxes and duties in 2000-2015 was around 20%, while in 2016-2023 this figure was around 30%.
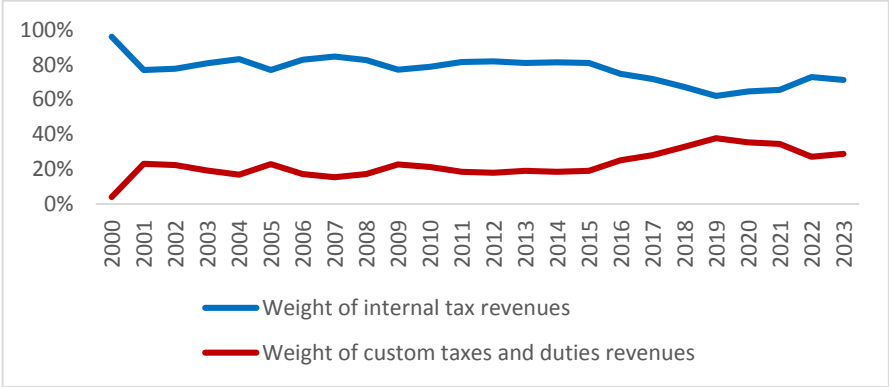

Chart 3. Weight of internal tax revenues and custom tax and duties revenues in tax revenues of budget (%)[15]

[14] Compiled by the author based on data from SSCAR
[15] Compiled by the author based on data from SSCAR

The dynamics of budget revenues from VAT on imports and VAT on domestic transactions suggest that local production in our country has had limited success in meeting the growing domestic demand (Chart 4.).
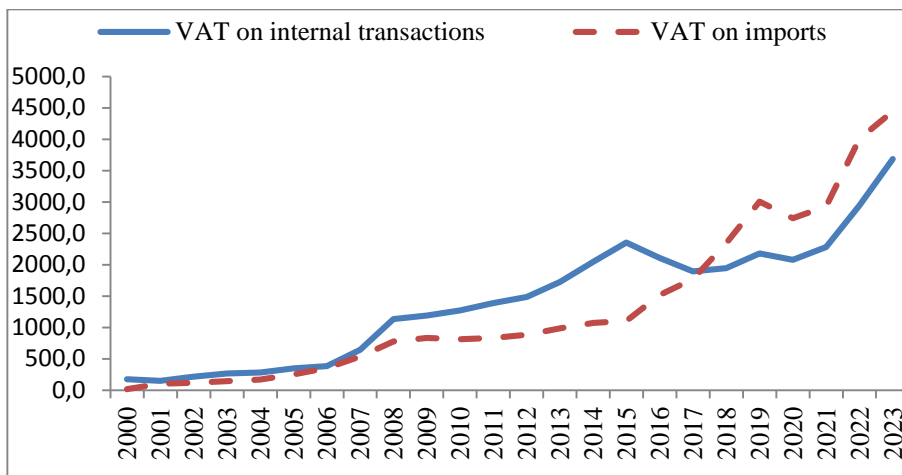

Chart 4. VAT on domestic transactions and imported goods (in million manats) [16]

Until 2017, the volume of VAT collected on imports was lower than the VAT collected on domestic transactions. However, since that year, import VAT has started to grow rapidly, despite no changes (in law) in the tax rate or the tax base. A similar trend has been observed in domestic transactions as well.

This trend can be explained by increasing domestic demand, rapid inflation in the years following the devaluation, and a decline in tax evasion. However, the fact that VAT on imports has been growing faster than VAT on domestic transactions and accounts for a larger share of total VAT revenues highlights the need for more effective support measures to promote domestic production.

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[16] Laws on the implementation of the state budget of the Republic of Azerbaijan – www.e-qanun.az

Numerous tax incentives are applied in the Tax Code for the development of the non-oil sector in Azerbaijan. If we pay attention to the evolution of these concessions, we can observe more targeted tax concessions and the tendency to support local production. However, despite being applied for a long time, there are still no strong arguments to speak positively about the effectiveness of tax incentives. Changes made in the Tax Code of the Republic of Azerbaijan in recent years provide stronger incentives for the development of the country's non-oil sector than in previous years. But the issue of the extent to which the interests of entrepreneurs are taken into account in these incentives and their adequacy to strengthen the attractiveness of non-oil tradable sector is not entirely clear.

Tax incentives may lose their effectiveness when there are opportunities for tax avoidance. Therefore, it is recommended that tax concessions be carried out in parallel with the process of strengthening tax administration and limiting tax evasion as much as possible.

In Azerbaijan, there is a positive correlation between the economic activity expenditure of the budget and economic growth.

Budget revenues exceeded budget expenditures in only 2 years (2011 and 2013) from 2007 to 2023. The average annual growth of budget revenues and expenditures during the period was 14% and 13%, respectively. The highest annual increases in revenues and expenditures occurred in 2008 (86% and 71%, respectively), 2011 (38% and 31%, respectively) and 2018 (36% and 29%, respectively). During 2007-2023, budget revenues decreased compared to the previous year three times: in 2009 (-4%), in 2014 (-6%) and in 2017 (-6%). Budget expenditures decreased in 2009 (-3%) and 2017 (-1%). Although the decline in state revenues and expenditures coincided in 2009 and 2017, in 2014-15, although budget revenues decreased, state expenditures did not decrease. The dynamics of budget revenues, expenditures and deficit (surplus) can be observed in Chart 5.
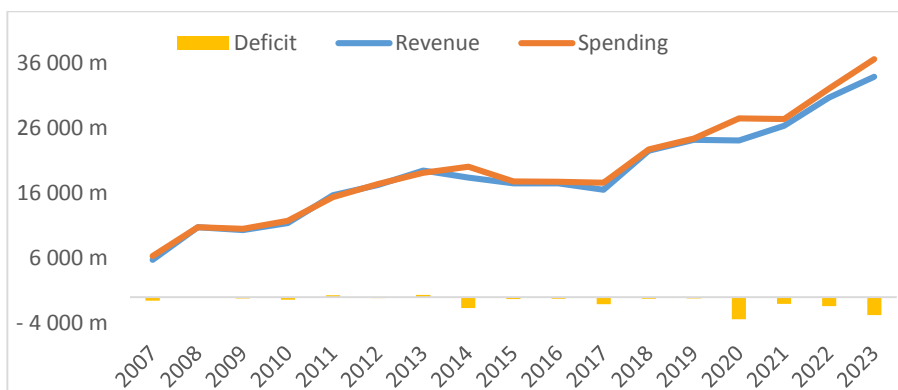
Chart 5. Dynamics of budget revenues, expenditures and deficit (mln. AZN)[17]

As can be seen from the Chart 6, the highest weight during the period was attributed to the "Economic activity" category. This category represents mostly capital expenditures of the budget. This includes transport and communications, construction, mineral resources, reconstruction of liberated territories and other state-based infrastructure expenditures.

Chart 6. Cumulative structure of budget expenditures for 2007-2023[18]

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[17] Compiled by the author based on data from SSCAR

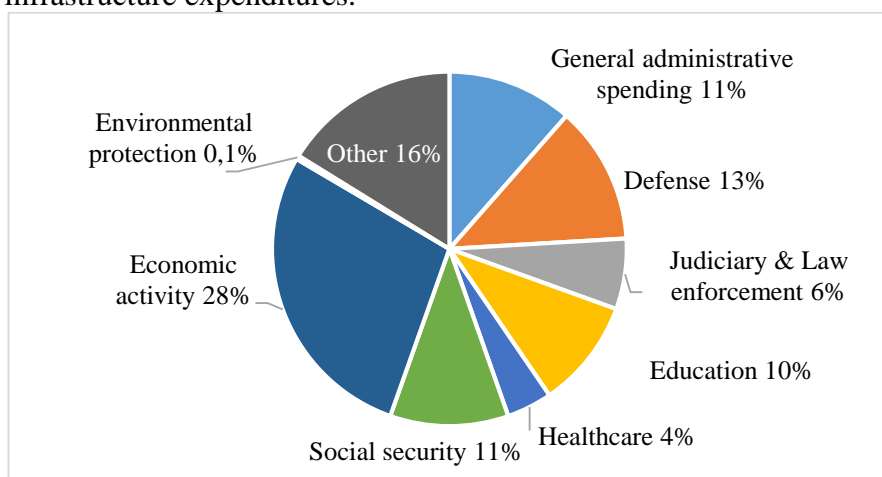The correlation calculations (Table 1.) conducted show that there is a positive correlation between government spending (0.56) and budget spending on economic activity (0.54) and economic growth in Azerbaijan. However, there are many other factors that can affect government spending and economic growth, and taking these variables into account in the analysis process may provide better-founded results.

The calculations show that there is a very weak and negative correlation (-0.05 and -0.42) between budget education and health expenditure, and economic growth. However, while the weight of state economic activity spending in total budget spending decreased in 2018-2023, the weight of education and health spending increased. This situation can be explained by the fact that the results of education and health spending manifest themselves in the long term.

Table 1.

Correlations between budget expenditure categories and economic growth (2007-2023)[19]

Category	Correlation coefficient between budget expenditures and economic growth
General administrative spending	0.02
Defense	0.44
Judiciary & Law enforcement	-0.05
Education	-0.05
Healthcare	-0.42
Social security	-0.05
Economic activity	0.54
Total budget expenditure	0.56
Budget deficit	0.41

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[18] Compiled by the author based on data from SSCAR
[19] Calculated by the author based on data from SSCAR

There is a negative relationship between budget expenditure and economic growth in Azerbaijan in the short term, and such a relationship can be explained to a certain extent by the "reverse causality" relationship[20].

The analysis of the relationship between fiscal variables and economic growth in the non-oil sector was conducted using the ARDLBT method. Table 2 presents the short-term model results. All variables were entered into the model in logarithmic expression.

Table 2.
The results of short-term analysis of links between variables[21]

Dependent variable: real non-oil GDP	
$\Delta CointEq_{t-1}$	–0.58*** (0.08)
ΔReal non-oil GDP$_{-1}$	–0.41*** (0.10)
ΔReal non-oil GDP$_{-2}$	0.50*** (0.10)
ΔReal non-oil GDP$_{-3}$	–0.37*** (0.09)
ΔReal budget expenditure	–0.03*** (0.08)
ΔReal budget expenditure$_{-1}$	–0.34*** (0.11)
ΔReal budget expenditure$_{-2}$	–0.29*** (0.10)
ΔReal budget expenditure$_{t-3}$	–0.23*** (0.08)
ΔOil price	–0.03 (0.56)
ΔOil price$_{t-1}$	–0.12* (–0.06)
R-squared	0.81
Adjusted R-squared	0.79
Number of obcervations	70

Note: ***, **, and* represents 1%, 5%, and 10% confidence level, standard errors are presented in the brackets.

The results show that there is a negative relationship between budget expenditures and real non-oil GDP in the short run. Another

[20] Kalbiyev, Y.A., Seyfullalı, J.İ. Fiscal policy and economic growth in resource-rich country: Empirical evidence from Azerbaijan // - Sumı: Public and Municipal Finance, - 2024. №13 (1), - s.83-94, http://dx.doi.org/10.21511/pmf.13(1).2024.07
[21] Calculated by the author based on data from SSCAR

research paper [22] also revealed a negative relationship (although statistically insignificant) between government spending and non-oil economic growth in the short term. The short-term negative relationship between budget expenditures and GDP can be explained to a certain extent by "reverse causality".

When there are recession and GDP declines, government spending increases a result of either automatic stabilizers or a discreationay fiscal policy in accordance with Keynesian view, therefore, quantitative models find a short-term negative relationship between these two variables. Some studies[23] revealed the short-term bidirectional causality link between government spending and economic growth in Azerbaijan[24]. These findings also suggest that the short-term negative relationship between budget spending and GDP can be explained by "reverse causality".

In the long-term perspective, there is a positive relationship between public spending and economic growth in Azerbaijan[25].

Table 3 presents model results regarding the long-term impact of fiscal policy instruments and control variables on economic growth.

In Azerbaijan, oil prices and budget expenditures have a statistically significant (at the 1% and 5% level, respectively) positive impact on overall GDP in the long run. There is no statistically significant relationship between the total GDP of

[22] Aliyev, K., Dehning, B., & Nadirov, O. Modelling the Impact of Fiscal Policy on Non-Oil GDP in a Resource Rich Country: Evidence from Azerbaijan. [Electronic resource] / Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, -2016. №64(6), 1869-1878 http://dx.doi.org/10.11118/actaun201664061869
[23] Aliyev, K., Dehning, B., & Nadirov, O. Modelling the Impact of Fiscal Policy on Non-Oil GDP in a Resource Rich Country: Evidence from Azerbaijan. [Electronic resource] / Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 2016. 64(6), 1869-1878 http://dx.doi.org/10.11118/actaun201664061869
[24] Abbasov, J. A., & Aliyev, K. Testing Wagner's Law and Keynesian Hypothesis in Selected Post Soviet Countries. [Electronic resource] / Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis,2018. 66(5), 1227-1237 https://doi.org/10.11118/actaun201866051227
[25] Kalbiyev, Y.A., Seyfullalı, J.İ. Fiscal policy and economic growth in resource-rich country: Empirical evidence from Azerbaijan // - Sumı: Public and Municipal Finance, - 2024. №13 (1), - s.83-94, http://dx.doi.org/10.21511/pmf.13(1).2024.07

Azerbaijan and tax revenues (p-value>0.1). The lack of significant link between tax revenues and the total GDP can be explained by the fact that oil revenues, which have a high weight in GDP, mainly depend on the volume of oil production and the oil prices rather than taxes.

Table 3.

Long-term impact of government spending, tax revenues, capital formation, and oil prices on economic growth[26]

Variables	Dependent variable – real GDP	Dependent variable – real non-oil GDP
Panel A: Results		
Constant	4.085*** (0,37)	1.113 (0.81)
LRGOVEXP (real budget expenditure)	0.377** (–0.05)	0.587*** (0.16)
LRTAXREV (real tax revenues)	0.048 (0.05)	–0.139 (0.139)
LOILPRICE (oil price)	0.313*** (0.04)	0.380*** (0.12)
Panel B: Robustness test		
R-squared	0.91	0.92
Adjusted R-squared	0.90	0.90
Sample size	70	70
Serial correlation (LM test)	$X^2_{SC} = 0.36$ (0.83)	$X^2_{SC} = 2.59$ (0.27)
Heteroskedasticity (Breusch-Pagan test)	$X^2_{SC} = 17.15$ (0.13)	$X^2_{SC} = 19.55$ (0.11)

Note: ***, **, and * represents 1%, 5%, and 10% confidence level, the parenthetical values indicate the standard error in Panel A and the p-value in Panel B.

The results of the model with real non-oil GDP as the dependent variable show that oil prices and budget spending, have statistically significant (at 1% significance level) impact on the non-oil GDP has a positive effect. A positive relationship between budget spending and non-oil GDP is consistent with the Keynesian view. In another

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[26] Calculated by the author based on data from SSCAR

study [27] conducted on Azerbaijan, the finding of a unidirectional causality link from government spending to economic growth in the long-term provide assurance that the long-term positive relationship between government spending and economic growth revealed in the regression analysis is not due to reverse causality link.

Another result of the model confirms that there is no statistically significant relationship between budget tax revenues and non-oil GDP. Such a situation can be explained by the rather high share of the oil sector in tax revenues. The dependence of tax revenues on oil sector becomes even more crucial problem amid the expectations of decreasing oil production volume and once again reveals the necessity of the development of non-oil sector.

The relationship between budget expenditures and economic growth in Azerbaijan is not nonlinear[28].

The presence of the non-linear (the BARS curve) relationship between government spending and economic growth in Azerbaijan was tested using the ARDLBT model and the results are presented in Table 4.

Based on the results of this model, no statistically significant evidence was found for an inverted U-shaped relationship between government spending and economic growth in Azerbaijan. It can be concluded from this that it is not yet possible to make judgments about the optimal point of the government size (budget expenditure-to-GDP ratio) in Azerbaijan.

The results of the presented models allow us to put forward such an argument: since the budget spending in Azerbaijan has a positive effect on non-oil GDP in the long term, the growth of budget expenditures, taking into account the productivity criterion, can give positive impulses to the development of the non-oil sector. However,

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[27] Abbasov, J. A., & Aliyev, K. Testing Wagner's Law and Keynesian Hypothesis in Selected Post Soviet Countries. [Electronic resource] / Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis,2018. 66(5), 1227-1237 https://doi.org/10.11118/actaun201866051227

[28] Kalbiyev, Y.A., Seyfullalı, J.İ. Fiscal policy and economic growth in resource-rich country: Empirical evidence from Azerbaijan // - Sumı: Public and Municipal Finance, - 2024. №13 (1), - s.83-94, http://dx.doi.org/10.21511/pmf.13(1).2024.07

the "crowding out" effect can lead to the expansion of the public sector in expense of the private sector, thereby reducing the tax sources of the budget spending. Weak development of non-oil tradable sector in our country may cause problems for financing budget spending when oil revenues decrease.

Table 4.
The BARS curve in Azerbaijan[29]

Panel A: Results	
Variables	Coefficients
Independent variable: real GDP growth	
Constant	–0.048* (0.26)
OILPRCG (change in oil price))	0.418*** (0.10)
GOVEXPTOGDP (budget expenditure-to-GDP ratio)	0.591 (1.76)
GOVEXPTOGDP^2 (budget expenditure -to-GDP ratio squared)	–2.055 (–3.07)
CAPINV (Capital formation)	0.283** (0.11)
Panel B: Robustness test	
R-squared	0.70
Adjusted R-squared	0.61
Sample size	70
Serial correlation (LM test)	X^2_{SC} = 3.46 (0.18)
Heteroskedasticity (Breusch-Pagan test)	X^2_{SC} = 16.57 (0.15)

Note: ***, **, and * represents 1%, 5%, and 10% confidence level, the parenthetical values indicate the standard error in Panel A and the p-value in Panel B.

The third chapter of the dissertation, entitled **" The directions for improving state fiscal policy in modern conditions"** examines the fiscal policy experience of countries whose exports are mainly related to the sale of natural resources, provides recommendations for improving the fiscal policy applied in Azerbaijan, and addresses the impact of fiscal policy on green economic growth.

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[29] Calculated by the author based on data from SSCAR

Fiscal policy volatility is higher in natural resource exporting countries, including Azerbaijan, compared to other countries. Fiscal rules can be an effective tool to stabilize fiscal policy in natural resource-exporting countries[30].

Our calculations and the generalization of the results of studies conducted in this direction suggest that the fiscal policy in economies dependent on natural resources is more volatile. The results of the comparative analysis showed that the ratios of budget revenue to GDP, budget expenditure to GDP, and budget deficit to GDP of countries with an oil-based economy, including Azerbaijan, are more volatile than other countries. Fiscal policy volatility and pro-cyclical fiscal policy can result in various problems such as worsening of business cycles, disruption of economic stability and increase in public debt. To overcome these problems, it is proposed to introduce fiscal rules and increase the level of institutionalization of economic management.

Low indebtedness in Azerbaijan allows the state to employ a combination of the "non-resource primary balance rule" and the "golden rule," thereby providing greater budgetary room for economic activity expenses. In planning these expenses, it is recommended to prioritize productivity criteria and projects that enhance the investment attractiveness of the non-oil sector[31].

Currently, the fiscal rule in Azerbaijan is based on 2 indicators: the ratio of non-oil budget deficit to non-oil GDP and the ratio of government debt to GDP.

The first rule corresponds to the "non-resource primary balance rule". The advantages of this rule include easy monitoring and incentive to increase non-resource revenue. The main drawback is the limitation of government spending for the development of the non-oil sector using oil revenues. In the last 20 years in Azerbaijan, a significant amount of investments have been directed to the creation

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[30] Seyfullalı, J.I. Fiscal policy chalanges in the resource-rich countries // - Bakı: İqtisadi İslahatlar Elmi-Analitik Jurnal, -2024. № 1 (10), s. 1-16

[31] Seyfullalı, J.I. Fiscal policy chalanges in the resource-rich countries // - Bakı: İqtisadi İslahatlar Elmi-Analitik Jurnal, -2024. № 1 (10), s. 1-16

of transport, education and healthcare infrastructure for the non-oil sector, and oil revenues have played a major role in financing these costs. The lack of an accessible information base for comparing the ratio of non-oil budget deficit to non-oil GDP in Azerbaijan has limited the ability to make strong arguments in this direction. However, there is sufficient information base to conduct an analysis on the fiscal rule related to borrowing.

The compison analyzes have shown that Azerbaijan's indebtedness level is very low compared to most of the compared countries. Combining these findings with the results of other empirical studies and our own correlation analysis (a positive correlation between government economic activity spending and economic growth), we can suggest applying a combination of the "golden rule" and "non-resource primary balance rule" to determine a ceiling for the budget deficit. A combination of these two rules could allow the government to allocate more to capital spending.

In the planning of capital projects, it is proposed to prioritize projects based on the productivity criterion and ability to increase the investment attractiveness of the non-oil sector. It is recommended to prepare a more transparent and detailed database on tax concessions, customs benefits, and different categories of government spending.

Proposals have been put forward to improve the fiscal policy to stimulate green economic growth in Azerbaijan. [32]

There are numerous fiscal policy measures supporting the green economy in Azerbaijan: exemption from excise duty, customs duties, and value-added tax on the import and sale of electric vehicles; exemption from VAT and customs duties of the import and sale of hybrid cars with a production date of 3 years and an engine volume of no more than 2500 sm^3; exempting taxpayers operating as industrial parks and producing electricity using renewable energy sources from corporate profit, property, and land taxes for 10 years; exemption from VAT and duties of imported equipment for production for the taxpayers operating as industrial parks and

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[32] Seyfullalı, J.I. Research on the Realationship Between Fiscal Policy and Green Economy // - Bakı: Proceedings of Energy Economic Research Centre, Enerji İqtisadiyyatı Mərkzinin Xəbərləri, - 2024. №18 (05), -s.95-101

producing electricity using renewable energy sources; exemption from profit tax for 7 years if renewable energy producers can get cluster company status, etc.

Additionally, declaring de-occupied areas as green zones, government support for the use of wind, hydro and solar energy in these areas will hopefully bear fruit in the shortest possible time. Government capital spending on renewable energy infrastructure, as well as preference for environmentally friendly technologies and products during public procurement, can make great contributions to the sustainability of the economy.

The high cost of alternative energy production, the difficulties related to energy storage, and the volatility in production amounts have been mentioned as the main issues impeding investments in this field. Some measures can be incorporated to the fiscal and more general government policy to overcome the mentioned obstacles:

- ➢ development of a subsidy mechanism for renewable energy producers;
- ➢ development of guarantee mechanisms for loans financing renewable energy production;
- ➢ stimulating the investments in financial securities of renewable energy producers.

Conclusion

1. The results of a number of empirical studies have shown that the Keynesian hypothesis has different manifestations in different situations, and in some cases it does not work at all. The emergence of such a situation is associated with differences in socio-cultural factors that affect the population's propensity to consume and accumulate, the quality of state regulation, the structure of the economy and the institutional structure.

2. In the economic literature, assumptions have been made about the inverted U-shape of the relationship between the ratio of budget expenditure to GDP and economic growth, and empirical evidence has been presented that the Keynesian hypothesis works within certain limits of government spending, and that after that limit is

exceeded, government spending has a negative impact on economic growth.

3. Some studies argue that factors such as public debt and the governance quality are decisive for the success of fiscal policy, and that the relationship between fiscal policy and economic growth is of a different nature in developed and developing countries, as well as in countries that are exporters of natural resources.

4. The analyzes show that the goal of diversifying the economy and reducing the dependence of budget revenues on the oil sector has not yet been achieved. The creation of a detailed and accessible information base on the use of tax and customs benefits, their consequences, could be of great importance for assessing the impact of the tax benefits on economic processes, and could be useful for presenting valid arguments to decision-makers in this area.

5. Analysis of the relationship between total budget expenditures and its economic activity expenditures in Azerbaijan, and economic growth shows that there is a positive correlation between these indicators.

6. Regression analysis shows that there is a negative (inverse) relationship between budget expenditures and economic growth in the short term. Considering the existence of arguments claiming that there is a bidirectional causality link between economic growth and budget expenditures in Azerbaijan in a number of studies, we can attribute such an inverse relationship to the "reverse causality" effect.

7.The negative impact of tax revenues on economic growth in the budget has not been found to be statistically significant.

8. There is a statistically significant positive relationship between budget expenditures and economic growth in the long run. Other studies conducted on Azerbaijan have found a unidirectional causal relationship from budget expenditures to economic growth in the long run. The above-mentioned provides grounds for confirming the argument that "budget expenditures stimulate economic growth in the long run".

9. The lack of evidence for the non-linear relationship between government spending and economic growth, as well as the existence

of an optimal threshold of government size necessitates further research.

10. Fiscal policies have been found to be more volatile and unstable in similar oil-based economies. However, the relative stability of fiscal policy is considered one of the important factors for achieving economic success in a country.

11. The low level of public debt in Azerbaijan, the results of other empirical studies, and our analysis indicate that there is scope for applying a combination of the "non-resource primary balance rule" and the "golden rule" to determine the ceiling for the ratio of the non-oil budget deficit to non-oil GDP. The combination of these two rules could allow for a further increase in budget capital expenditures.

12. It is recommended to fully take into account the productivity criterion in planning budget expenditures, especially economic activity expenditures, and to implement a comprehensive monitoring mechanism for the implementation of these projects and measuring their results.

13. It is proposed to implement fiscal measures to support energy production through the use of alternative energy sources: developing a subsidy mechanism for alternative energy producers, providing them with preferential loans and state guarantee mechanisms, stimulating the participation of insurance and pension funds in the financing of these enterprises, and more.

The main findings of the thesis, the obtained conclusion and recommendations are reflected in the following published scientific works:

1. Seyfullalı, C.İ. Fiskal siyasət və iqtisadi artım: Nəzəri və empirik tədqiqatların icmalı // V İqtisadiyyat və İdarəetmə Sahəsində Tədqiqatçıların Beynəlxalq Elmi Konfransı, ISCEMR - Bakı: - 22-25 iyun, - 2023, Turan SAM jurnalının ISCEMR -2023 xüsusi buraxılışı, - s.293-302

2. Seyfullalı, C.İ. Azərbaycanda vergi siyasətinin iqtisadi artıma dəstək kontekstində tədqiqi // - Bakı: Azərbaycanın vergi jurnalı, -2023. №1 (144), - s. 31-42

3. Seyfullalı, C.İ. Fiskal siyasətin tənzimləyici funksiyasına nəzəri baxışların təhlili // - Bakı: İqtisadi İslahatlar Elmi-Analitik Jurnal, -2023. №3 (8), - s. 88-99

4. Seyfullalı J.I., Analysis of the tax policy impact on economic growth in Azerbaijan // 7th International Conference on Economics and Finance, - Istanbul: - 5-6 oktyabr, -2023, - s.99-107

5. Seyfullalı, J.I. Tax Revenue and Economic Growth in Resouce-Rich country: Empirical evidence from Azerbaijan // - Bakı: Journal of Economic Sciences: Theory and Practice, - 2023. №80 (2), s. 47-59

6. Seyfullalı, C.İ. Fiskal siyasət və yaşıl iqtisadiyyat arasında əlaqələrin tədqiqi // "Qlobal istiləşmə və iqlim dəyişikliyi" mövzusunda Respublika Elmi Konfransının Toplusu, - Bakı: - 18 fevral, - 2024, - s.14-19

7. Seyfullalı, J.I. Fiscal policy chalanges in the resource-rich countries // - Bakı: İqtisadi İslahatlar Elmi-Analitik Jurnal, - 2024. № 1 (10), s. 1-16

8. Kalbiyev, Y.A., Seyfullalı, J.İ. Fiscal policy and economic growth in resource-rich country: Empirical evidence from Azerbaijan // - Sumı: Public and Municipal Finance, - 2024. №13 (1), - s.83-94
http://dx.doi.org/10.21511/pmf.13(1).2024.07

9. Seyfullalı, J.I. Research on the Relationship Between Fiscal Policy and Green Economy // - Bakı: Proceedings of Energy Economic Research Centre, Enerji İqtisadiyyatı Mərkəzinin Xəbərləri, - 2024. №18 (05), -s.95-101

10. Seyfullalı, C.İ. Büdcə xərclərinin iqtisad artıma qeyri-xətti təsiri // Gənc tədqiqatçıların VIII Respublika elmi konfransının materialları, - Bakı: - 14 mart, - 2025, - s.360-362

The defense will be held on 14 May 2025, at 16⁰⁰ at the meeting of the Dissertation council ED 2.10 of Supreme Attestation Commission under the President of the Republic of Azerbaijan operating at Azerbaijan State University of Economics.

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Dissertation is accessible at the Azerbaijan State University of Economics Library.

Electronic version of the abstract is available on the official website of the Azerbaijan State University of Economics.

Abstract was sent to the required addresses on 10 April 2025.