

The Impact of Monetary Policy on Inflation in Indonesia

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ABSTRACT

Interest rates and money supply in Indonesia are regulated through monetary policy. As the holder of the monetary authority, Bank Indonesia implements monetary policy in an effort to stabilize the Indonesian economy. Inflation as a monetary phenomenon tends to cause shock that impact on economic growth, money supply, interest rates, and the rupiah exchange rate. This study investigates what monetary policies affect inflation and how significant the influence is on the inflation rate in Indonesia. This study uses a quantitative approach and using multiple regression analysis. The data used are secondary data from the Indonesian Central Statistics Agency and Bank Indonesia from 2011.1 - 2023.4. The secondary data is estimated using the OLS (Ordinary Least Square) method and processed using the Eviews 12.0 Program. The results of this study indicate that money supply has a very negative and significant effect on the inflation rate.

INTRODUCTION

Economic indicators play a crucial role for governments, investors, and economic agents of a country. In assessing whether a country offers a favorable investment climate, investors and economic actors rely heavily on these indicators. To maintain economic stability, the Indonesian government bases its policy decisions on economic statistics. Apart from GDP, inflation is another key economic metric frequently used to portray the state of the economy (Badan Pusat Statistik, 2021). Inflation refers to the sustained increase in consumer prices over a specific period. It can exert a significant impact on the overall economy. Maintaining stable prices and purchasing power is a common goal associated with low and controlled levels of inflation. Excessive inflation erodes the value of money, discourages investment, and generates economic instability (Badan Pusat Statistik, 2023).

The Indonesian economy is substantially affected by inflation. Inflation influences various economic factors, including GDP growth, trade balance (deficit or surplus), interest rates, domestic savings, unemployment, and overall societal welfare. According to Nova (2022), fluctuations in inflation rates represent a monetary phenomenon that can trigger economic volatility in a country. When general price levels rise consistently over an extended period, this is referred to as sustained inflation. According to Nuri Agusmanata et al. (2017), an increase in the money supply is one of the primary causes of inflation. As household incomes rise, the amount of money circulating in the economy also increases, enabling consumers to spend more readily, which leads to higher demand and, consequently, inflation. Boediono (2011) defines monetary policy as government activities conducted through financial markets to influence macroeconomic conditions. Similarly, Nopirin (2015) views monetary policy as actions by monetary authorities—specifically Bank Indonesia—to expand or contract the money supply in order to influence economic activity. Nurlina and Zurjani (2018), Wijoyo states that monetary policy is implemented using several instruments, including open market operations, interest rate adjustments, reserve requirements,

and moral suasion. Controlling the rate of inflation is the primary objective of monetary policy. In this context, monetary authority is held by the government through the central bank, which regulates the money supply to maintain economic stability. According to Osok Melana et al. (2019), both economic growth and the money supply have a significant and positive influence on accelerating inflation in Indonesia.

Therefore, to ensure continued economic development, the Indonesian government and Bank Indonesia must take these factors into account when formulating monetary policy. Other research also suggests that high interest rates may contribute to rising inflation, although price increases are not always driven by rupiah depreciation against the US dollar (Maryati, 2010). According to Mankiw (2006), countries that experience rapid growth in money supply tend to have high inflation, while countries with slower monetary growth generally exhibit more moderate inflation levels. Based on the quantity theory of money, a 1% increase in the growth rate of the money supply leads to a 1% increase in the inflation rate. These findings support the quantity theory hypothesis.

Furthermore, Mankiw (2003) predicts that higher interest rates will lead to a contraction in the money supply, which in turn reduces aggregate demand and restrains price increases. Interest rates are one of the tools utilized by governments to control inflation. When consumer prices are high and the money supply is abundant, the government may raise interest rates to reflect these conditions and temper inflationary pressure. In regard to exchange rates, Mankiw (2006) adds that the exchange rate between two countries is determined by the relative value of their currencies used in bilateral trade.

Inflation remains a serious issue and is consistently a focal point for the Government of Indonesia and Bank Indonesia, as the country's monetary authority. Interest rates, exchange rates, and money supply are examples of monetary policy instruments employed to manage inflation. This process also involves fiscal authorities, the government, and other policy-makers. Managing inflation is one of the long-term macroeconomic objectives of the Indonesian government. In the context of controlling inflation, it is essential to understand which monetary policy tools significantly influence inflation, and to what extent these tools impact the inflation rate trajectory in Indonesia. These considerations form the basis of the present research.

RESEARCH METHOD

This study investigates how monetary policy influences the trajectory of inflation in Indonesia. As custodians of the national currency, the Government of Indonesia and Bank Indonesia are expected to leverage findings from this research to identify effective strategies for managing inflation while implementing appropriate policies to maintain macroeconomic stability.

This research adopts a quantitative descriptive approach. To test hypotheses, quantitative researchers utilize research instruments to collect data from targeted populations or samples, followed by statistical and numerical analysis (Sugiyono, 2016). The objective of quantitative research is to develop and test mathematical theories, models, and hypotheses regarding real-world phenomena.

The study utilizes secondary data sourced from Bank Indonesia and the Central Statistics Agency (Badan Pusat Statistik) for the period spanning from Q1 2011 to Q4 2023. The dependent variable (Y) in this study is the inflation rate. The inflation rate data (INF) are derived from the quarterly General Consumer Price Index (CPI), expressed as a percentage. The calculation is based on the following formula:

$$\text{Quarterly Inflation (\%)} = \frac{(\text{CPI in the current quarter} - \text{CPI in the previous quarter})}{\text{CPPI in the previous quarter}} \times 100\%$$

The independent variables in this study include the money supply (JUB), expressed in billions of Rupiah; the interest rate (TSB), referring to the BI Rate, which is the policy interest rate set by Bank Indonesia and publicly announced as an indication of its monetary stance. This data is sourced from the quarterly reports of Bank Indonesia and is expressed in percentage terms.

Another independent variable is the exchange rate (KURS), which represents the value of the US Dollar against the Indonesian Rupiah, expressed in Rupiah. Additionally, the economic growth rate (LPE), derived from Gross Domestic Product (GDP) calculations, is also employed as an independent variable in this study. GDP serves as a fundamental metric for planning and decision-making and reflects how effectively a government utilizes its available resources. One of the key macroeconomic indicators used to assess the rate of economic growth is the economic growth rate itself. It is commonly applied to evaluate the extent of development success within a region over a given period. Therefore, this indicator can also guide future development policy directions. To measure the economic growth rate, GDP data based on constant prices is used.

The economic growth rate (LPE) is calculated as the percentage change in the constant-price GDP from period t to t-1, using the following formula:

$$LPE (\%) = \frac{PDB_t - PDB_{t-1}}{PDB_{t-1}} \times 100 \%$$

This study employs time series data in a multiple linear regression model as part of the analytical framework. The influence of independent variables X on the dependent variable Y is examined through multiple linear regression analysis, which serves to test the relationships between variables. To ensure the validity of the regression results, several diagnostic tests are conducted, including normality test, multicollinearity, heteroscedasticity test and autocorrelation test. These tests are essential to fulfill the classical assumptions of linear regression analysis. The following is the regression model used in this research:

$$INF_t = \beta_0 + \beta_1 JUB_t + \beta_2 TSB_t + \beta_3 Kurs_t + \beta_4 LPE_t + \varepsilon_t$$

Where:

INF_t = Inflation rate in period t

JUB_t = Money supply in period t

TSB_t = Interest rate (BI Rate) in period t

$Kurs_t$ = Exchange rate (IDR/USD) in period t

LPE_t = Economic growth rate in period t

RESULTS AND DISCUSSION

Table 1. Descriptive Statistics Results

	JUB	INF	Kurs	TSB	LPE
Mean	1373767.	5.597885	12925.02	1.173077	0.325192
Median	1289347.	5.750000	13556.38	0.925000	0.280000
Maximum	2561271.	7.670000	15624.00	5.050000	1.480000
Minimum	590220.2	3.500000	8590.370	-4.190000	-0.140000
Std. Dev.	577761.1	1.316313	2097.422	2.440090	0.286531
Skewness	0.638372	-0.048853	-0.882929	-0.187514	2.112532
Kurtosis	2.284898	1.924111	2.441514	1.708436	9.115867
Jarque-Bera	4.639799	2.528679	7.432021	3.919032	119.7191
Probability	0.098283	0.282426	0.024331	0.140927	0.000000
Sum	71435889	291.0900	672101.0	61.00000	16.91000
Sum Sq. Dev.	1.70E+13	88.36667	2.24E+08	303.6559	4.187098
Observations	52	52	52	52	52

Source: Data processed by the author, 2025

Based on the descriptive statistics results from 52 observations, the Money Supply (JUB) has a mean value of 1,373,767 with a standard deviation of 577,761.1, indicating a relatively high degree of data dispersion. The maximum recorded value of JUB is 2,561,271, while the minimum value is 590,220.2. The Jarque-Bera normality test yielded a p-value of 0.098, suggesting no significant deviation from normality at the 5% significance level.

Furthermore, the inflation rate has an average of 5.60% with a standard deviation of 1.32%. The highest inflation observed was 7.67%, while the lowest was 3.50%. The exchange rate (KURS) ranges from a minimum of 8,590.37 to a maximum of 15,624. The interest rate has a mean value of 1.17 with a relatively high standard deviation of 2.44. The maximum recorded interest rate is 5.05, while the minimum is -4.19. Meanwhile, the Economic Growth Rate (LPE) shows a mean of 0.325 with a standard deviation of 0.287. The highest observed value is 1.48, and the lowest is -0.14.

Table 2. Multiple Linear Regression Analysis Results

Variables	Coefficient	Std. error	t- statistic	Probability
C	5.757244	1.257401	4.578686	0.0000
JUB	-1.72E-06	4.52E-07	-3.813985	0.0004*
TSB	0.027412	0.061617	0.444884	0.6584
Kurs	0.000149	0.000126	1.180491	0.2437
LPE	0.757986	0.538557	1.4074439	0.1659

Source: Data processed by the author, 2025

Based on the data processing, the multiple linear regression equation derived from the table above is as follows:

$$5.757 - 1.72JUB + 0.0274TSB + 0.000149Kurs = 0.758$$

The equation clearly shows that the only variable having a significant effect on the inflation rate is the money supply (JUB). According to the table, the significance level for the money supply variable is less than 0.05. The JUB variable has a t-statistic value of -3.814 with a p-value (significance) of 0.0004 (<0.05), indicating that JUB has a significant effect on the inflation variable (INF).

Meanwhile, the interest rate variable (TSB) has a t-statistic value of 0.445 with a p-value of 0.658 (>0.05), indicating no significant effect on INF. The exchange rate variable (KURS) shows a t-statistic of 1.181 with a p-value of 0.244 (>0.05), also indicating no significant effect on INF. The economic growth rate variable (LPE) has a t-statistic value of 1.407 with a p-value of 0.166 (>0.05), which means it does not significantly influence INF either.

Effect of money supply on inflation

The results indicate that the money supply has a negative and significant slope coefficient on inflation. This finding contrasts with Nuri Agusmianata et al. (2017), who reported a significant positive relationship between money supply and inflation rate, explaining that when income rises, money supply in the society increases, thus boosting purchasing power and demand, leading to inflation. This finding is also inconsistent with the quantity theory of money, which posits that inflation occurs when the money supply volume increases and that inflation subsides when there is no increase in money supply.

However, this study aligns with Keynesian theory regarding the motives for money demand transactional, precautionary, and speculative motives. It also supports the findings of Firdaus et al. (2022), which show a negative relationship between money supply and inflation rate. This implies that the money supply is a key determinant of inflation in Indonesia, where an increase in money supply leads to a decrease in the inflation rate.

Effect of interest rate, exchange rate and economic growth on inflation

The interest rate was found not to have a significant impact on inflation in this study. This result aligns with previous findings by Budi Laksono et al. (2024), who also noted that while interest rates influence inflation, the effect is not always statistically significant. Other factors such as inflation expectations or monetary policy transmission mechanisms may complicate this relationship.

Similarly, the exchange rate (USD to IDR) was found to be insignificant in affecting inflation in Indonesia, which contrasts with Halim A. et al. (2025), who found a significant positive effect. The exchange rate coefficient here is positive (0.000149%) but not statistically significant, implying that a 1,000 Rupiah depreciation would increase inflation by 0.000149%. Although statistically insignificant, this aligns economically with open economy theory and Indonesia's status as a net importer. Prior studies by Fatmawati (2020) and Susmiati et al. (2021) found that depreciation raises inflation by increasing import prices and production costs.

Furthermore, economic growth rate (LPE) was also found to have no significant effect on inflation in this study. This supports findings by Ekinci, Ramazan et al. (2020), who showed that inflation impacts economic growth only above a threshold level of 4.182% in inflation-targeting countries, including Indonesia. Below this threshold, the inflation-growth relationship is insignificant.

CONCLUSION

Based on the analysis of monetary policy's effect on Indonesia's inflation rate, it can be concluded that the money supply significantly and negatively affects the inflation rate. Meanwhile, interest rate, exchange rate, and economic growth rate do not have significant effects on inflation. These results suggest that the government, through Bank Indonesia, should implement monetary policies that focus primarily on managing the money supply to effectively maintain economic stability in Indonesia.

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