

Contribution Fiscal Policy to Economic Growth in East Java

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Abstract

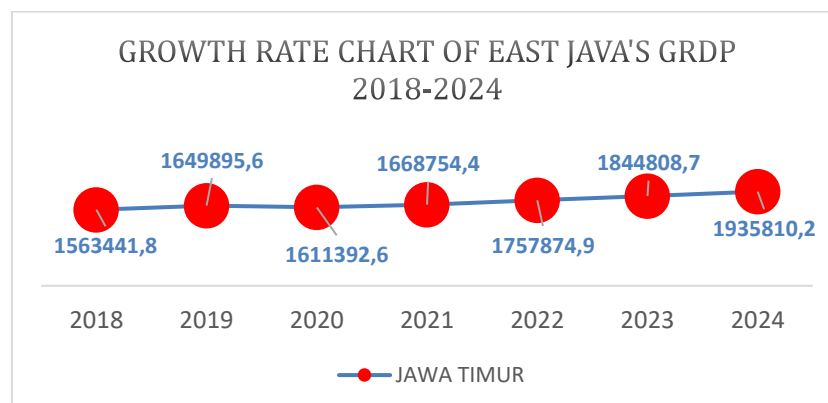
This study empirically examines the impact of fiscal policy on economic growth in East Java Province during the period 2018–2024. The objective is to analyze the effects of regional taxes, subsidy expenditures, and the Value Added Tax (VAT) rate adjustment on regional economic growth. A quantitative approach with multiple linear regression analysis is employed, incorporating a dummy variable to capture the impact of the VAT increase from 10% to 11% in 2022. The findings reveal that regional taxes and the VAT dummy variable significantly influence economic growth, while subsidy expenditures are statistically insignificant. The coefficient of determination (R^2) of 96.5% indicates that the model explains the majority of variations in economic growth. These results imply that optimizing tax revenues and evaluating VAT policy should be aligned with strategies for inclusive and sustainable regional economic growth. This research provides relevant insights for regional policymakers in designing effective fiscal instruments.

Keywords: East Java, fiscal policy, regional taxes, economic growth, subsidies, dummy variable

INTRODUCTION

Economic growth in East Java has shown a relatively stable trend, driven largely by the manufacturing, trade, and agricultural sectors. As the province with the second-largest economic contribution in Indonesia after Jakarta, East Java possesses a highly diverse economic structure. The success of regional development can be measured through a key indicator, namely economic growth (Sultan, Rahayu, and Purwiyanta 2023). The manufacturing sector, particularly food, beverages, and tobacco products, serves as the main pillar of the regional economy. In addition, the trade and services sectors have also experienced rapid expansion, especially in Surabaya, which functions as the primary distribution hub for eastern Indonesia.

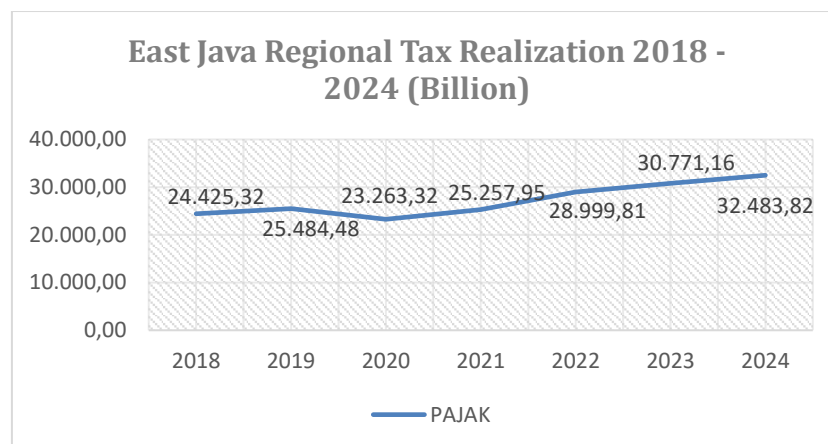
Nevertheless, East Java's economic growth still faces several challenges, including regional disparities, heavy dependence on certain industrial sectors, and external shocks such as rising energy prices and the global economic slowdown. During the transition period toward post-pandemic recovery amid global uncertainties, fiscal policy plays a crucial role in sustaining growth whether through optimizing tax revenues, ensuring well-targeted subsidies, or managing VAT adjustments to avoid excessive burdens on household purchasing power. With well-directed fiscal policies, East Java can not only maintain its economic growth momentum but also strengthen its regional competitiveness.



The graphical illustration above reflects the development of economic growth rates in East Java Province from 2018 to 2024, based on processed data from the Central Bureau of Statistics (BPS). Overall, the graph reveals a fluctuating trend. In 2018, East Java's economic growth reached 1,563,441.80 and rose in 2019 to 1,649,895.6. However, in 2020, a sharp decline occurred, falling to a negative figure of -1,611,392.6, most likely due to the impact of the COVID-19 pandemic on the regional economy. Following this contraction, the province began to recover in 2021, recording 1,668,754.4, and continued its upward trajectory in 2022 with 1,757,874.9. This recovery trend persisted through 2023 and 2024, with values of 1,844,808.7 and 1,935,810.20, respectively.

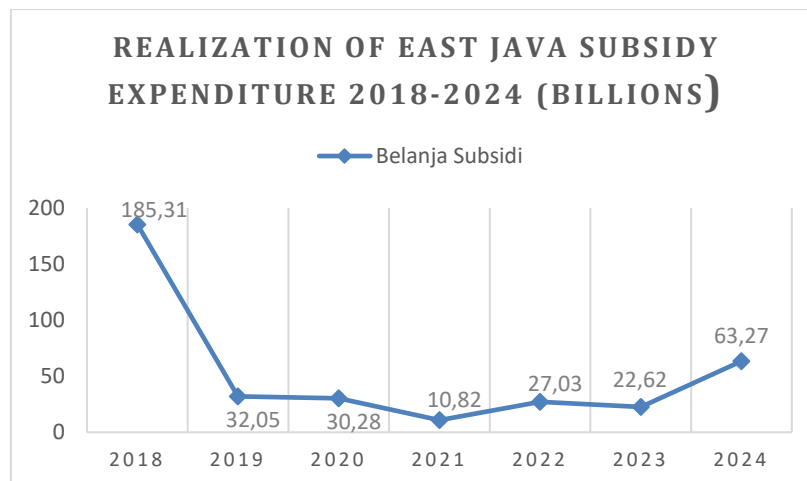
Amid these dynamics, the composition of Regional Original Revenue (PAD) highlights the strategic role of regional taxes as one of the primary sources of income. Taxes serve as a fiscal policy instrument that significantly influences the level of economic growth (Nawawi Ahmad, 2010). Nonetheless, regional revenues remain heavily dependent on the manufacturing industry and excise taxes, particularly from tobacco products. This reliance is understandable given that East Java is recognized as the national hub for the cigarette industry, concentrated in cities such as Surabaya, Kediri, and Malang. However, such dependence on specific sectors, while strengthening tax revenues, also poses risks in the event of declining production or regulatory changes in the industry. (Perkasa Alam et al., 2024)

Therefore, diversifying revenue sources such as by promoting tourism, trade, and small and medium enterprises (SMEs) is crucial to ensure fiscal stability. Regional revenues are subsequently allocated to support various development agendas, including infrastructure development, improving the quality of education, and providing health services. Key types of regional taxes in East Java include the Motor Vehicle Tax (PKB), the Motor Vehicle Fuel Tax (PBBKB), and taxes levied on the hospitality and restaurant sectors.



Data on regional tax realization in East Java indicates a relatively stable trend with a tendency to increase, despite being temporarily affected by the pandemic. In 2018, regional tax revenues reached IDR 24,425.32 billion and rose to IDR 25,484.48 billion in 2019. However, a decline occurred in 2020, with revenues falling to IDR 23,263.32 billion, which can be directly linked to weakened economic activity caused by the pandemic. Following this downturn, the trend improved again, with collections reaching IDR 25,257.95 billion in 2021, increasing further to IDR 28,999.81 billion in 2022, and IDR 30,771.16 billion in 2023. By 2024, regional tax realization in East Java had risen to IDR 32,337.60 billion, reflecting stronger revenue performance in line with economic recovery and improved tax administration effectiveness. (Sholikhah et al., 2024)

In addition, subsidy expenditures serve as an essential fiscal policy instrument to ease the burden on society (Soen et al., 2022). A critical aspect of government spending through subsidies is directed toward education and health sectors, which play a pivotal role in improving human capital and supporting long-term economic growth (Carolina, 2022).



In East Java Province, the realization of government subsidy expenditures has shown sharp fluctuations over the same period. In 2018, subsidy spending reached its highest level at IDR 185.31 billion. However, a drastic decline followed, with only IDR 32.05 billion recorded in 2019 and IDR 30.28 billion in 2020. The most significant drop occurred in 2021, when subsidies fell to just IDR 10.82 billion. Although spending rebounded slightly to IDR 27.03 billion in 2022, it decreased again to IDR 22.62 billion in 2023. In 2024, however, East Java's subsidy expenditures rose significantly to IDR 63.47 billion, a sharp increase compared to the previous year. This growth reflects the strengthened role of local government in providing fiscal support to strategic sectors, particularly in alleviating the burden on households in the post-pandemic period and maintaining purchasing power.

This study also considers the policy impact of the one percent increase in the Value Added Tax (VAT) rate from 10% to 11% which came into effect in April 2022. To capture this effect econometrically, a dummy variable was employed, coded as 0 for the years prior to the policy (2018–2021) and 1 for the years after its implementation (2022–2024). This approach allows the analysis to distinguish between economic growth before and after the VAT increase, without incorporating the nominal rate directly into the model. It enables testing whether the shift from 10% to 11% significantly influenced East Java's growth trajectory.

Theoretically, a VAT increase tends to exert a contractionary effect on economic growth, particularly when household consumption has not fully recovered in the post-pandemic period. The higher rate may suppress consumer purchasing power since most goods and services are subject to consumption tax. In East Java, this phenomenon has been evident in the decline of traditional market transactions and rising prices in processed foods, clothing, and transportation (BPS, 2023). Accordingly, the VAT dummy variable functions to isolate the impact of this policy on the regional economy from other fiscal factors such as subsidies and regional taxes.

Previous empirical studies, such as those by Bahari et al. (2019) and Rizal Ma'ruf and Andriansyah (2022), have demonstrated that fiscal instruments like taxation and public expenditure contribute differently to economic performance across regions. However, in the context of East Java, few studies have directly examined the simultaneous effects of tax revenues, subsidy expenditures, and VAT policy on economic growth using a comprehensive quantitative approach. This research seeks to fill that gap by employing an analytical framework grounded in Keynesian theory, which emphasizes the active role of government in managing aggregate demand through fiscal intervention.

From a theoretical standpoint, fiscal policy can be either expansionary or contractionary. Expansionary policy seeks to stimulate economic growth through increased public spending and reduced taxation, whereas contractionary policy aims to control inflation by cutting spending and raising taxes (Purba, 2024). Within this framework, subsidies and government expenditures on goods and services act as drivers of aggregate demand, while taxation including VAT shapes

household consumption and investment decisions. This study adopts the dummy variable approach to capture the discrete effect of VAT policy changes on regional growth dynamics.

The purpose of this study is to analyze the impact of regional taxes, subsidy expenditures, and VAT policy on the economic growth rate of East Java Province during the period 2018–2024. This research is important as it provides an empirical foundation for formulating more effective and adaptive regional fiscal policies. Moreover, its findings are expected to serve as a reference for local governments in optimizing fiscal instruments while contributing to the development of regional economic literature based on local data.

METHOD

Tujuan The objective of this study is to evaluate the impact of fiscal policy on the economic growth rate of East Java Province during the period 2018–2024. The data used are annual records reflecting regional government fiscal policies, particularly in the form of regional taxes, subsidy expenditures, and changes in the Value Added Tax (VAT) rate. East Java was selected as the focus of analysis due to its position as one of the largest contributors to the Indonesian economy.

This study employs a quantitative approach with an associative research design, analyzed using multiple linear regression. The research framework is intended to empirically test the relationship between the independent variables subsidy expenditures (X1), regional taxes (X2), and the VAT policy dummy variable (D) and the dependent variable, economic growth (Y). The dataset consists of time-series panel data spanning seven years, from 2018 to 2024.

The regression model applied in this study is formulated as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 D + e$$

Keterangan:

Y = Economic growth

X1 = Subsidy expenditures

X2 = Regional taxes

D = VAT dummy (0 = years 2018–2021, 1 = years 2022–2024)

α = Constant

e = Error term

Jenis The type of data employed in this study is secondary data, obtained through a documentation study from official sources such as the Central Bureau of Statistics (BPS) of East Java Province and the Directorate General of Taxes (DJP). The collected documents include Gross Regional Domestic Product (GRDP) data calculated at constant prices, reports on subsidy expenditure realization, and regional tax revenue data. These datasets were utilized to measure the changes and trends in the impact of fiscal instruments on the dynamics of regional economic growth.

This research is non-experimental in nature, with no direct interventions applied. However, a dummy variable was incorporated to capture the effect of fiscal policy, specifically the increase in the Value Added Tax (VAT) rate from 10% to 11% implemented in 2022. The dummy variable was coded as 0 for the years 2018–2021 (pre-VAT increase period) and 1 for the years 2022–2024 (post-VAT increase period). This approach allows the researcher to observe significant changes attributable to the policy shift on economic growth.

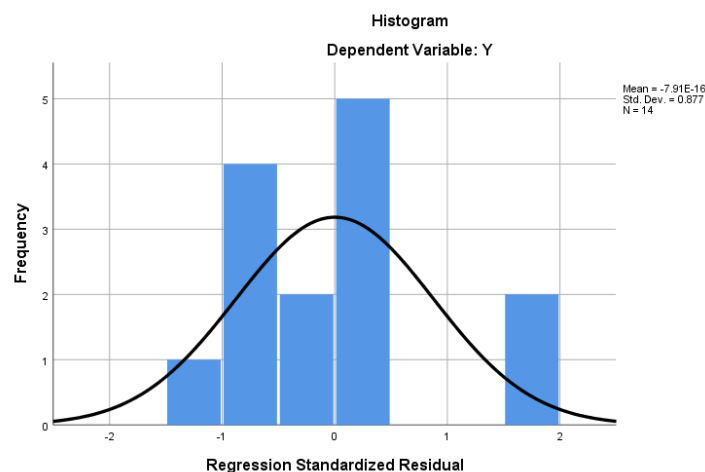
Data analysis was conducted using statistical techniques, beginning with classical assumption tests such as normality, heteroscedasticity, and multicollinearity tests. Data normality was assessed through visual interpretation of histograms and normal probability plots to ensure that the residual distribution approximated normality. Heteroscedasticity was tested using scatterplots of residuals against predicted values, along with the Spearman statistical test to examine the stability of residual variance. Multicollinearity was assessed by observing Tolerance values and the Variance Inflation Factor (VIF), which indicate correlations among independent variables.

Once the model satisfied the assumptions of classical linear regression, multiple linear regression analysis was performed to test the influence of each independent variable. Hypothesis testing was then conducted using the t-test (partial) to examine the effect of each independent variable on economic growth individually, and the F-test (simultaneous) to evaluate their collective impact. Finally, the coefficient of determination (R^2) was applied to assess the extent to which variations in economic growth could be explained by the regression model. This approach is expected to provide a comprehensive and in-depth analysis of the effectiveness of fiscal policy in East Java in promoting regional economic growth.

RESULTS AND DISCUSSION

Classical Assumption Test

One of the fundamental requirements in the classical linear regression model is that the residuals must be normally distributed. This condition is essential to ensure that the parameter estimates generated by the model are optimal meaning that they are linear, unbiased, and have minimum variance (BLUE: Best Linear Unbiased Estimator).



Based on the histogram of standardized residuals, the distribution appears to resemble a normal curve (bell-shaped), with the peak centered around zero and a relatively symmetrical spread on both sides. The mean of the residuals is close to zero (Mean = $-7.91E-16$), and the standard deviation of 0.877 indicates that the variation of the residuals is not extreme. This suggests that the assumption of normality is satisfied, thereby fulfilling one of the classical requirements of linear regression.

Multiple Linear Regression Analysis

This study applied multiple linear regression analysis, processed using SPSS software as a supporting tool for data analysis. Such an approach is highly useful in economic research, as it allows for the examination of how multiple factors influence economic growth and provides data-driven insights for policy decision-making. In this context, the influence of independent variables subsidy expenditures, regional taxes, and the VAT dummy variable on the dependent variable, namely East Java's economic growth, was analyzed through multiple linear regression. SPSS was employed to obtain the regression coefficients, which serve as the basis for hypothesis testing as well as providing predictive insights into the relationships among variables in this study.

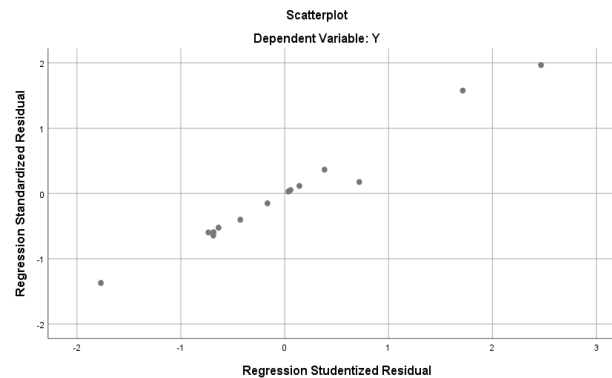
The following regression equation was obtained:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 D + e$$

$$Y = 1.014.380503661938,200 + 179.288 X_1 + 30.619 X_2 - 2.422.77507798984,750 \text{ Dummy} + e$$

Normality Test

Residual normality testing is a crucial component of the classical assumptions in linear regression. This test is conducted to determine whether the residuals (i.e., the differences between the actual and predicted values) follow a distribution that approximates normality. One of the methods used to assess this is by observing the scatterplot between studentized residuals and standardized residuals.



Based on the scatterplot shown above, it can be observed that the distribution of residual points follows a pattern close to the diagonal line from the lower left to the upper right. This pattern indicates a relatively strong linear relationship between the studentized and standardized residuals, suggesting that the residuals tend to be normally distributed. No evidence of curving, irregular scattering, or widening patterns on one side is found, which would typically indicate deviations from normality.

Heteroscedasticity Test

The heteroscedasticity test was conducted to detect whether there is non-constant variance of residuals across observations in the regression model, which may indicate variance inhomogeneity. To detect the presence of heteroscedasticity, two approaches can be applied: visually through graphical analysis and formally through statistical testing (Ghozali, 2014, p. 46). If the residual points form a certain systematic pattern, it indicates the presence of heteroscedasticity. Conversely, if the distribution of residuals appears random and evenly spread above and below the zero line on the Y-axis, it can be concluded that the model is free from heteroscedasticity symptoms (Ghozali, 2014).

Correlations						
			X1	X2	DUMMY	Unstandardized Residual
Spearman's rho	X1	Correlation Coefficient	1.000	.688**	-.367	.090
		Sig. (2-tailed)		.007	.197	.759
		N	14	14	14	14
	X2	Correlation Coefficient	.688**	1.000	-.410	.015
		Sig. (2-tailed)	.007		.145	.958
		N	14	14	14	14
	DUMMY	Correlation Coefficient	-.367	-.410	1.000	.194
		Sig. (2-tailed)	.197	.145		.506
		N	14	14	14	14
	Unstandardized Residual	Correlation Coefficient	.090	.015	.194	1.000
		Sig. (2-tailed)	.759	.958	.506	
		N	14	14	14	14

** . Correlation is significant at the 0.01 level (2-tailed).

Based on the table above, the Spearman test results show that the significance values of each independent variable against the Unstandardized Residual are: X1 = 0.759, X2 = 0.958, and DUMMY = 0.506. All significance values exceed the 0.05 threshold, indicating that there is no significant relationship between the independent variables and the residuals. Therefore, it can be concluded that the regression model used is free from indications of heteroscedasticity. This finding confirms that the assumption regarding the stability of residual variance has been met, making the model appropriate for use in subsequent analysis stages.

Multicollinearity Test

The purpose of the multicollinearity test is to identify whether there is a very high or near-perfect correlation among the independent variables in a regression model (Ghozali, 2014, p. 33). A high level of multicollinearity may lead to inconsistent regression parameter estimates and complicate the accurate interpretation of results. One of the methods to detect multicollinearity is by examining the values of Tolerance and the Variance Inflation Factor (VIF). A condition is considered to exhibit multicollinearity if the Tolerance value is less than 0.10 or the VIF exceeds the threshold of 10.

Coefficients^a

		Collinearity Statistics	
Model		Tolerance	VIF
1	X1	.870	1.149
	X2	.713	1.403
	DUMMY	.808	1.238

a. Dependent Variable: Y

Based on the output presented in the table above, variable X1 has a Tolerance value of 0.870 and a VIF of 1.149, X2 has a Tolerance value of 0.713 and a VIF of 1.403, while the DUMMY variable has a Tolerance value of 0.808 and a VIF of 1.238. All Tolerance values are well above the 0.10 threshold, and the VIF values are far below the maximum limit of 10. Therefore, it can be concluded that there is no indication of multicollinearity in the regression model, meaning that there is no excessive linear relationship among the independent variables. With this assumption fulfilled, the regression model is considered appropriate for use in the subsequent stages of analysis.

Model Testing

Simultaneous F-Test

In general, the F-test is used to examine whether all independent variables in a regression model collectively have an effect on the dependent variable (Ghozali, 2014, p. 22). The F-test determines whether, as a whole, the independent variables demonstrate a statistically significant relationship with the dependent variable. The following are the results of the F-test (ANOVA) on the regression model:

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.358E+29	3	3.119E+29	92.117	.000 ^b
	Residual	3.386E+28	10	3.386E+27		
	Total	9.697E+29	13			

a. Dependent Variable: Y

b. Predictors: (Constant), DUMMY, X1, X2

Based on the table above, the significance value obtained is 0.000, derived from the calculated F-statistic of 92.117, which indicates statistical significance at the 95% confidence level. Therefore, it can be concluded that the regression model is simultaneously significant. In other words, the variables Subsidy Expenditure (X1), Regional Tax (X2), and VAT Dummy (DUMMY) have a simultaneous and significant influence on Economic Growth (Y) in East Java Province. These findings indicate that the regression model used is proven to be both feasible and valid in describing the relationship between fiscal policy and economic growth during the study period.

Coefficient of Determination

Overall, the coefficient of determination serves to evaluate the extent to which the regression model is able to explain the variation or changes in the dependent variable (Ghozali,

2014, p. 21). Based on the Model Summary table above, the obtained coefficient of determination (R Square) is 0.965 or 96.5%. This figure indicates that the independent variables in the regression model, namely the Dummy (DUMMY), X1, and X2, are able to explain 96.5% of the variation in the dependent variable (Y). This demonstrates that the regression model developed has a high predictive power, considering that only 3.5% of the variation is left unexplained by the model and comes from other external factors.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.982 ^a	.965	.955	5.81932E+13

a. Predictors: (Constant), DUMMY, X1, X2

b. Dependent Variable: Y

The Adjusted R Square value of 0.955 or 95.5% further supports the strength of the model, as this value has been adjusted for the number of predictor variables used. This suggests that the inclusion of variables in the model does not cause overfitting and remains relevant in enhancing the model's predictive capability.

Partial t-Test

In essence, the t-test is used to assess the extent to which each independent variable influences the dependent variable, assuming that the other independent variables remain constant (Ghozali, 2014, p. 22). Based on the Coefficients table presented below, the partial t-test for each independent variable in the regression model can be interpreted as follows:

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	1.014E+15	8.096E+13	12.530	.000
	X1	179.288	.359.315	.032	.499
	X2	30.619	2.867	.748	10.680
	DUMMY	-2.423E+14	4.217E+13	-.378	-5.745

a. Dependent Variable: Y

The results of the partial t-test indicate that not all independent variables in the regression model significantly affect the dependent variable (Y). Variable X1 has a significance value of 0.629, which is greater than the 0.05 significance level, along with a calculated t-value of 0.499. This suggests that variable X1 does not have a significant partial effect on Y. Conversely, variable X2 shows a significance value of 0.000 and a calculated t-value of 10.680, indicating that X2 makes a statistically meaningful contribution to changes in Y. Similarly, the Dummy variable (DUMMY) has a significance value of 0.000 and a calculated t-value of -5.745, which also implies a significant partial effect on the dependent variable.

In other words, among the three independent variables analyzed, only X2 and DUMMY individually exhibit significant effects on the dependent variable Y, while X1 does not demonstrate a significant influence.

CONCLUSION

This study examined the impact of fiscal policy consisting of tax revenues, subsidy expenditures, and a dummy variable representing the increase in the Value Added Tax (VAT) rate on economic growth in East Java Province during the period 2018–2024. The results of multiple linear regression analysis reveal that tax revenues exert a positive and significant influence on economic growth. This finding suggests that effective tax management plays a vital role in financing development and stimulating regional economic activities. In contrast, subsidy expenditures show a positive but statistically insignificant relationship. Although subsidies are theoretically expected to encourage household consumption and ease the economic burden, the

results indicate that the implementation of subsidies in East Java has not been sufficiently effective in generating tangible impacts on economic growth. This may be attributed to fluctuating annual allocations, inefficiencies in distribution, or weak targeting of beneficiaries.

Meanwhile, the dummy variable representing the VAT rate increase from 10% to 11% demonstrates a significant negative effect on economic growth. This implies that the policy has dampened growth by reducing household purchasing power and increasing production costs, particularly for small and medium-sized enterprises (SMEs). Such findings are consistent with Keynesian theory, which argues that taxation can exert a contractionary effect on the economy if not balanced with productive fiscal spending. Overall, the results confirm that fiscal policy substantially influences regional economic dynamics, though its effectiveness depends largely on the quality of policy design and implementation.

Nonetheless, several limitations of this research should be acknowledged. First, the observation period is relatively short and overlaps with the COVID-19 pandemic, meaning that the results may be affected by temporary external shocks. Second, the study relies on aggregated annual data, which prevents the analysis from capturing seasonal or sectoral variations in greater detail. Third, the regression model employed is relatively simple and linear, excluding potential variable interactions and long-term dynamics. These limitations are not due to data collection errors but rather stem from methodological constraints and the availability of data.

Based on these findings and limitations, future research is encouraged to extend the observation period, especially to include the post-pandemic period, in order to better capture the long-term effects of fiscal policy. Employing more detailed panel data at the district/city level or quarterly data would enhance the robustness of the results. Incorporating additional fiscal variables, such as capital expenditures or central government transfers, would also enrich the analysis. Finally, applying advanced econometric approaches, such as ARDL or dynamic panel models, may provide deeper insights into the complex causal relationships between fiscal policy and economic growth. With well-measured and equity-oriented fiscal strategies, East Java Province has the potential to achieve inclusive, stable, and sustainable economic growth.

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