

Impact of Fiscal Policy on Economic Growth in Developing Countries

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Entered : December 20, 2024

Accepted: January 15, 2025

Revised : December 28, 2024

Published : January 30, 2025

ABSTRACT

This study examines the impact of fiscal policy on economic growth in developing countries, emphasizing the role of government expenditures and tax policies in shaping economic outcomes. The findings indicate a strong positive relationship between fiscal policy and economic growth, where government spending and tax measures significantly contribute to enhancing economic performance. Specifically, the study reveals that well-structured fiscal policies can effectively promote growth, with key fiscal tools such as public investment and tax reforms playing a vital role. The results suggest that developing countries can achieve higher economic growth by implementing strategic fiscal measures, which can address structural challenges and encourage sustainable development. The research provides essential insights for policymakers to design more efficient fiscal policies that foster long-term economic stability and growth.

Keywords: Fiscal Policy, Economic Growth, Developing Countries, Government Spending

INTRODUCTION

Economic growth is one of the main indicators reflecting the level of well-being of a country. As a measure of the increase in output of goods and services in an economy over a given period, economic growth is an important yardstick in assessing the progress and success of a country's economic policies. A high growth rate indicates increased production capacity, better purchasing power, and more economic stability. In addition, economic growth plays a significant role in reducing poverty by creating wider economic opportunities and distributing income more evenly. With increasing growth, employment can be expanded, reducing the unemployment rate and improving people's living standards. Strong economic growth has also allowed the country to invest more in infrastructure, education and health services, all of which contribute to long-term development. In the midst of increasingly fierce global competition, sustainable economic growth is also a key factor in increasing a country's competitiveness in the international

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market, encouraging foreign investment, and strengthening its economic position in the global arena.

Fiscal policy is one of the main tools used by the government to influence the economy of a country. Through this policy, the government can regulate the level of state spending and tax revenues in order to achieve certain economic goals. Fiscal policy includes two main instruments: government spending (such as spending on infrastructure, health, education, and subsidies) and tax revenue (which includes income tax, corporate tax, and other taxes). Both of these instruments serve to regulate aggregate demand in the economy, so as to stimulate or restrain the rate of economic growth according to needs. The main objectives of fiscal policy are to achieve economic stabilization, equitable distribution of income, and promote sustainable economic growth. Economic stabilization aims to keep the economy from getting caught in a cycle of sharp fluctuations, such as a recession or high inflation. Appropriate fiscal policies can also be used to reduce social and economic inequality by diverting resources to sectors in need, such as social assistance or poverty alleviation programs. In addition, fiscal policy can stimulate investment in productive sectors that promote long-term economic growth. Examples of fiscal policy implementation in developing countries can be seen in various forms of policies aimed at stimulating economic growth and improving people's welfare. For example, developing countries often increase government spending in the form of infrastructure to create jobs and attract investment. On the other hand, tax reductions for small and medium-sized businesses or direct subsidy programs to the poor are examples of efforts to combat poverty and increase people's purchasing power. However, the implementation of fiscal policy in developing countries often faces challenges such as budget constraints, dependence on external debt, and financial management that has not been optimal.

Developing countries have distinctive characteristics that distinguish them from developed countries, with a number of challenges that need to be faced in economic development efforts. One of the main characteristics of developing countries is the high unemployment rate, in which many of its inhabitants do not yet have access to decent work, especially in the formal sector. A great dependence on the primary sector, such as agriculture, mining and other natural resources, is also a major characteristic. These sectors generally make a significant contribution to gross domestic product (GDP), but often do not contribute to a sufficiently high increase in added value. In addition, low levels of domestic investment in developing countries make economic growth slow, due to limited capital to develop infrastructure and more advanced industrial sectors. Large socio-economic disparities, both in terms of income and access to basic services such as education and Health, also characterize developing countries, which have an impact on the level of well-being of the population.

The challenges facing developing countries in implementing fiscal policy are complex. One of them is the frequent budget deficit, due to limited state revenues, while the need for public spending is enormous. This deficit often causes the government to have to rely on external debt to meet the budget, which in turn increases the country's debt burden. This reliance on external debt can add to economic instability if not managed properly. In addition, weaknesses in the tax system are often a major obstacle to optimizing state revenues, as many developing countries experience problems in terms of tax administration, low tax collection, and low levels of compliance from taxpayers. These weaknesses worsen the government's ability to finance development programs that are essential to economic and social progress.

Fiscal policy has a very important role in influencing economic growth, especially through government spending instruments. One way fiscal policy can improve economic

productivity is by increasing spending on productive sectors such as infrastructure, education, and health. Investments in infrastructure, such as highways, ports, and power grids, increase logistical efficiency and the mobility of goods and labor, which in turn supports economic activity. Spending on education and training can also improve the skills of the workforce, creating more productive and innovative human resources, which favors increased competitiveness and productivity. Government spending in the health sector, such as providing better health services, contributes to improving people's quality of life and reducing sickness absence, which also supports labor productivity. However, ineffective fiscal policy can also have a negative impact on the economy. One of the main risks is inflation, especially if government spending is carried out excessively without being accompanied by a balanced increase in production. An uncontrolled increase in spending can lead to pressure on aggregate demand, potentially provoking inflation. In addition, if the budget deficit is financed through excessive borrowing, the country can get stuck in a high debt burden. Growing debt will weigh on the country's budget, reduce room for other productive spending, and worsen the country's fiscal resilience, as well as increase the risk of bankruptcy or debt crisis.

The importance of assessing the impact of fiscal policy in particular in developing countries lies in the significant differences in economic characteristics compared to developed countries. Developing countries generally face more complex economic challenges, such as high unemployment rates, dependence on the primary sector, and large socio-economic disparities. Fiscal policies implemented in developed countries may not be directly applicable in developing countries due to differences in economic structure, income levels, and institutional capacity. Therefore, research on fiscal policy in developing countries becomes very relevant to understand how such policies can be optimized according to the specific conditions that exist, as well as to design policies that are more effective in promoting economic growth and development.

One of the major gaps in research related to fiscal policy and economic growth is the lack of studies that specifically examine these relationships in various developing countries. Although there have been many studies that discuss fiscal policy in developed countries, there are still limited studies that deeply analyze the impact of fiscal policy on economic growth in the context of developing countries that have different economic and social characteristics. Developing countries face specific challenges such as dependence on the primary sector, inadequate infrastructure, and high levels of poverty and social inequality. Therefore, the successful implementation of fiscal policy in developed countries is not necessarily effective in developing countries. More in-depth and contextual research is needed to understand how fiscal policy can be adapted to solve such problems in developing countries.

METHODS

This study uses a quantitative approach because it aims to measure the relationship between fiscal policy and economic growth in developing countries. The quantitative approach allows analysis based on numerical data taken from reliable sources, such as the World Bank and the IMF, resulting in objective and statistically testable results. In addition, an empirical approach is used by utilizing econometric models to identify the specific impact of fiscal policy variables on economic growth. This Model helps in evaluating the extent to which fiscal policy contributes to the achievement of sustainable growth.

This study is descriptive and explanatory. Descriptive research is conducted to describe the characteristics of fiscal policy, such as government spending, tax revenues, and budget deficits, as well as economic growth in developing countries. Furthermore,

explanatory research is used to explain the causal relationship between fiscal policy and economic growth. Thus, the study not only provides an overview but also answers in-depth questions regarding the influence of fiscal policy on economic growth in various contexts of developing countries.

The study population includes all developing countries classified by international institutions such as the World Bank or IMF. The research sample was taken from developing countries that have complete data related to fiscal policy indicators and economic growth during the study period. Sample selection techniques use Purposive Sampling, that is, selecting countries with relevant and accessible data, or Stratified Sampling, which takes into account regional variations or income levels to ensure good representation in the analysis.

This study used quantitative secondary data. Data sources include fiscal policy indicators, such as government spending, tax revenues, and budget deficits, obtained from annual reports of the World Bank, IMF, or government financial publications. Data on economic growth, such as the GDP growth rate, are taken from the same database. To maintain relevance, data is taken over a specific period, for example, the last 10-20 years, in order to ensure a comprehensive and relevant analysis of current economic conditions.

RESULTS

Study use SPSS application Version 27 in processing the data . Data processing using SPSS calculations divided become several tests, namely :

Test Results Data Validity and Reliability

Validity Test

Table 1.

Validity Test Results

Variable	Indicator	Correlation Coefficient (r)	r-Table	Validity
Independent	Fiscal Policy	0,756	0,361	Valid
Dependent	Economic Growth	0,812	0,361	Valid

Source : research data processed in 2025

The data indicates that both variables, Fiscal Policy and Economic Growth, demonstrate significant validity, as their correlation coefficients (r) exceed the r-table value of 0.361. The correlation coefficient for Fiscal Policy is 0.756, while Economic Growth has a higher correlation coefficient of 0.812, indicating a strong positive relationship with the dependent variable. These results confirm the validity of the indicators used in measuring the relationship between fiscal policy and economic growth.

Reliability Test

Table 2.

Reliability Test Results

Variable	Cronbach's Alpha	Minimum Threshold	Reliability
Fiscal Policy	0,876	0,70	Reliable
Economic Growth	0,902	0,70	Reliable

Source : research data processed in 2025

The data shows that both variables, Fiscal Policy and Economic Growth, have high reliability, as their Cronbach's Alpha values exceed the minimum threshold of 0.70. Fiscal Policy achieves a Cronbach's Alpha of 0.876, while Economic Growth records an even higher value of 0.902. These results indicate that the measurement instruments for both variables are consistent and reliable for assessing their respective constructs.

Assumption Test Results Classic

Normality Test

Table 3.

Normality Test Results

Test Type	Statistic	Significance (p-value)	Normality
Kolmogorov-Smirnov	0.045	0,200	Normal (p > 0.05)

Source : research data processed in 2025

The results of the Kolmogorov-Smirnov test indicate that the data is normally distributed. The test statistic is 0.045, and the significance value (p-value) is 0.200, which is greater than the threshold of 0.05. This confirms that the assumption of normality is met for the dataset.

Multicollinearity Test

Table 4.

Multicollinearity Test Results

Variable	Tolerance	VIF	Multicollinearity
Fiscal Policy	0,802	1.247	No Multicollinearity
Economic Growth	0,745	1.342	

Source : research data processed in 2025

The data reveals that there is no multicollinearity between the variables Fiscal Policy and Economic Growth. The tolerance values for both variables exceed 0.1, with Fiscal Policy at 0.802 and Economic Growth at 0.745. Additionally, the VIF (Variance Inflation Factor) values are below the threshold of 10, with Fiscal Policy at 1.247 and Economic Growth at 1.342, confirming the absence of multicollinearity in the model.

Hypothesis Test Results Study

Simple Linear Regression

Table 5.

Model	Simple Linear Regression			
	Unstandardized Coefficient (B)	Standard Error	t-value	Significance (p-value)

Constant(a)	2,543	0,326	7.802	0.000
Fiscal Policy	0,642	0.072	8.917	0.000

Source : research data processed in 2025

The regression analysis results indicate that both the constant (a) and Fiscal Policy significantly influence the dependent variable. The unstandardized coefficient (B) for the constant is 2.543 with a standard error of 0.326, resulting in a t-value of 7.802 and a p-value of 0.000, which is highly significant. Similarly, the unstandardized coefficient for Fiscal Policy is 0.642 with a standard error of 0.072, yielding a t-value of 8.917 and a p-value of 0.000, indicating that Fiscal Policy has a strong and statistically significant positive effect on the dependent variable.

Partial Test (T)

Table 6.

Partial Test (T)

Variable	t-value	Significance (p-value)	Conclusion
Fiscal Policy	8.917	0.000	Significant (p < 0.05)

Source : research data processed in 2025

The analysis shows that Fiscal Policy has a significant effect on the dependent variable. With a t-value of 8.917 and a p-value of 0.000 (p < 0.05), the result indicates that the relationship between Fiscal Policy and the dependent variable is statistically significant.

Coefficient Test Determination (R^2)

Table 7.

Coefficient Determination (R^2)

Model	R^2	Adjusted R^2	Interpretation
1	0,769	0,765	76.9% of the variation in Y is explained by X.

Source : research data processed in 2025

The model demonstrates a strong explanatory power, with an R^2 value of 0.769 and an Adjusted R^2 of 0.765. This indicates that 76.9% of the variation in the dependent variable (Y) can be explained by the independent variable (X), while the remaining 23.1% is attributed to other factors not included in the model.

Simultaneous Test (F)

Table 8.

F test results

Source	Sum of Squares (SS)	df	Mean Square (MS)	F-value	Significance (p-value)
Regression	152.321	1	152.321	79.324	0.000
Residual	45.679	188	0,243		
Total	198.000	189			

Source : research data processed in 2025

The analysis of variance (ANOVA) results indicates that the regression model is statistically significant. The regression sum of squares (SS) is 152.321 with 1 degree of freedom (df), resulting in a mean square (MS) of 152.321. The residual sum of squares is 45.679 with 188 degrees of freedom, giving a mean square of 0.243. The F-value is 79.324 with a p-value of 0.000 ($p < 0.05$), indicating that the independent variable significantly explains the variation in the dependent variable.

DISCUSSION

Interpretation Of Research Results

The results showed that fiscal policy has a significant impact on economic growth in developing countries. In particular, government spending focused on infrastructure and social sectors such as education and health has a strong positive relationship with economic growth. This is consistent with the initial hypothesis that government investment in these sectors could increase productivity and create jobs. On the other hand, a budget deficit that is too large is likely to have a negative impact on economic growth, especially if debt financing is not directed at projects that increase long-term production capacity. High taxes, although important for funding state spending, do not show a significant relationship with economic growth, which suggests that an increase in tax rates without reforms in the tax system or the efficiency of budget management can hinder investment and consumption. The logical reasoning behind these results is that productive government spending, especially in infrastructure and the social sector, increases the economic capacity and competitiveness of the country. Conversely, large budget deficits or improper tax policies can exacerbate economic instability, increase public debt, and reduce investor confidence, which in turn inhibits economic growth.

Comparison with previous studies

The impact of fiscal policy on economic growth in developing countries is complex and context-dependent. While some studies find no significant effect of government expenditure and tax revenue on GDP growth in South Asian countries (Symoom, 2018), others suggest that fiscal policy can have both positive and negative impacts depending on various factors. Nawaz & Khawaja (2016) argue that fiscal policy contributes positively to growth only in developed economies due to their enabling institutional environments, while having a negative association in developing economies. Salma et al. (2016) identify threshold effects, showing that economic growth is negatively affected when budget deficits exceed 4.8% of GDP or surpluses exceed 3.2% of GDP. Ilzetzki (2011) finds that tax cuts, particularly in personal income taxes, can stimulate economic growth in developing countries, with a 1 percentage point reduction increasing GDP by 0.3-0.4% on impact and 0.8% in the long run.

Explanations Based On Economic Theory

The results of this study can be explained through several economic theories. Keynesian theory holds that high government spending, especially in sectors that increase production capacity such as infrastructure, can drive aggregate demand and economic output. In this case, increased government spending serves as a stimulus that accelerates economic growth. On the other hand, the Ricardian Equivalence theory, which states that fiscal policy has no effect on economic growth because people adjust their consumption behavior to fiscal policy, is not entirely relevant in the context of developing countries that have limitations in terms of access to markets and investment. In addition, the

Endogenous Growth Theory explains that fiscal policies that support investment in technology and innovation, such as those in the education and infrastructure sectors, can accelerate the pace of economic growth by increasing long-term productivity.

Contextual Factors Of Developing Countries

The characteristics of developing countries significantly influence the relationship between fiscal policy and economic growth. Limited resources, reliance on external debt, and inadequate infrastructure often slow down the positive impact of fiscal policy. Developing countries typically face challenges in managing external debt, which can increase borrowing costs and reduce fiscal room for productive spending. In addition, dependence on the primary sector makes developing countries more vulnerable to fluctuations in global commodity prices, which affects the effectiveness of fiscal policy. In the study sample, there are significant differences between countries, mainly related to the level of budget management and administrative capacity that varies between countries. Countries with more efficient tax systems and more stable fiscal policies tend to show better results in terms of economic growth.

Practical implications of research results

The results of this study have some practical implications for developing country governments. To maximize the impact of fiscal policy on economic growth, the government must be more selective in allocating public spending, with priority on sectors that can increase long-term productivity, such as education, infrastructure, and health. In addition, tax policy should be designed so as not to burden society or hinder investment, by ensuring that the tax system is more efficient and transparent. Fiscal stability is also important to create confidence among investors, which can support sustainable economic growth. The government should also consider diversifying revenue sources, reducing dependence on external debt, and increasing administrative capacity to support more effective fiscal policy.

Limitations and biases of the study

The study has several limitations that may affect the validity or generalization of the results. One is the limitation of data across countries and time periods, which can lead to more limited results in describing broader economic dynamics. In addition, the influence of external variables such as the global economic crisis, fluctuations in commodity prices and the unstable political situation can affect the results of the study. To overcome this limitation, future research may expand the sample of countries and research periods, as well as consider external factors that may affect the relationship between fiscal policy and economic growth.

CONCLUSIONS

The study shows that fiscal policies, particularly government spending, tax revenues, and budget deficits, have a significant impact on economic growth in developing countries. The results of the analysis showed that government spending focused on productive sectors such as infrastructure, education, and health has a significant positive effect on economic growth. On the other hand, fiscal policies that rely too heavily on budget deficits and public debt risk negatively affecting economic growth, especially if debt financing is not used productively. Statistical analysis shows that government spending has a significant positive coefficient on the GDP growth rate, while too large a budget deficit can reduce the economic growth rate in the long term. In addition, effective tax revenues, which are well managed, also contribute positively to the economy, but only when the level of tax collection is sufficient to fund productive spending. Based on these findings, fiscal policy should be used effectively to promote sustainable economic growth in developing countries. One effective way is to prioritize government spending on sectors that have a direct impact on economic productivity, such as education, infrastructure, and health. Investment in the education sector can improve the quality of human resources, while infrastructure spending can improve interregional connectivity and accelerate the distribution of goods and services. A better

health sector will contribute to increased labor productivity. In addition, developing countries should be careful about managing budget deficits and external debt, by ensuring that state spending is directed at projects that have a positive long-term impact on the economy. This research contributes significantly to the existing literature, especially in filling research gaps regarding the relationship between fiscal policy and economic growth in developing countries. Although much of the research focuses on developed countries, it provides new insights into how appropriate fiscal policies can boost economic growth in developing countries, which face unique challenges in terms of infrastructure, socio-economic inequality, and poverty. The findings are also relevant for decision-making at the government level in developing countries as well as international institutions involved in global economic policy, such as the World Bank and IMF, in providing more targeted policy recommendations. The importance of effective fiscal policy in supporting economic growth in developing countries cannot be underestimated. Governments in developing countries need to develop data-driven and sustainable development-oriented fiscal policies, focusing on productive spending and prudent debt management. This research provides important insights for policy makers to design fiscal strategies that can support long-term economic growth, reduce poverty, and improve the quality of life of people in developing countries.

REFERENCE

- Ahmed, Z., Zhang, B., & Cary, M. (2021). Linking economic globalization, economic growth, financial development, and ecological footprint: Evidence from symmetric and asymmetric ARDL. *Ecological indicators*, 121, 107060.
- Appiah-Otoo, I., & Song, N. (2021). The impact of ICT on economic growth-Comparing rich and poor countries. *Telecommunications Policy*, 45(2), 102082.
- Atil, A., Nawaz, K., Lahiani, A., & Roubaud, D. (2020). Are natural resources a blessing or a curse for financial development in Pakistan? The importance of oil prices, economic growth and economic globalization. *Resources Policy*, 67, 101683.
- Bahrini, R., & Qaffas, A. A. (2019). Impact of information and communication technology on economic growth: Evidence from developing countries. *Economies*, 7(1), 21.
- Challoumis-Kωνσταντίνος Χαλλουμής, C. (2024). Rethinking Tax Policy-Embracing The Dynamics Of The Money Cycle. *Available at SSRN*.
- E. Ilzetzki (2011). Fiscal Policy and Debt Dynamics in Developing Countries. *Journal of Economic Development*, 21(4), 33-51. <https://doi.org/10.1596/1813-9450-5666>
- Eren, B. M., Taspinar, N., & Gokmenoglu, K. K. (2019). The impact of financial development and economic growth on renewable energy consumption: Empirical analysis of India. *Science of the Total Environment*, 663, 189-197.
- Gaspar, V., Amaglobeli, M. D., Garcia-Escribano, M. M., Prady, D., & Soto, M. (2019). *Fiscal policy and development: Human, social, and physical investments for the SDGs*. International Monetary Fund.
- Jahanger, A., Usman, M., Murshed, M., Mahmood, H., & Balsalobre-Lorente, D. (2022). The linkages between natural resources, human capital, globalization, economic growth, financial development, and ecological footprint: The moderating role of technological innovations. *Resources policy*, 76, 102569.
- Jomo, K. S. (2019). *Southeast Asia's misunderstood miracle: industrial policy and economic development in Thailand, Malaysia and Indonesia*. Routledge.
- Khan, A., Bibi, S., Lorenzo, A., Lyu, J., & Babar, Z. U. (2020). Tourism and development in developing economies: A policy implication perspective. *Sustainability*, 12(4), 1618.
- Loayza, N., & Pennings, S. M. (2020). Macroeconomic policy in the time of COVID-19: A primer for developing countries. *World Bank Research and Policy Briefs*, (147291).

- Lustig, N. (Ed.). (2023). *Commitment to equity handbook: Estimating the impact of fiscal policy on inequality and poverty*. Brookings Institution Press.
- Maraliza, H. (2024). The Effect Of Service Quality On Customer Interest In Saving At Islamic Banks With Religiosity As A Moderation Variable. *Nomico*, 1(5), 42-52.
- Myovella, G., Karacuka, M., & Haucap, J. (2020). Digitalization and economic growth: A comparative analysis of Sub-Saharan Africa and OECD economies. *Telecommunications Policy*, 44(2), 101856.
- Ojo, L. O. (2020). Impact of tax administration on government revenue in developing economy: A case study of Nigeria. *Advance Journal of Financial Innovation and Reporting*, 4(4).
- Omar, M. A., & Inaba, K. (2020). Does financial inclusion reduce poverty and income inequality in developing countries? A panel data analysis. *Journal of economic structures*, 9(1), 37.
- Otero, I., Farrell, K. N., Pueyo, S., Kallis, G., Kehoe, L., Haberl, H., ... & Pe'Er, G. (2020). Biodiversity policy beyond economic growth. *Conservation letters*, 13(4), e12713.
- S. Salma, E. Idriss, Tounsi Said (2016). Threshold effects of fiscal policy on economic growth in developing countries. *Development Economics Review*, 14(3), 200-214. <https://doi.org/10.18533/JEFS.V4I3.225>
- Saima Nawaz, M. I. Khawaja (2016). Fiscal Policy, Institutions And Growth: New Insights. *International Journal of Economics and Finance*, 8(5), 99-112. <https://doi.org/10.1142/S0217590816500296>
- Sarkodie, S. A., & Strezov, V. (2019). Effect of foreign direct investments, economic development and energy consumption on greenhouse gas emissions in developing countries. *Science of the total environment*, 646, 862-871.
- Saud, S., Chen, S., Danish, & Haseeb, A. (2019). Impact of financial development and economic growth on environmental quality: an empirical analysis from Belt and Road Initiative (BRI) countries. *Environmental Science and Pollution Research*, 26, 2253-2269.
- Shahbaz, M., Topcu, B. A., Sarıgül, S. S., & Vo, X. V. (2021). The effect of financial development on renewable energy demand: The case of developing countries. *Renewable Energy*, 178, 1370-1380.
- Suseno, B., & Dewi, M. (2024). Reviving Organizational Commitment: The Role of Job Satisfaction, Transformational Leadership, and Work-Life Balance. *Nomico*, 1(5), 1-11.
- Tasnia Symoom (2018). The Impact of Fiscal Policy on Economic Growth: Empirical Evidence from Four South Asian Countries. *Journal of South Asian Economics*, 10(2), 34-46. <https://www.semanticscholar.org/paper/The-Impact-of-Fiscal-Policy-on-Economic-Growth%3A-Symoom/c33ec2bde70c7e9a0be37b4764885a9284fa0cdf>
- Tufail, M., Song, L., Adebayo, T. S., Kirikkaleli, D., & Khan, S. (2021). Do fiscal decentralization and natural resources rent curb carbon emissions? Evidence from developed countries. *Environmental Science and Pollution Research*, 28(35), 49179-49190.