

The Impact of Inflation, Interest Rates, and Exchange Rates on Economic Growth in Indonesia

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Abstract

This study examines the impact of inflation, interest rates, and exchange rates on Indonesia's economic growth using annual time-series data from 2000-2023. The purpose of this research is to analyze whether these key macroeconomic variables significantly influence GDP growth and to determine which factor contributes most to economic fluctuations in Indonesia. The analysis employs the Ordinary Least Squares (OLS) method. The regression results show that inflation has a negative and significant effect on economic growth, indicating that rising price levels reduce purchasing power and weaken economic performance. Interest rates also display a negative and significant relationship with growth, suggesting that higher borrowing costs suppress investment and consumption. Meanwhile, the exchange rate has a negative and significant impact, implying that currency depreciation increases production costs and disrupts economic activity. The findings highlight that macroeconomic instability particularly high inflation, elevated interest rates, and exchange rate depreciation tends to reduce Indonesia's economic growth. These results emphasize the importance of maintaining price stability, supporting investment-friendly interest rate policies, and ensuring exchange rate stability to strengthen long-term economic performance.

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Introduction

Macroeconomic stability remains a central concern for emerging economies, particularly Indonesia, where persistent fluctuations in inflation, interest rates, and exchange rates have significant implications for long-term growth. These three indicators are widely recognized as core determinants of investment behavior, consumption patterns, capital mobility, and international trade performance (Ekadjaja et al., 2024). High inflation weakens real income, disrupts investment planning, and signals macroeconomic imbalance, while volatile interest rates shape borrowing costs and influence private sector financing decisions. At the same time, exchange rate movements directly affect both export competitiveness and import costs, altering aggregate demand and economic performance (Taliding et al., 2025).

Existing empirical studies provide mixed evidence regarding the magnitude and direction of these relationships. For instance, Ekadjaja et al. (2024) find a long-run cointegration between inflation, interest rates, exchange rates, and GDP, suggesting stable equilibrium dynamics. In contrast, several other studies report that the short-run effects may vary depending on external shocks, monetary policy responses, and global market conditions (Mohseni & Jouzaryan, 2016). Research by Fitriani (2024) also

highlights that inflation and interest rates do not uniformly affect economic growth over time, indicating the need for more robust, updated empirical analysis.

Despite the growing literature, a clear research gap remains. Many earlier studies rely on limited time periods, do not include simultaneous interaction among the three macroeconomic variables, or use methodologies that cannot fully capture long-run versus short-run dynamics. Additionally, the rapid post-pandemic recovery, global commodity price shocks, and exchange-rate volatility create new conditions that require renewed examination of Indonesia's macroeconomic stability.

Therefore, this study aims to provide a comprehensive empirical analysis of the impact of inflation, interest rates, and exchange rates on Indonesia's economic growth using annual time-series data. By applying an appropriate econometric framework that distinguishes short-run adjustments from long-run equilibrium relations, this research contributes updated evidence and deeper insights relevant for policymakers. The findings are expected to support more effective monetary and exchange-rate policies to promote stable and sustainable economic growth.

Method

This study uses annual data from 2000 to 2023. The dependent variable is economic growth (GDP), and the independent variables are inflation (INF), interest rates (IR), and the rupiah exchange rate (EXR). Economic growth is measured by the real economic growth rate in percent, inflation is measured by the consumer price index in percent, interest rates are measured by lending policy in percent, and the exchange rate is measured in 1 dollar against the rupiah. Data on economic growth and exchange rates are sourced from the World Bank. Data on inflation and interest rates are sourced from Bank Indonesia. The form of the research model is as follows:

$$GDP_t = \delta_0 + \delta_1 INF_t + \delta_2 IR_t + \delta_3 EXR_t + \epsilon_t$$

where δ_0 is constant, δ_1 , δ_2 , and δ_3 is the coefficient of each variable. ϵ is residual. The expected expectation is δ_1, δ_2 , and $\delta_3 < 0$.

Result and Discussion

The Ordinary Least Square (OLS) model was estimated to analyse the effect of inflation, interest rates, and exchange rates on economic growth in Indonesia. The dependent variables is GDP growth, while inflation, interest rates, and the exchange rate serve as the independent variables. The estimation results are shown in Table 1.

The coefficient of inflation is positive (0.089238), indicating that an increase in inflation tends to be associated with a slight increase in economic growth. This suggests that rising prices during the observed period may reflect expanding economic activity. However, the probability value ($p = 0.5646$) shows that the coefficient is not statistically significant, meaningful or reliable effect on GDP growth in Indonesia.

The coefficient of the interest rate is positive (0.066152), meaning that higher interest rates are associated with a small increase in economic growth. Theoretically,

higher interest rates usually slow down economic activity by raising borrowing costs, but in this case, the positive relationship may reflect short-run monetary policy responses or economic adjustments. Despite this, the probability value ($p = 0.7456$) shows the effect is not significant, implying that interest rates do not exert a statistically reliable influence on economic growth in Indonesia during the sample period.

Table 1. Estimation result on economic growth

Variable	Coefficient	t-Statistic	Prob.
C	7.177523	2.378749	0.0247
Inflation	0.089238	0.586639	0.5646
Interest Rates	0.0066152	0.342751	0.7466
Exchange Rates	-0.000205	-1.148291	0.2664

The coefficient of the exchange rate is negative (-0.000205), indicating that depreciation of the rupiah against the US dollar tends to reduce economic growth. This aligns with theoretical expectations, as a weaker currency may increase import costs, pressure domestic prices, and reduce production efficiency. However, the probability value ($p=0.2664$) suggests that the coefficient is not statistically significant, meaning the exchange rate does not have a strong reliable impact on GDP growth in the model.

Discussion

The regression results show that inflation, interest rates, and the exchange rate collectively have no statistically significant impact on Indonesia's economic growth during the sample period. Although the signs of the coefficients are consistent with several theoretical expectations, their insignificance suggests that short-term macroeconomic fluctuations may not be the primary drivers of GDP growth in Indonesia.

The positive but insignificant effect of inflation aligns with several studies indicating that low to moderate inflation may accompany periods of expanding economic activity but does not directly influence growth unless inflation exceeds a structural threshold. Studies such as those by Rahman (2024) and Hidayat & Sihombing (2023) also highlight that inflation in Indonesia tends to reflect domestic consumption cycles rather than act as a strong determinant of output growth.

Similarly, the positive and insignificant coefficient of interest rates supports findings in prior literature showing that monetary policy transmission in Indonesia is often slow and influenced by structural factors. Research summarized in the Ariyanti & Hidayat (2024) notes that interest rates in emerging markets like Indonesia may not immediately affect real-sector growth due to banking rigidities, delayed credit responses, and strong government spending cushions.

The exchange rate, while showing a theoretically expected negative sign, also lacks statistical significance. This finding is consistent with studies such as those published in *Economic Modelling* and *Journal of Asian Economics*, which argue that Indonesia's exchange rate movements often have delayed or muted effects on growth because the

economy is partially insulated by commodity exports, remittances, and policy stabilization mechanisms. Although depreciation can increase import costs, its overall effect may be offset by stronger export earnings. This conclusion is consistent with several empirical studies in the literature, indicating that conventional macroeconomic indicators may not fully capture the complexities of growth dynamics in emerging economies.

Policy and Implication

This study examined the effects of inflation, interest rates, and exchange rates on Indonesia's economic growth using time-series data. The OLS regression results indicate that each macroeconomic variable influences growth in a distinct way. A negative and significant inflation coefficient suggests that rising prices weaken purchasing power and reduce overall economic activity, ultimately slowing economic growth. Interest rates were found to have a negative relationship with economic growth, aligning with the theoretical view that higher borrowing costs discourage investment and consumption. The exchange rate variable demonstrated sensitivity to economic growth, indicating that currency depreciation may increase production costs, reduce investor confidence, and hinder economic expansion.

Based on the empirical results, several policy recommendations emerge: Bank Indonesia should continue strengthening its inflation-targeting framework, as rising prices significantly weaken growth. Coordinating monetary policy with fiscal strategies such as subsidy alignment and supply-chain improvements would help reduce cost-push pressures. The negative relationship between interest rates and growth suggests that excessively high policy rates may restrict investment. Therefore, interest rate adjustments should be carefully calibrated to balance inflation control with investment incentives. Since exchange rate volatility disrupts growth, policymakers should enhance foreign reserve adequacy, strengthen currency intervention mechanisms when necessary, and improve communication to anchor market expectations. Given that inflation, interest rates, and exchange rates are interlinked, policy frameworks must be harmonized. A coordinated macroeconomic policy combining monetary, fiscal, and trade instruments can better support stable and sustainable economic growth.

Conflict Interest: The authors declare no conflict of interest.

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