

Analysis of the Impact of Deficit, Inflation and Interest Rates on Economic Growth in Indonesia (1990–2023)

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Abstract

This study discusses the Effect of Deficit, Inflation and Interest Rates on Economic Growth, especially after the COVID-19 crisis and pandemic. This topic is interesting to study because it concerns the effectiveness of macroeconomic policy management in maintaining long-term growth. The problem studied in this study is how the budget deficit, inflation, and interest rates affect Indonesia's economic growth in the long term, especially by comparing conditions before and after the COVID-19 pandemic. This study is new in terms of scope and depth of analysis. Not many previous studies have simultaneously examined these three variables over a long period of time (1990–2023), especially considering the differences in conditions before and after the pandemic. The method used is a quantitative approach with an OLS regression model from 1990-2023, as well as testing classical assumptions to ensure the validity of the model. Secondary data is taken from official publications from the World Bank and the Ministry of Finance of the Republic of Indonesia. The results of the study show that the budget deficit variable has a significant positive effect, while inflation and interest rates simultaneously have a significant negative effect on economic growth. With an R-squared value of 0.8420 and an adjusted R-squared of 0.8202, it shows that the three variables explain economic growth strongly, although with variations in influence between the periods before and after the pandemic. This finding shows the need for synchronization of fiscal and monetary policies in maintaining long-term economic stability and growth.

INTRODUCTION

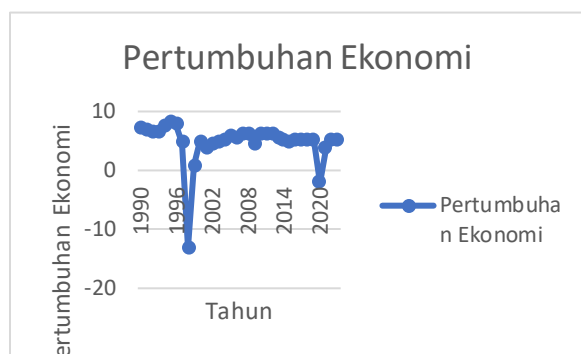
Economic growth is the main indicator in measuring the economic performance of a country.(Mankiw, 2019). In the Indonesian context, economic growth cannot be separated from the dynamics of fiscal and monetary policies taken by the government, especially in responding to global and domestic economic challenges and(Yunanto & Medyawati, 2015 and(Diana Wulansari Suci, 2024). Since the COVID-19 pandemic hit the world in early 2020, Indonesia has faced significant economic

pressure in the form of increasing budget deficits, soaring inflation, and fluctuating interest rates. This situation has prompted the government to issue various fiscal and monetary stimulus policies to maintain macroeconomic stability and encourage national economic recovery.(Elisabeth & Sugiyanto, 2021 and Rachmawaty et al., 2024). The Indonesian economy continues to show quite strong and stable growth compared to the global average, even though it continues to face various dynamics and turmoil, such as a spike in global

inflation, a 500 basis point increase in interest rates in the United States, capital outflows, and the strengthening of the US dollar exchange rate.(Minister of Finance, 2024).

Figure 1

Indonesia's Economic Growth 1990-2023



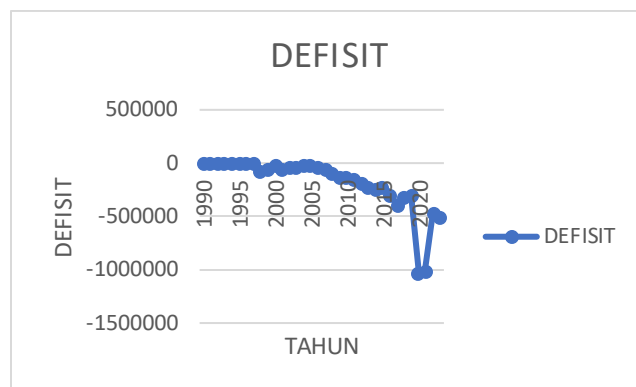
Source:(World Bank), 2024And

Figure 1 shows the condition of economic growth in Indonesia from 1950 to 2023. Economic growth shows stability. However, in 1999 and 2020 there was a very sharp decline, because in that year there was a crisis and the COVID-19 pandemic. Economic growth cannot be separated from several factors, namely, Budget deficit(Jannah et al., 2024). Budget Deficit is a condition that can usually be caused by a crisis, expansionary policies, exchange rate depreciation, and increased public spending.(Devereux, 2010). A country in a deficit condition means that spending is greater than income. To cover the deficit, the government can seek domestic or foreign financing. This step risks reducing the availability of state financial resources.(Husna & Daryono, 2023). To control the deficit so that it does not burden the economy too much, the government is trying to manage the economy by determining the state's income and expenditure each year, which is reflected in the State Budget (APBN) document.(Elisabeth & Sugiyanto, 2021 and(Dwinada & Berly, 2015)The government uses fiscal and monetary policies to control

this to create economic stability.(Qayyum & Manzoor, 2018).

Figure 2

Indonesia's Budget Deficit 1990-2023



Source:(Ministry of Finance of the Republic of Indonesia),2024

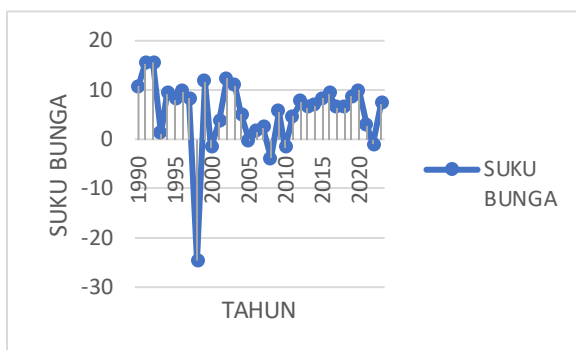
Figure 2 shows the condition of the Indonesian Budget Deficit for 1990-2023, the deficit is relatively stable. In 2010 to 2019, the deficit slowly increased along with development expansion. A sharp spike occurred in 2020-2021 due to the COVID-19 pandemic, where the government increased state spending to handle the crisis. After that, the deficit began to decline again, reflecting the government's fiscal consolidation efforts.

In addition to the Deficit, a factor that can affect economic growth is the Interest Rate. Interest Rate is the cost of borrowing money expressed in percentage per certain period. In classical theory, interest rates are formed through the interaction between demand and supply of investment funds from savings.(Elfina et al., 2023). According to Research(Alfatar & Soebagiyo, 2023)Economic growth is influenced by interest rates. With high interest rates, it can inhibit economic growth. While with low interest rates, it can encourage inflation, weaken the exchange rate and increase the potential for a financial crisis.(Algifari et al., 2023). Condition of Indonesian Interest Rates during the last 3 decades, According

to research(Lord, 2024).interest rates have a positive but not significant effect on economic growth, Suka Binterest reflects the cost of using resources by debtors that are the rights of creditors. When the SBI interest rate is low, the flow of funds into the country tends to increase.

Figure 3

Indonesian Interest Rates 1990-2023



Source:(World Bank),2024And(Bank Indonesia, 2024)

Figure 3 shows that interest rates are relatively stable. In 1998 there was a sharp decline of -25%. This was due to the crisis and the COVID-19 pandemic which reflected severe economic turmoil. Interest rates are a monetary policy instrument that plays a central role in determining the cost of government debt and private investment decisions.(Sardjono, Permono, 2004)shows the weak relationship between interest rates and investment in Indonesia, whereas(Kholifatul I & Wahyuningsih, 2020)found that SBI interest rates have a significant negative effect on bond prices. The study(Seftaria et al., 2022)reinforces this view by showing that monetary effectiveness is short-term, while the long term requires solid fiscal coordination.Interest rate fluctuations throughout this period greatly affect the burden of government debt interest payments and the state's capacity to manage deficit finance. High interest rates increase debt costs and widen the deficit, while low interest rates can ease the fiscal burden but risk driving inflation if not balanced with

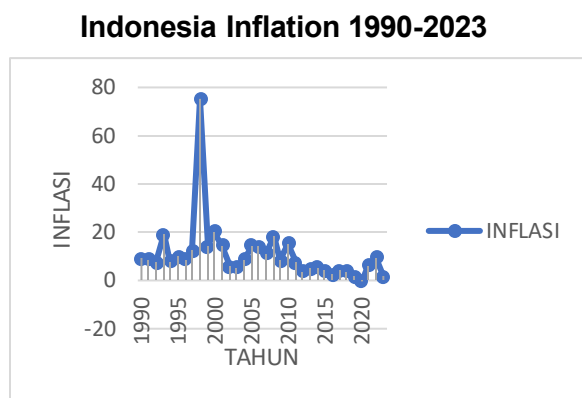
appropriate policies.(Setyadi et al., 2023).Several studies(Komalsari et al., 2024)And(Karina, Purnomo & Vishnu, 2024)shows that increasing interest rates can increase the burden of government debt, while uncontrolled inflation can reduce people's purchasing power and the effectiveness of state spending.

This emphasizes the need for careful and responsive deficit financing management to macroeconomic conditions. In the regional and international context,(Yusuff & Abolaji, 2020)shows that the relationship between fiscal deficit, interest rates and inflation is complex and contextual. The study shows that in Nigeria, budget deficit has a long-run relationship with growth and inflation through interest rates. According to(Fildzah & Munawar, 2017)with the Error Correction Model (ECM) approach shows that in Indonesia during 2006–2016, the budget deficit has a significant long-term effect on inflation, money supply, and interest rates, although it is not always significant in the short term. In this case, it is necessary to emphasize the importance of the quality of government budget management in encouraging sustainable green economic development. In the Study(Qu et al., 2025)highlighted that deviations between budget plans and realization (both on the revenue and expenditure side) can have a negative impact on fiscal efficiency and regional economic productivity. Another study by(Ito & Sato, 2008)highlights the case of Indonesia after the 1997–98 Asian crisis, where a large rupiah depreciation coupled with high inflation formed an inflation-depreciation spiral that was exacerbated by accommodative monetary policy. Indonesia's CPI response to exchange rate changes proved to be very high, unlike other Asian countries.(Oyadeyi et al., 2025)shows that in Nigeria, there are optimal thresholds for inflation (around 9–12.7%) and interest rates (between 16.5–30%) that can drive sustainable economic growth. Exceeding these limits actually worsens economic stability and reduces competitiveness. This

finding emphasizes the importance of the threshold analysis approach in designing fiscal and monetary policies, including budget deficit management.

Another variable that can influence economic growth is inflation.(Widya, 2023). Inflation is a condition that reflects economic stability. With stable conditions, it will encourage economic growth.(Hazmi 2018).

Figure 4



Source:(World Bank),2024

Figure 4 shows that for several years, inflation experienced stable growth, but in 1990 and 2020 it experienced a sharp increase due to the crisis and pandemic conditions. During the pandemic, inflation conditions rose to more than 50%.

Inflation impacts economic growth(Harvey Rosen, 2014). Controlled inflation can encourage economic activity and investment, while inflation that tends to be high will reduce purchasing power, savings and slow growth. To maintain stable economic growth in the long term, efforts are needed for stable inflation.(Loso et al., 2024)In addition to influencing economic growth, inflation is also an indicator of price stability that is very sensitive to deficit

financing, especially if financing is carried out through printing money or government bonds.(Tariq, Bashir, et al., 2024)shows that inflation can increase significantly when the fiscal deficit exceeds a certain limit.(Husriah, 2019)And(Consistency & Consistency, 2022)supports this finding by stating that budget deficits have a long-run relationship with inflation and interest rates, although in the short run the impact may be insignificant.

Indonesia's economic growth in the last 3 decades has shown a fluctuating pattern, especially during the economic crisis and the COVID-19 pandemic. Macroeconomic factors such as budget deficits, inflation, and interest rates are important variables that are interrelated in influencing national economic performance. Although many previous studies have discussed the relationship between the three variables on economic growth, most are still limited to the period before the pandemic or only focus on the relationship between two variables partially. Meanwhile, this study connects three variables. Therefore, this study raises the main question: How do budget deficits, inflation, and interest rates affect Indonesia's economic growth in the long term, especially considering the differences in their impacts before and after the COVID-19 pandemic? This study has a novel value because it uses a longer data range (1990–2023) and includes a combination of 3 variables at once. The urgency of this research lies in the importance of empirical information that can be used as a basis for formulating more adaptive and responsive fiscal and monetary policies, in order to maintain stability and encourage long-term economic growth amidst global uncertainty.

Previous studies on the relationship between fiscal deficit, inflation, interest rates, and economic growth have shown mixed results, depending on the country context, methodology, and variables used. These different patterns of results reflect the complexity of the interaction of fiscal policy and macroeconomic conditions in different

regions. According to research by Hussain and Haque (2017), they analyzed data from the Bangladesh Bureau of Statistics and the World Bank using the Vector Error Correction Model (VECM) approach. They found that the fiscal deficit had a positive and significant impact on long-term economic growth in Bangladesh. This finding is in line with Keynesian theory, namely that government spending, although causing a deficit, can increase aggregate demand, output, and stimulate the economy—especially in developing countries that need fiscal impetus to accelerate development.

However, these findings are not always universally applicable. In research according to Kassem (2024), in his research on five countries in the MENA (Middle East and North Africa) region using the Autoregressive Distributed Lag (ARDL) model, he found that the fiscal deficit actually had a negative impact on long-term growth. Interestingly, inflation in these countries actually contributed positively to growth. This study highlights that crisis conditions such as the Arab Spring and the COVID pandemic-19 plays an important role, showing that the response to macro policies is strongly influenced by socio-political and institutional stability. Adding a temporal dimension, the study of Sore et al. (2024) in the context of Sub-Saharan Africa, using the System GMM method to overcome the endogeneity issue. Panel data analysis of 42 countries in the period 2011–2021 shows that fiscal deficits have a positive effect on short-term growth—through fiscal stimulus to aggregate demand. However, in the long run, this relationship turns negative, indicating that prolonged accumulation of deficits can create fiscal burdens, reduce investor confidence, and trigger macro instability.

In the context of developed countries, Cebula (2024) highlights the United States and Canada by considering non-traditional variables such as the economic freedom index and the debt-to-GDP ratio. His study reveals that an increase in the budget deficit is significantly correlated with an increase in

long-term bond yields. This indicates that the market responds to the widening deficit by increasing risk expectations and yield premiums, indicating the importance of market perceptions of fiscal sustainability.

Another approach is used by Al-Senjari and Al-Anzi (2020) studied Argentina (1990–2020) using the ARDL model. They found that a 1% increase in the budget deficit was correlated with a 1.35% increase in inflation, supporting the monetarist theory that fiscal deficits financed by money printing drive up prices, especially in countries with weak fiscal institutions.

The fiscal surprise method was also raised by Cotton (2021) in a study in the United States. Using high-frequency data, this study found that a 1% increase in the deficit to GDP ratio could increase bond yields by 10%.-year by 8.1 basis points. This approach shows the high sensitivity of financial markets to fiscal shocks, especially in advanced countries with integrated and responsive markets.

Meanwhile, Odoom et al.'s (2025) research in Ghana used time and frequency domain analysis to examine the relationship between public debt, exchange rates, inflation, interest rates, and growth. The results showed that public debt has a negative effect on growth in the short and long term, and drives local currency depreciation. This finding reflects the structural vulnerability of a developing country to the accumulation of public debt.

In Nigeria, Oyadeyi et al. (2025) used threshold regression to identify the optimal thresholds for inflation, interest rates, and exchange rates for growth. They found that inflation of around 9%, lending rates of 20%, and a maximum exchange rate of 2.5% were thresholds that promoted growth. Above this threshold, the effects were negative. Although this study did not directly look at the fiscal deficit, it does show the importance of the balance of macro variables in supporting the effectiveness of fiscal policy.

Similarly, Yusuf and Mohd (2023) through the Nonlinear ARDL model examined the asymmetry of the effects of public debt in Nigeria. It was found that external debt has a positive impact on growth when managed efficiently, while debt service burden and domestic debt have a negative impact in the short term. This study emphasizes the need for sustainable debt management and differentiation of debt types in fiscal planning.

Finally, Pappas and Boukas (2025) examine 27 EU countries through panel data to evaluate the effects of inflation and its volatility on growth. They find that average inflation is relatively insignificant, but inflation volatility has a negative impact, while the effects of high interest rates vary depending on fiscal policy, economic structure, and national financial structure.

THEORETICAL BASIS

Keynesian Theory

According to (Keynes, 1936) in the book (Priyono, 2012) In economic conditions that experience contraction, such as a recession or crisis due to a pandemic, the market is not always able to balance itself automatically. In such situations, aggregate demand experiences a significant decline due to falling household consumption, private investment, and exports. (Fadia Haya et al., 2022). In the Keynesian view, this imbalance cannot be resolved by relying solely on free market mechanisms. Therefore, active intervention from the government is needed through fiscal policy, especially by increasing state spending even though it has to create a budget deficit. (Santi, 2015)

Budget deficits in the Keynesian perspective are not something to be avoided in a sluggish economic situation. In fact, government spending financed through deficits can provide stimulus to the economy. This spending can be directed to infrastructure development, social assistance, and labor-intensive programs, which directly increase people's incomes, create jobs, and trigger a multiplier effect on the national economy.

Keynes emphasized that in conditions of underemployment (labor and production capacity are not fully utilized), additional government spending can significantly increase national output without causing excessive inflation. (Consistency & Consistency, 2022)

This view is particularly relevant in the Indonesian context, particularly during the COVID-19 pandemic, where the government is facing pressure to maintain economic growth amidst a global contraction. (Verico, 2023). In such a situation, the budget deficit is seen as a strategic step to support vital sectors and prevent a deeper crisis. Furthermore, Keynes also reminded that the role of government is not only limited to times of crisis, but is also important in managing the business cycle and maintaining macroeconomic stability in a sustainable manner. (Khan, 2011)

Thus, Keynesian theory provides a strong conceptual basis for the analysis of the relationship between budget deficits and economic growth, especially in the context of before and after the COVID-19 pandemic, when the role of the state becomes very dominant in responding to systemic economic disruptions. (Tanaka, 2021).

Monetary Theory

According to (Friedman, 1968) explicitly states that "inflation is always and everywhere a monetary phenomenon," meaning that inflation occurs when the growth of the money supply exceeds the growth of real output in the economy. In this view, monetary stability is the key to maintaining price stability and sustainable economic growth.

According to Friedman, inflation spikes are not simply the result of external factors or production costs, but rather the result of expansionary monetary policy without adequate productivity increases. When central banks print money or aggressively lower interest rates over a long period of time, people have more money to spend, but if the output of goods and services does not

increase proportionately, then pressure on prices will increase, causing inflation.(Williem H. Buiter & Urjit R. Patel, 1992)

According to(Sule, 2024)In the context of economic growth, high and uncontrolled inflation has a negative impact, especially on macroeconomic stability. Unstable inflation creates uncertainty in the market, disrupts long-term investment decisions, and reduces people's purchasing power. When prices rise continuously, the real value of income decreases, consumption becomes limited, and private investment becomes reluctant to develop because economic risks increase. As a result, economic growth can slow down or even decline.(Olivo, 2015)

Thus, monetarist theory provides a powerful conceptual framework for analyzing the impact of inflation on economic growth, especially in situations where fiscal and monetary policies are expanded simultaneously in order to overcome a crisis.

METHODOLOGY

The scope of this research is to analyze the effect of Deficit, Interest Rates and Inflation on Economic Growth in Indonesia in 1990–2023. The data used is secondary data, namely data that has been collected and processed. The type of data used is time series data (time series data) data that will be studied regarding the Deficit, Interest Rates, Inflation, and Economic Growth in Indonesia in 1990–2023. This data was obtained from the World Bank, Ministry of Finance of the Republic of Indonesia, Central Statistics Agency.

The statistical analysis used is Inferential statistical analysis which is part of statistics that helps us draw conclusions or make predictions about the population based on the data we take from the sample. The method used in this study is OLS, which functions to estimate parameters in a linear regression model. The purpose of this method is to minimize the squared difference between the values we observe and the

values predicted by the model.(Gujarati & Porter, 2009).

Mathematically, the theory of multiple linear regression models is written as follows:

$$PE = \beta^1 + \beta^2 DEF_t + \beta^3 SB_t + \beta^4 I_t + \beta^4 D_t + e$$

PE = Economic Growth

DEF = Deficit

SB = Interest Rate

I = Inflation

D = Dummy (Before and after Covid)

β^1 =Constant

$\beta^2, \beta^3 \beta^4$ = Regression coefficient

e = Error Term

RESULTS AND DISCUSSION

RESULT

Normality Test

Normality testing uses the skewness/Kurtosis test for Normality, with the provision that if the chi-square probability value is >0.05 , then there is not enough evidence to reject H_0 , so that the residual is considered to be normally distributed. Conversely, if the chi-square probability value < 0.05 , then H_0 is rejected, which means the residuals are not normally distributed.

Table 1. Normality Test Results

Obs	Pr (Sweknes)	Pr(Kurtosis)	Adj chi2(2)	Prob>chi2
34	0.1832	0.8327	1.95	0.3767

source: results of statistical data processing 16

Based on Table 1 above, the results of the Normality Test with the skewness/Kurtosis test for Normality can be seen. It is known that the chi-square probability value is 0.3767 (>0.05), so it can be concluded that the data used is normally distributed and this test has met the classical assumption test.

Multicollinearity Test

The next classical assumption test is the Multicollinearity Test. This test is conducted to ensure that there is no overly strong relationship between independent variables in the regression model. If $VIF > 10$, then the variable experiences high multicollinearity. Tolerance value (TOL) = $1/VIF$, the smaller the value, the greater the multicollinearity problem.

Table 2. Multicollinearity test results

Variables	VIF	1/VIF
deficit	3.61	0.276849
interest rate	4.16	0.24-390
inflation	4.54	0.220243
2. pandemic	3.19	0.313776
Mean VIF	3.87	

source: results of statistical data processing 16

Based on Table 2, the results of the multicollinearity test using the variance Inflation Factor (VIF) method can be seen, it is known that the calculation of the VIF value of the independent variable is below 10, which is 3.87. So it can be concluded that there is no multicollinearity problem.

Heteroscedasticity Test

Heteroscedasticity testing uses the Breusch Pagan test, with the provision that if the P-Value Chi square value is >0.05 , then there is not enough evidence to reject H_0 , so that the residual is considered to have no symptoms of heteroscedasticity. On the other hand, if the P-Value Chi square <0.05 , then H_0 is rejected, which means there are symptoms of heteroscedasticity.

Table 3, Heteroscedasticity Test Results

chi2(1)= 1.80
Prob>chi2= 0.1803

Source: Stata 16 data processing results

Based on Table 3, the results of the Heteroscedasticity Test with Breusch Pagan can be seen, the results of the heteroscedasticity test can be seen that the probability calculation is 0.1803 (> 0.05) so it can be concluded that the data does not show symptoms of heteroscedasticity or the assumption of the heteroscedasticity test has been met (passed the heteroscedasticity test). The results of this test have met the classical assumption test.

Autocorrelation Test

Table 4. Autocorrelation Test Results

Prob>chi2= 0.1169

source: results of statistical data processing 16

The Breusch-Godfrey test is used to detect autocorrelation in the residuals of a regression model. Autocorrelation occurs when the errors in an observation are related. Autocorrelation can bias the variance estimates, so that the t-test and F-test can produce invalid results. If there is then there is not enough evidence to reject H_0 , so that the residual is considered to have no symptoms of autocorrelation. On the other hand, if the P-Value Chi square <0.05 , then H_0 is rejected, which means there are symptoms of autocorrelation. Based on the results of the autocorrelation test using the Breusch Godfrey method, it can be seen that the probability calculation is 0.1169 (> 0.05), so it can be concluded that the assumption of the autocorrelation test has been met or passes the autocorrelation test.

Multiple Regression Test

Table 5, Multiple Regression Test Results

source: results of statistical data processing 16

Based on the table above, the Budget Deficit (DEF), Interest Rate (SB), and Inflation (I) variables have a probability value of less than 0.05, it can be concluded that the dependent variable has a significant effect on the independent variable. While the other variable, namely the Covid Pandemic dummy, has a probability value greater than 0.05, it can be concluded that this variable does not have a significant effect on economic growth.

Based on the results of the multiple regression test, it is known that the constant has a positive value of 12.0674. This shows that when the Deficit, Interest Rate and Inflation variables are at zero, the estimated Economic Growth will grow by 12.0647%. Statistically, this constant value is significant because p-Value = 0.000, which means that the basic value of economic growth without the influence of these variables historically tends to be stable and positive.

The deficit variable shows that every 1 billion increase in the deficit will increase economic growth by 0.0000115, assuming other variables remain constant. The interest rate coefficient shows that every 1% increase in interest rates will decrease economic growth by 0.2548%, assuming other variables remain constant. Meanwhile, the inflation coefficient shows that every 1% increase in inflation will decrease economic growth by 0.3916%, assuming other variables remain constant. Both of these variables are statistically significant, indicated by p-values that are far below 0.05, each of which is 0.000 for inflation and 0.004 for interest rates.

Furthermore, the R-squared value is 0.8420. This value indicates that the Deficit, Interest Rate, and Inflation variables can explain the Economic Growth variable by 84.20%. While the remaining 15.08% is explained by other variables.

While the Adj Square value is 0.8202. This

Variables	Coefficient	std.Error	t-statistic	Prob.
Constants	120,674	2,0006	11.49	0,000
Deficit	0.0000115	0.773388	5.75	0,000
interest rate	-0.2547912	0.0459677	-3.29	0.003
inflation	0.3916056	1.477113	-8.52	0,000
pandemic after	2.46372	1.050545	1.67	0.106
R-squared	0.842			
Adjusted R squared	0.8202			
Prob (F statistic)	0.0000			

value indicates that the Deficit, Interest Rate, and Inflation variables can explain the Economic Growth variable by 82.02%. While the remaining 17.98% is explained by other variables. In addition, the probability value of F is 0.0000 < 0.05. So H₀ is rejected and H_a is not rejected. It can be concluded that the independent variables have a significant effect on the economic growth variable.

Unit Root Test

Table 6. Unit Root Test Results

Variables	Test Statistics	Critical value 5%	p-value	Information
economic growth	-4.226	-2.978	0.0006	non-stationary
Deficit	-5,853	-2.98	0	non-stationary
Interest rate	-5,812	-2978	0	non-stationary
Inflation	-4.652	-2.978	0.0001	non-stationary

source: results of statistical data processing 16

Based on the results of the Dickey-Fuller test, the Economic Growth, Deficit, Interest Rate, and Inflation variables are known to have P-Value < 0.05. Thus, all variables

indicate that the data is stationary at the first level (level level, not differentiation), and does not contain a unit root. This means that Economic Growth, Deficit, Interest Rate, and Inflation are suitable for use in time series regression analysis without having to do differencing first.

Cointegration Test

Table 7. Cointegration Test Results

source: results of statistical data processing 16

Based on the results of the Johansen cointegration test with 5 lags and without a deterministic trend, it was obtained that there were three cointegration vectors at a significance level of 5%. This is indicated by the trace statistic values of 91.02, 30.91, and 12.87, each of which is greater than the critical value at rank 0, 1, and 2. Therefore, it can be concluded that the variables in the model have a long-term relationship.

DISCUSSION

This study investigates the impact of deficit, interest rate, and inflation on economic growth in Indonesia from 2000 to 2023, using a quantitative approach with time series data and Ordinary Least Squares (OLS) regression. These findings provide crucial insights into the dynamics of deficit financing in the Indonesian public economics framework, emphasizing the interaction between macroeconomic indicators and fiscal sustainability. Before discussing the regression results, it is important to confirm the robustness of the econometric model through a series of classical assumption tests. The Normality Test, using the skewness/Kurtosis test for Normality, produces a chi-square probability value of 0.3767 (>0.05), indicating that the residuals are normally distributed. This validates the assumption of normally distributed errors, which is the basis for the reliability of statistical inference.

In addition, the Multicollinearity Test, using the Variance Inflation Factor (VIF) method, shows that the VIF value for the independent

variables is 3.87, which is well below the critical threshold of 10. This confirms the absence of significant multicollinearity among the independent variables, ensuring that each predictor contributes uniquely to the model and avoiding inflated standard errors. The Heteroscedasticity Test, conducted using the Breusch Pagan test, yielded a Chi-square P-Value of 0.1803 (>0.05). This indicates that there are no signs

Rank	Trace Statistics	Critical Value 5%	Information
0	91.0243	39.89	HO: no cointegration
1	30.9171	24.31	HO: max 1 cointegration
2	12.8785	12.53	HO: max 2 cointegration
3	0.1499	3.84	HO: max 3 cointegration
4			

of heteroscedasticity in the residuals, meaning that the error variance is constant across all levels of the independent variables. This adherence to the homoscedasticity assumption strengthens the validity of the estimated coefficients.

Finally, the Autocorrelation Test, using the Breusch-Godfrey test, shows a probability value of 0.1169 (>0.05). This indicates that there is no evidence of autocorrelation in the residuals, implying that the errors are independent across observations. The absence of autocorrelation ensures that the standard errors of the regression coefficients are unbiased and efficient.

In the context of time series analysis, the unit root test is essential to ensure the stationarity of the data. The results of the Dickey-Fuller test consistently show that Economic Growth (p-value 0.0006), Deficit (p-value 0.0000), Interest Rate (p-value 0.0000), and Inflation (p-value 0.0001) are all stationary at the first level (undifferentiated) with p-values less than 0.05 and test statistics less than the critical value. This confirms that the data is suitable for time series regression without

the need for differentiation, preventing loss of information.

Furthermore, the Johansen cointegration test, with 5 lags and no deterministic trend, reveals the presence of three cointegrating vectors at the 5% significance level. The trace statistics for ranks 0, 1, and 2 (91.02, 30.91, and 12.87, respectively) are all greater than their critical values. This strong evidence of cointegration suggests the existence of a long-run equilibrium relationship among the variables in the model, strengthening the validity of the analysis of its long-run effects on economic growth. This finding is consistent with (Ananzeh, 2016), who also reported the long-run relationship between budget deficit, inflation, and interest rates in Jordan using the Johansen Cointegration Test. Win (2017) also found that fiscal deficit has a significant impact on inflation in Myanmar, indicating the existence of long-run cointegration.

Multiple regression analysis reveals a significant relationship between the independent variables (Budget Deficit, Interest Rate, and Inflation) and the dependent variable (Economic Growth). The R-squared value of the model of 0.8420 indicates that 84.20% of the variation in Economic Growth can be explained by Deficit, Interest Rate, and Inflation. The Adjusted R-squared of 0.8202 further supports this, explaining 82.02% of the variation, while the remaining percentage can be attributed to other factors. The overall model is statistically significant, as evidenced by the F-statistic probability of 0.0000 (<0.05), leading to the rejection of the null hypothesis and confirming the significant influence of the independent variables on economic growth.

The constant in the regression model is positive at 12.0674 and statistically significant ($p\text{-value} = 0.000$). This implies that, even in the absence of deficits, interest rates, and inflation, Indonesia's economic growth has historically tended to be stable and positive. This underlying growth can be attributed to inherent economic factors and

sustainable development initiatives that are not explicitly captured by the main variables in this model.

The budget deficit (DEF) shows a positive, albeit very small, impact on economic growth, with a coefficient of 0.0000115. Although statistically significant ($p\text{-value} < 0.05$), this suggests that a 1 billion increase in the deficit causes a marginal increase in economic growth. This finding is in line with the theoretical understanding that deficit financing can be used to stimulate economic growth, especially in developing countries such as Indonesia, by financing public spending and investment. (Cheasty, nd) (Onwioduokit & Uduakobong, 2018). However, the very small coefficient suggests that while deficits can contribute to growth, their direct positive effects are limited, highlighting the need for efficient allocation of deficit financing to ensure real economic benefits. This is also supported by (Samuel, 2023) concluded that "excessive deficit spending could adversely affect development in Nigeria if it is not adequately invested in the productive sector."

In contrast, both interest rates and inflation show a significant negative impact on economic growth. The interest rate coefficient of -0.2548 indicates that a 1% increase in interest rates causes a decrease in economic growth of 0.2548%, assuming other variables remain constant. This finding is statistically significant ($p\text{-value} = 0.004$). High interest rates increase the cost of government borrowing, thereby increasing the deficit and potentially crowding out private investment. (Caporale et al., 2013) (Wakeel & Ullah, 2013). Previous research by Sardjono and Permono (2004) also indicated a weak relationship between interest rates and investment in Indonesia. This underlines the important role of monetary policy in balancing economic growth and fiscal stability, as high interest rates can hinder economic expansion by increasing the cost of capital for businesses and consumers.

Similarly, inflation has a coefficient of -0.3916, which means that a 1% increase in inflation causes a decrease in economic growth of 0.3916%, with all other variables held constant. This relationship is also highly significant ($p\text{-value} = 0.000$). High inflation erodes purchasing power, reduces the effectiveness of government spending, and can destabilize the economy. This finding is in line with studies showing that inflation can increase significantly when the fiscal deficit exceeds a certain threshold. (Tariq, Ahmad, et al., 2024). According to Research (Samimi & Jamshidbaygi, 2011 and (Bilan, 2007) also emphasized that financing the budget deficit, even through debt, can indirectly lead to an increase in the money supply and inflation. (Milo, 2012) in his study in transition countries also found a positive relationship between monetary financing of government deficits and growth of the monetary base, making it a major cause of money creation and inflation. (Fakher, 2016) also identified budget deficits as a significant determinant of inflation in selected Asian economies. The strong negative impact of inflation on economic growth highlights the importance of maintaining price stability to create a conducive environment for investment and consumption. Historical data for Indonesia shows significant fluctuations in inflation, with peaks above 20% in the early 2000s, which likely triggered higher interest rates to stabilize the economy, further burdening the fiscal. (Ojong & Owui, 2013) also found an inverse relationship between GDP and inflation in Nigeria, supporting this finding. (AKINTUNDE & ARUMONA, 2020) also found that budget deficit and inflation rate have negative and significant effects on per capita income in both the short and long run in Nigeria.

Interestingly, the dummy variable for the COVID-19 pandemic does not show a statistically significant impact on economic growth in this model ($p\text{-value} > 0.05$). While the pandemic undoubtedly caused significant economic disruption and prompted policy responses such as interest rate cuts to stimulate recovery, its direct

effect on long-run economic growth, when considered alongside deficits, interest rates, and inflation, does not appear to be significant in the framework of this regression model. This may indicate that the long-run effects are more directly captured by changes in deficits, interest rates, and inflation themselves, rather than the dummy variable for the pandemic period.

These findings are consistent with existing literature highlighting the complex and contextual relationship between fiscal deficits, interest rates, and inflation. While deficit financing can be a tool for economic stimulus, its effectiveness is heavily influenced by macroeconomic variables such as interest rates and inflation. (Yusuff & Abolaji, 2020) in their study of Nigeria found that "deficit financing, interest rates and inflation rates have a negative impact on GDP growth rates in Nigeria," a conclusion that is very much in line with the findings of this study for Indonesia. (Ananzeh, 2016) also found that "interest rates and inflation play an important role in monetary policy, and influence the decision-making of various countries regarding economic practices." In addition, (Putrawangsa & Hasanah, 2018) in their study of the Indonesian government budget deficit noted the role of domestic interest rates in linking fiscal policy, while also observing the absence of a crowding-out effect on private consumption expenditure from deficit financing. The results are also in line with the idea that uncontrolled inflation can reduce purchasing power and the effectiveness of government spending. (Wakeel & Ullah, 2013). (Kerimu, 2022) highlights how macroeconomic stability is a concern for many economies and can be affected by persistent fiscal deficits, as seen in Kenya. (Onyedibe et al., 2022) also highlights the importance of how the budget deficit is financed, with both external and internal sources of financing having a significant effect on the money supply in Nigeria. (Sisto et al., 2020) in their research on government budget management and sustainable development also emphasize that sustainable budget is the key to

economic and environmental development. The optimal thresholds for inflation and interest rates for sustainable economic growth, as suggested by (Oyadeyi et al., 2025) for Nigeria, underlines the need for prudent fiscal and monetary policies in Indonesia to effectively manage these variables and ensure fiscal sustainability. The study (Yusuff & Abolaji, 2020) on the impact of public debt in Nigeria also shows the need for prudent deficit management to support sustainable economic growth.

In conclusion, this study reaffirms that effective management of inflationary pressures and interest rate control are essential to address deficit financing and maintain fiscal sustainability in Indonesia. These findings provide important implications for public policymakers to design macro-fiscal strategies that balance economic growth with fiscal responsibility. Future research could explore the specific channels through which these variables influence each other and consider additional macroeconomic factors or alternative methodologies to provide a more comprehensive understanding of this complex relationship.

IMPLICATIONS OF THE FINDINGS

This study provides several important implications for policymakers in Indonesia, particularly in formulating fiscal and monetary policies. First, the finding that the budget deficit has a very small but statistically significant positive impact on economic growth, underscores that deficit financing, although it can stimulate the economy (Cheasty, 1996; Onwioduokit & Inam, 2018), its contribution to growth in Indonesia tends to be marginal. The implication is that the government needs to be more careful in allocating deficit funds. Priority should be given to productive investments that have high multiplier effects and drive long-term growth, rather than consumptive spending that may only provide a momentary boost. This is in line with the recommendation of Musa and Samuel

(2023) who emphasize deficit investment in the productive sector to offset debt.

Second, the significant negative impact of interest rates on economic growth (coefficient -0.2548, p-value = 0.004) indicates that monetary policy needs to be careful in raising interest rates. Although high interest rates can be used to control inflation, they can also hinder investment and consumption, and increase the government's debt burden. This emphasizes the need for close coordination between fiscal and monetary policies to achieve the goals of economic growth and macro stability. This finding supports the argument of Caporale et al. (2004) about the potential crowding out of private investment due to high interest rates and is also in line with the research of Sardjono and Permono (2004) in Indonesia which found a weak relationship between interest rates and investment. Ananzeh (2016) also emphasizes the important role of interest rates in monetary policy.

Third, inflation has a negative and most significant impact on economic growth (coefficient -0.3916, p-value = 0.000). The results of this study are in line with the findings (Satria, 2017) which shows that inflation has a significant effect on economic growth. Partially, inflation has a positive and significant effect on economic growth. highlights the importance of maintaining price stability as a prerequisite for sustainable growth. High inflation not only erodes people's purchasing power, but can also create uncertainty for investors and harm the effectiveness of government spending (Wakeel & Ullah, 2013). Therefore, anti-inflationary policies should be a top priority. This is consistent with the findings of Tariq et al. (2025) and Vieira (2000) who showed the relationship between fiscal deficits and inflation, as well as studies by Samimi and Jamshidbaygi (2011) and Fakher (2016) who identified budget deficits as a determinant of inflation. Boariu and Bilan (2007) also explain the mechanism by which deficit financing can trigger inflation through increasing the money supply. In

contrast to the findings (Salim & Fadilla, 2021) shows that inflation has an impact on Indonesia's economic growth/Gross Domestic Product (GDP).

Overall, the findings that deficits, interest rates, and inflation, especially the latter two, have significant effects on economic growth underscore the complexity of macroeconomic management. Macroeconomic stability, which is often threatened by persistent fiscal deficits (Kerimu et al., 2022), requires a holistic approach. The government cannot focus solely on one aspect without considering its impact on others. Responsible fiscal policy must consider potential inflationary pressures and implications for interest rates, while monetary policy must support price stability without sacrificing economic growth excessively. Strong coordination between Bank Indonesia and the Ministry of Finance is key to achieving this balance.

CONCLUSION

This study has successfully investigated the impact of budget deficit, interest rates, and inflation on economic growth in Indonesia during the period 2000-2023, using time series data and OLS regression analysis. All classical assumption tests (normality, multicollinearity, heteroscedasticity, and autocorrelation) as well as stationarity and cointegration tests are met, confirming the validity and reliability of the model used and the existence of a long-run relationship between variables (Ananzeh, 2016; Win, 2017). The main findings show that the budget deficit has a very small but significant positive impact on economic growth, indicating that while the deficit can stimulate growth, its contribution is very limited and its allocative efficiency is key. In contrast, interest rates and inflation have significant and substantial negative impacts on economic growth. An increase in interest rates significantly inhibits economic growth, in line with the concept of crowding out investment. Furthermore, inflation is proven to be the strongest inhibitor of growth, confirming the importance of price stability to

maintain purchasing power and encourage sustainable investment. This finding is consistent with existing literature highlighting the detrimental impact of inflation and high interest rates on economic activity (Ojong et al., 2013; Yusuff & Abolaji, 2020).

Overall, the study concludes that while fiscal deficits can be a tool to stimulate the economy, their sustainability and effectiveness depend largely on how the government manages interest rates and inflation. To achieve stable and sustainable economic growth, Indonesia needs to implement a prudent macro-fiscal policy, focusing on prudent deficit management, maintaining investment-friendly interest rates, and most importantly, effectively controlling inflation. This strategy will help Indonesia face future fiscal and monetary challenges and ensure economic sustainability.

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