Efficient Vol 9 (1) (2025): 57-63 DOI: https://doi.org/10.15294/efficient.v9i1.40810

EFFICIENT

Indonesian Journal of Development Economics

https://journal.unnes.ac.id/sju/index.php/efficient

Analysis of Monetary and Fiscal Policies on Economic Growth

[1]Lestari Sihite, [1]Yosie Gabriela Panjaitan, [1]Ayu Angelina Pasaribu✉, [2]Sutejo Perangin Angin, [1]Herry Daniel Laurent Marpaung

[1]Faculty of Educational Administration and Economics, Universitas Senior Medan
[2]Faculty of Economics and Business, Universitas Sumatera Utara

Permalink/DOI: https://doi.org/10.15294/efficient.v9i1.40810

Submitted: July 2025; Revised: October 2025; Accepted: January 2026

Abstract

This paper examines the effect of the combination of monetary and fiscal policies on economic growth in North Sumatera Province using time series data for the period 2010-2024. The analysis was conducted using VAR method and forecasting. The result show that local government spending and Local Own-Source Revenue contribute positively and significantly to economic growth. Conversely, inflation has a negative and significant impact on economic growth. These findings confirm that local fiscal instruments are the main drivers of the economy. On the other hand, General Allocation Funds and the BI Rate are not proven to have a significant effect on economic growth. No flypaper effect was found, because Local Own-Source Revenue plays a greater role in driving RGDP than General Allocation Funds, indicating that North Sumatra's economic performance is more supported by its internal potential. For the Policy Mix, a combination of expansive and productive fiscal policies with stable and accommodative monetary policies is most effective. While local governments support growth, BI stabilizes and provides a favorable economic environment.

Keywords: Monetary Policy, Fiscal Policy, Flypaper Effect, Economic Growth

How to Cite: Analysis of Monetary and Fiscal Policies on Economic Growth. (2026). Efficient: Indonesian Journal of Development Economics, 9(1), 57-63. https://doi.org/10.15294/efficient.v9i1.40810

© 2026 Semarang State University. All rights reserved

✉ Correspondence Address :
Address: Gedung L2 Lantai 2 FE Unnes
Kampus Sekaran, Gunungpati, Semarang, 50229
E-mail : ayuangelina0@gmail.com

INTRODUCTION

One of the main indicators in macroeconomics used to measure a country's progress is its economic growth. An important indicator for determining the economic condition of a region over a certain period of

time is Regional Gross Domestic Product (RGDP) data, which can be used on the basis of current prices or constant prices.

Movements in Indonesia's Regional Gross Domestic Product (RRGDP) show that each province has different economic characteristics. One of the national economic centers, North Sumatra Province, shows a stable and positive RDBP growth trend from year to year. Based on available data, North Sumatra's RDBP has increased consistently from 2010 to 2024, despite experiencing a significant slowdown in 2019 and 2020 due to the global pandemic.

Theoretically, economic growth is influenced by various factors, including fiscal and monetary policies (Ayana et al., 2023) and (Jawadi et al., 2016). According to (Fahrurriz, 2017) fiscal policy, which is implemented by local governments through the regional budget, includes government spending and local revenue (Hasto & Afif, 2022).

Meanwhile, monetary policy, which is carried out by Bank Indonesia, plays a role through instruments such as the benchmark interest rate (BI Rate) to control inflation. The synergy between these two policies, known as the policy mix, is crucial in maintaining stability and promoting economic growth (Juhro, 2022). Economic growth in the province of Sumatra is highly influential.

However, the performance of each policy may differ in each region. An important question arises in the context of North Sumatra, namely, how much do each of the following policy instruments contribute to economic growth: regional spending, inflation, and BI Rate? To measure the influence and significance of each variable, an in-depth empirical analysis is required. Consequently, this study will investigate the relationship between constantly changing fiscal and monetary policies and economic development in North Sumatra Province.

Many national and regional studies have been conducted on how monetary and fiscal policies affect economic growth. However, there are still certain research gaps, where most studies focus on national aggregate data but ignore regional economic dynamics and specific characteristics.

This study will fill the gap by focusing on North Sumatra Province, which has various leading sectors and economic problems. Unlike simple correlation methods that cannot capture temporal cause-and-effect relationships, the Vector Autoregressive (VAR) model approach allows this study to identify the direct and significant impact of each policy variable on RGDP. The problem of variables influencing each other can be overcome with the VAR model. This will improve our understanding of how policy impacts interact in North Sumatra.

RESEARCH METHODS

This study uses a quantitative approach with a descriptive and explanatory design. The descriptive design is evident in the effort to describe the economic growth conditions in North Sumatra Province, while the explanatory design is evident in the use of statistical and relationship between variables that affect the dimensions of economic growth in the North Sumatra Province region. The data sources used in this study are secondary data. The data used are time-series data in annual form. The time-series data used range from 2010 to 2024.

The technique applied in this study is time series regression analysis for the period 2010-2024 using the Vector Autoregressive (VAR) model. Data processing was carried out using E-

Views 18 software. The data analysis stages in this study refer to Gujarati (2009), which includes several steps, including: Stationarity Test. In general, time series data in economics is non-stationary. The Optimal Lag Test is used to form VAR modeling. The VAR model used for this study was created with the following equation:

$$Y_{1t} = \beta_{01} + \Sigma_{i=1}^{p}\beta_{i1}Y_{1t-i} + \Sigma_{i=1}^{p}\alpha_{i1}Y_{2t-i} + \Sigma_{i=1}^{p}\pi_{i1}Y_{3t-i} + \Sigma_{i=1}^{p}\theta_{i1}Y_{4t-i} + e_{1t}$$
$$Y_{1t} = \beta_{02} + \Sigma_{i=1}^{p}\beta_{i2}Y_{2t-i} + \Sigma_{i=1}^{p}\alpha_{i2}Y_{1t-i} + \Sigma_{i=1}^{p}\pi_{i2}Y_{3t-i} + \Sigma_{i=1}^{p}\theta_{i2}Y_{4t-i} + e_{2t}$$
$$Y_{1t} = \beta_{03} + \Sigma_{i=1}^{p}\beta_{i3}Y_{3t-i} + \Sigma_{i=1}^{p}\alpha_{i3}Y_{1t-i} + \Sigma_{i=1}^{p}\pi_{i3}Y_{2t-i} + \Sigma_{i=1}^{p}\theta_{i3}Y_{4t-i} + e_{3t}$$
$$Y_{1t} = \beta_{04} + \Sigma_{i=1}^{p}\beta_{i4}Y_{4t-i} + \Sigma_{i=1}^{p}\alpha_{i4}Y_{1t-i} + \Sigma_{i=1}^{p}\pi_{i4}Y_{2t-i} + \Sigma_{i=1}^{p}\theta_{i4}Y_{3t-i} + e_{4t}$$

IRF and FEVD analyses are used to identify the impact of fundamental factor shocks, using Impulse Response Function (IRF) analysis. IRF aims to trace the effects of a shock on certain endogenous variables in the current period and the following period.

RESULTS AND DISCUSSION

This study was conducted according to the literature (Gujarati, 2009) and is said to have produced valid VAR estimates. Continue to the next stationary test using first difference, resulting in all variables free from unit root. To estimate with VAR, the data must be in stationary condition.

Since the variable data is already stationary at the first difference level, the estimation is expected to produce a valid model output. Therefore, the research results will have a high level of validity as shown in Table 1.

Table 1. Phillips-Perron stationary results

Level	Prob.	First Difference	Prob.
RGPD	0.9350	D(RGPD)	0.0007
Goverment Spending	0.1984	D(Goverment Spending)	0.0000
Provincial Revenue	0.9964	D(Provincial Revenue)	0.0000
Central Government Transfer	0.9999	D(Central Government Transfer)	0.0002
Inflation	0.3581	D(Inflation)	0.0000
Bi_Rate	0.3516	D(Bi_Rate)	0.0001

Source: Data processed, 2025

In VAR modeling, determining the optimal lag length is very important. If the optimal lag is too short, it may not fully explain the dynamics of the model. However, an optimal lag that is too long will result in inefficient estimation due to the reduced degree of freedom, especially in models with smaller samples. Therefore, it is necessary to know the optimal lag before estimating the VAR. As shown in Table 2. Based on Table 2, the optimal lag length selection test using the Akaike Information Criteria (AIC), final prediction error (FPE), Schwartz information criteria (SC), and likelihood ratio criteria resulted in an optimal lag of 1. The next step was to test the stability of the VAR model used in this study, which showed no unit root (stable). The regression coefficients for each equation in the VAR system

are shown in the output in Table 3. This is done by regressing the endogenous variables in the current period on the previous lag values of all endogenous variables in the model.

Table 2. Lag Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-905.0727	NA	3.01e+53	140.1650	140.4258	140.1114
1	-839.2176	60.78932*	6.52e+51*	135.5719*	137.3972*	135.1968*

Source: Data processed, 2025

Interpretation of Results is D(PDRB-1) is an independent variable with a coefficient of -0.396, indicating that, assuming other variables remain constant, D(PDRB) in the current period tends to decrease by 0.396 percent if D(PDRB) in the previous period increases by 1 percent.

Table 3. VAR Estimation

Estimation	D(GDRP)
D(RGPD(-1))	-0.396243
	(0.42847)
	[-2.92478]
D(Goverment Spending(-1))	5801.555
	(4289.25)
	[2.35258]
D(Provincial Revenue	1626.752
	(3811.68)
	[2.42678]
D(Central Government Transfer(-1))	9.24E-06
	(7.3E-06)
	[1.27089]
D(Inflation(-1))	-2208633.
	(1387282)
	[-1.99206]
D(Bi_Rate(-1))	4224904.
	(2940324)
	[1.93688]

Source: Data processed, 2025

The t-statistic result is -2.924 at a confidence level of 0.05. We compare the absolute value of this t-statistic with the critical value, which is usually around 1.96 for large samples. This means that it has a negative and significant effect on the current period's GRDP.

D(EXPENDITURE-1) against D(GRDP) has a coefficient of 5.801, which indicates that, assuming other variables remain constant, D(GRDP) in the current period tends to increase by 5.801 percent if D(EXPENDITURE-1) in the previous period increases by 1 percent. The t-statistic result is -2.2352 at a confidence level of 0.05. We compare the values This absolute t-statistic with a critical value means that it has a positive and significant effect on the current period's GRDP.

D(PAD-1) to D(GRDP) has a coefficient of 1.626, which indicates that, assuming other variables remain constant, D(GRDP) in the current period tends to increase by 1.626 percent if D(PAD-1) increases by 1 percent. The t-statistic result is -2.426 at a confidence level of 0.05. We compare the absolute value of this t-statistic with the critical value, which indicates a positive and significant effect on the current period's GRDP.

D(DAU-1) against D(PDRB) has a coefficient of 9.24, which indicates that, assuming other variables remain constant, D(PDRB) in the current period tends to increase by 9.24 percent if D(DAU-1) increases by 1 percent. The t-statistic result is -1.270 at a

confidence level of 0.05. We compare the absolute value of this t-statistic with the critical value, which means that it has a positive and insignificant effect on the current period's GRDP.

D(INFLATION-1) against D(GRDP) has a coefficient of -2.208, which indicates that, assuming other variables remain constant, D(GRDP) in the current period tends to decrease by 2.208 percent if D(INFLATION-1) increases by 1 percent.

The t-statistic result is -1.992 at a confidence level of 0.05. We compare the absolute value of this t-statistic with the critical value. This means that it has a negative and significant effect on the current period's GRDP.

D(BI_RATE-1) against D(PDRB) has a coefficient of 4.224, which indicates that, assuming other variables remain constant, D(PDRB) in the current period tends to increase by 4.224 percent if D(BI_RATE-1) increases by 1 percent.

The t-statistic result is 1.936 at a confidence level of 0.05, we compare the absolute value of this t-statistic with the critical value. This means that it has a positive and significant effect on the current period's GRDP. According to the fairly good R-squared value (0.443729), the independent variables in the model can explain 44.37% of the variation in the GRDP variable.

However, approximately 55% of the variation cannot be explained, which may be due to other variables not included in the model. In the VAR model, the impulse response function shows how each endogenous variable reacts to shocks with standard deviations from other endogenous variables. This improves our understanding of the direction, magnitude, and duration of the impact of these shocks.

CONCLUSION

The variables of local government expenditure and local own-source revenue are proven to contribute positively and significantly to the increase in RGDP. Meanwhile, inflation shows a negative and significant relationship with RGDP. This finding indicates that fiscal instruments at the regional level play an important role as a driving force for economic growth.

In contrast, neither the General Allocation Fund nor the BI Rate variable is shown to have a significant effect on RGDP. This indicates that monetary policy and the flow of transfer funds from the central government are not directly able to encourage regional economic growth in the study period.

The flypaper effect is not found, this occurs because PROVINCIAL REVENUE encourages RGDP more than CENTRAL GOVERNMENT TRANSFER, indicating that economic growth in North Sumatra depends more on its own internal performance.

The Provincial and Regency/City Governments of North Sumatra should prioritize the use of fiscal instruments as the main engine of growth. To increase production capacity and infrastructure, the budget must be allocated effectively and on target. 3. Although monetary policy does not have a directly significant role in maintaining stability, its function remains important. The Regional Inflation Control Team (TPID) should collaborate more proactively. To keep inflation under control, local governments can support BI's efforts by maintaining the supply of goods, especially basic need

REFERENCES

Abdurrohman, A. F., Hakim, L., Prasetyani, D., & Study, D. (2021). Monetarist Vs Keynesian Approach in the

Monetary Policy Transmission Mechanism Before and After the Implementation of the Inflation Targeting Framework Inflation Rate Before Deployment of Inflation Targeting Framework in Indonesia. International Journal of Economics, Business and Management Research, 5(06), 172–190.

Adegboyo, O. S., Keji, S. A., & Fasina, O. T. (2021). The impact of government policies on Nigeria economic growth (case of fiscal, monetary and trade policies). Future Business Journal, 7(1), 59. https://doi.org/10.1186/s43093-021-00104-6

Alpanda, S., Granziera, E., & Zubairy, S. (2021). State dependence of monetary policy across business, credit and interest rate cycles. European Economic Review, 140(1), 103936. https://doi.org/https://doi.org/10.1016/j.euroecorev.2021.103936

Ayana, I. D., Demissie, W. M., & Sore, A. G. (2023). Fiscal policy and economic growth in Sub-Saharan Africa: Do governance indicators matter? PLOS ONE, 18(11), e0293188. https://doi.org/10.1371/journal.pone.0293188

Bassetto, M. (2016). Fiscal Theory of the Price Level BT - The New Palgrave Dictionary of Economics. In The New Palgrave Dictionary of Economic (pp. 1–5). Palgrave Macmillan UK. https://doi.org/10.1057/978-1-349-95121- 5_2575-1

BPS. (2024). Badan Pusat Statistik. https://sumut.bps.go.id/id/statistics-table/3/V1ZGaVF6SXhkRWROYzA1b1ZXMUhWRVk0YjJwamR6MDkjMw==/jumlah-penduduk-berumur-15-tahun-keatas-menurut-jenis-kegiatan-selama-seminggu-yang-lalu-dan-jenis-kelamin-di-provinsi-sumatera- utara.html?year=2023

Doré, N. I., & Teixeira, A. A. C. (2021). Empirical Literature on Economic Growth, 1991–2020: Uncovering Extant Gaps and Avenues for Future Research. Global Journal of Emerging Market Economies, 15(1), 7–37. https://doi.org/10.1177/0974910121106162 6

Fahrurriz, P. (2017). Analisis pengaruh pendapatan asli daerah (pad), dana alokasi umum (dau), dana bagi hasil (dbh) dan belanja modal terhadap pertumbuhan ekonomi serta dampaknya pada tingkat kemiskinan di daerah kabupaten/kota provinsi riau tahun 2011-2015. IX (3), 198–224.

Gujarati, P. (2009). Basic Econometrics: Fitth Edition.

Hasto, D., & Afif, M. (2022). Analisis Faktor- Faktor Yang Mempengaruhi Ketimpangan Pendapatan antar Daerah Kabupaten/Kota di Provinsi Daerah Istimewa. Diponegoro Journal of Economics, 11, 176–186.

Jawadi, F., Mallick, S. K., & Sousa, R. M. (2016). Fiscal and monetary policies in the BRICS: A panel VAR approach. Economic Modelling, 58(1), 535–542. https://doi.org/https://doi.org/10.1016/j.econmod.2015.06.001

Juhro, S. M. (2022). Central bank policy mix: Issues, challenges, and policy responses. In Central Bank Policy Mix: Issues, Challenges, and Policy Responses: Handbook of Central Banking Studies. https://doi.org/10.1007/978-981-16-6827- 2_2

Kitchen, H., McMillan, M., & Shah, A. (2019). Intergovernmental Fiscal Transfers: Principles BT - Local Public Finance and Economics: An International Perspective. In H. Kitchen, M. McMillan, & A. Shah (Eds.), Local Public Finance and Economic (pp. 405–439). Springer International Publishing. https://doi.org/10.1007/978-3-030-21986-4_12

Mankiw G. (2016). Macroeconomics (Harvard University (ed.)). Worth Publishers. www.worthpublishers.com

Medema, S. G. (2023). Theorising public expenditures: welfare theorems, market failures, and the turn from "public finance" to "public economics." The European Journal of the History of Economic Thought, 30(5), 713–738. https://doi.org/10.1080/09672567.2023.2 248320

Meinisa, T., & Azwardi, A. (2024). Sustainable development goals in Sumatera Island: Poverty, Economic growth, and Environment. E3S Web of Conferences, 513(I), 1–10. https://doi.org/10.1051/e3sconf/202451301005

Nkalu, Chigozie Nelson, & Agu, Chike Cletus. (2023). Fiscal Policy and Economic Stabilization Dynamics in Sub-Saharan Africa: A New Evidence from Panel VEC Model and Hodrick-Prescott Filter Cyclical Decomposition. SAGE Open, 13(2), 21582440231178260. https://doi.org/10.1177/215824402311782 6 1

Parui, P. (2021). Government expenditure and economic growth: a post-Keynesian analysis. International Review of Applied Economics, 35(3–4), 597–625. https://doi.org/10.1080/02692171.2020.18 37744

Pastpipatkul, P., & Ko, H. (2025). The Efficacy of Monetary and Fiscal Policies on Economic Growth: Evidence from Thailand. In Economies (Vol. 13, Issue 1, p. 19). https://doi.org/10.3390/economies13010019

Sadono Sukirno. (2015). Makroekonomi Teori Pengantar (3rd ed.) (Rajawali Pers. (ed.)). Safuan, S., Sugandi, E. A., Habibullah, M. S., & James, G. (2024). Analyzing monetary policies and bank credit in Indonesia's provincial clusters amidst COVID-19 pandemic. Journal of the Asia Pacific Economy, 29(4), 1785–1833. https://doi.org/10.1080/13547860.2024.23 56338

Sofilda, E., Hamzah, M. Z., & Kusairi, S. (2023). Analysis of fiscal decentralisation, human development, and regional economic growth in indonesia development, and regional economic growth in. Cogent Economics & Finance, 11(1), 16. https://doi.org/10.1080/23322039.2023.22 20520

Syarif, M. M., & Asandimitra, N. (2015). Pengaruh Indikator Makro Ekonomi Dan Faktor Global Terhadap Indeks Harga Saham Gabungan (IHSG). Competence https://eco- entrepreneur.trunojoyo.ac.id/kompetensi/article/view/1624

Waheed, F., Rashid, A., Basit, A., & Maroof, L. (2024). Monetary policy reaction function: A Bayesian analysis for the BRICS. PLoS ONE, 19(8), 1–19. https://doi.org/10.1371/journal.pone.0307 436

Warjiyo, P., & Juhro, S. M. (2019). Central Bank Policy Mix: Issues, Challenges, and Policy Responses. BI Institute 2022. https://doi.org/https://doi.org/10.1007/9 78-981-16-6827-2_4

Yushkov, A. (2015). Fiscal decentralization and regional economic growth: Theory, empirics, and the Russian experience. Russian Journal of Economics, 1(4), 404–418. https://doi.org/https://doi.org/10.1016/j.ruje.2016.02.004