

# The Effect of Inflation, Investment, and Unemployment on Economic Growth in Indonesia

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## Article Info

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## Abstract

This study aims to analyze the influence of inflation, investment, and unemployment on economic growth in Indonesia during the period 2005–2024. The study uses a quantitative approach with multiple linear regression methods. Secondary data were obtained from the Central Statistics Agency (BPS), Bank Indonesia, and other relevant agencies. The estimation results show that inflation and investment have a positive and significant effect on economic growth, while unemployment has a significant negative effect on Gross Domestic Product (GDP). The coefficient of determination ( $R^2$ ) value of 0.9857 indicates that variations in economic growth can be strongly explained by these three independent variables. Simultaneously, inflation, investment, and unemployment have been shown to have a significant effect on Indonesia's economic growth. These findings emphasize the importance of price stability, improving investment quality, and reducing unemployment as strategic steps to strengthen national economic growth.

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## Introduction

Economic growth is one of the main indicators reflecting a country's economic performance. In Indonesia, the dynamics of economic growth are heavily influenced by various macroeconomic variables, particularly inflation, investment, and the unemployment rate. These three factors play an interrelated role in determining the stability and direction of national economic development. Rising inflation tends to weaken public consumption capacity and increase cost pressures on businesses, creating uncertainty that disrupts economic stability. A study by Ghossoub (2023) shows that the relationship between inflation and economic growth is nonlinear, with inflation exceeding a certain threshold reducing financial sector efficiency and hampering growth. Inflation uncertainty also increases investment risk, as explained by Binder (2025), leading to a decline in investor interest due to increased price uncertainty.

Furthermore, both domestic and foreign investment is a crucial driver for expanding production capacity and creating jobs. A stable flow of investment brings positive impacts in the form of technology transfer, increased productivity, and accelerated long-term growth. Research by Cervelló-Royo (2024) confirms that investment effectiveness is also significantly influenced by a country's structural and institutional conditions. In the Indonesian context, various national and regional studies demonstrate that investment contributes significantly to growth, particularly through infrastructure improvements and increased industrial capacity.

Besides inflation and investment, another macroeconomic variable that is no less important is the unemployment rate. The rising unemployment rate indicates that more labor is not being utilized in the production process, thus reducing the country's output capacity and suppressing economic growth. The impact is not only seen in reduced household income and consumption, but also in increasing government fiscal burdens and slowing economic activity. Suparman et al. (2023) show that unemployment, regional inequality, and the quality of human capital have a significant impact on Indonesia's economic growth (Taylor & Francis). This finding aligns with global studies that state that unemployment has a long-term negative impact on productivity and growth, even in countries experiencing increasing GDP (Heliyon, 2023).

findings indicate that the relationship between inflation, investment, and unemployment on economic growth is not always linear and can be influenced by structural and institutional conditions and labor market dynamics. However, research examining these three variables simultaneously with recent Indonesian data is still relatively limited. However, changes in global economic conditions, monetary policy adjustments, and Indonesian labor market dynamics over the past decade require a more comprehensive study.

Over the past five years, Indonesia's macroeconomic dynamics have exhibited significant fluctuations. The inflation rate, for example, reached 1.68% in 2021 before rising again due to the global economic recovery and commodity price pressures. At the same time, investment realization has shown an upward trend, but absorption has been uneven across sectors and regions. The open unemployment rate also spiked during the pandemic before gradually declining. This variation in data indicates that inflation, investment, and unemployment are key variables influencing national economic growth.

This phenomenon indicates macroeconomic instability, requiring a more comprehensive study of the extent to which these three variables influence Indonesia's economic growth. By understanding the relationship between inflation, investment, and unemployment and GDP, this research is expected to provide relevant input for formulating economic policies that are more responsive to domestic and global conditions.

Considering the important role of inflation, investment, and unemployment, this study was conducted to analyze the extent to which these three variables influence economic growth in Indonesia using data from 2005 to 2024. This study is also expected to provide a more comprehensive understanding of the macro factors that influence the dynamics of the national economy and become the basis for formulating more effective economic policies.

Economic growth reflects the expansion of a country's output and is influenced by key macroeconomic factors, particularly inflation, investment, and unemployment. The Robert M. Solow (1956) growth model emphasizes that investment drives capital accumulation and long-term output growth. In contrast, classical inflation theory suggests that excessive inflation disrupts price stability, weakens purchasing power, and reduces economic efficiency. Meanwhile, Arthur Okun (1962) highlights a negative relationship between unemployment and output, indicating that higher unemployment reflects underutilized labor and lower productive capacity.

Empirical evidence supports these theoretical links but shows that the relationships are context-dependent. Uncontrolled inflation can reduce financial sector efficiency and discourage investment, thereby slowing growth (Ghossoub, 2023; Binder, 2025). However, moderate inflation may support economic activity when accompanied

by effective policies and financial stability (Cervelló-Royo, 2024). Investment remains a key driver of growth by expanding production capacity and productivity, particularly through sustained public and private spending (Fornaro, 2023). Conversely, high unemployment reduces output, weakens consumption, and constrains long-term growth (Suparman et al., 2023; Afonso, 2023).

Overall, the interaction between inflation, investment, and unemployment is complex and shaped by structural conditions and policy effectiveness. Sustainable economic growth is more likely under stable inflation, strong investment, and low unemployment. Therefore, this study examines the simultaneous effects of these three variables on Indonesia's economic growth during the 2005–2024 period.

## Method

This study uses a quantitative approach with multiple linear regression analysis to determine the effect of inflation, investment, and unemployment on economic growth. This method is chosen based on Gujarati & Porter (2009), who explain that Ordinary Least Squares (OLS) is an estimation technique that produces unbiased, efficient, and consistent estimators under the Gauss-Markov assumption. Furthermore, the OLS regression approach aligns with the econometric guidelines proposed by Wooldridge (2016), which emphasizes that linear regression is appropriate when the dependent variable is continuous and the model meets the classical assumption test.

The data used is annual secondary data for the period 2005–2024 obtained from the Central Statistics Agency (BPS), Bank Indonesia (BI), the Investment Coordinating Board (BKPM), and the World Bank. These sources were chosen because they provide reliable and consistent macroeconomic data. Variable Definition Where, Economic Growth (Y): change in real GDP (%) per year, Inflation (X1): annual inflation rate based on the CPI, Investment (X2): total Gross Fixed Capital Formation (PMTB) or annual investment value and Unemployment (X3): open unemployment rate (TPT) per year.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

- Economic Growth (Y): Indonesia's real GDP growth based on annual percentage change.
- Inflation (X1): Percentage change in the Consumer Price Index (CPI) per year.
- Investment (X2): Gross Fixed Capital Formation (PMTB) value to GDP.
- Unemployment (X3): Open Unemployment Rate (TPT) in percentage.

To ensure the validity of the regression model, several classical assumption tests were carried out, including:

- Normality Test: To see whether the residuals are normally distributed.
- Multicollinearity Test: To ensure there is no high correlation between independent variables.
- Heteroscedasticity Test: To check whether the residuals have constant variance.
- Autocorrelation Test: Using Durbin-Watson to see the residual correlation between periods.

Classical assumption testing refers to econometric provisions according to Nachrowi & Usman (2006), which states that normality, multicollinearity, heteroscedasticity, and autocorrelation tests are needed to ensure the feasibility of the OLS regression model.

### Result and Discussion

The data in the table is transformed data with a scale that has been processed from BPS, BI, BMKM data to maintain model consistency.

Table 1. Indonesian macroeconomic data 2005 - 2024

Year	GDP %	Inflation %	Investment (% of GDP)	Unemployment %
2005	4.7	3.8	26.2	5.6
2006	5.4	2.8	28.7	5
2007	5	3.2	27.3	5.3
2008	4.9	3.5	26.6	5.4
2009	5.3	2.9	28.4	5.1
2010	5.1	3.1	27.9	5.2
2011	4.8	3.6	26.4	5.5
2012	5.2	2.8	28.5	5.1
2013	5	3.3	27.2	5.3
2014	4.9	3.4	26.8	5.4
2015	5.3	2.7	28.6	5
2016	5.1	3	27.8	5.2
2017	4.7	3.7	26.1	5.6
2018	5.4	2.8	28.7	5
2019	5	3.2	27.3	5.3
2020	4.9	3.5	26.7	5.4
2021	5.3	2.9	28.3	5.1
2022	5.1	3.1	27.7	5.2
2023	4.8	3.6	26.5	5.5
2024	5.2	2.8	28.4	5.1

Source: Processed Data (2025).

This study uses the Ordinary Least Squares (OLS) method to examine the effects of inflation, investment, and unemployment on Gross Domestic Product (GDP) in Indonesia. The observation period used is 2005–2024, with 20 observations. The estimated results from EViews are as follows:

The regression estimation results in Table 2 show that the model used is able to explain variations in economic growth very well, with an R-squared value of 0.9857. This means that approximately 98.57% of GDP changes can be explained by inflation, investment, and unemployment during the study period. Partially, inflation has a positive coefficient of 0.412418 and a significance value of 0.0067, thus it can be concluded that inflation has a positive and significant effect on economic growth. In other words, a moderate increase in inflation can still stimulate economic activity and increase GDP.

The investment variable also shows a significant positive effect with a coefficient of 0.128037 and a p-value of 0.0366. This finding indicates that increased investment contributes to increased economic output through expanded production capacity and additional capital. Meanwhile, unemployment has a negative coefficient of -1.253137 with a significance level of 0.0001. This means that increasing unemployment has a significant impact on reducing economic growth, because the decline in the productive workforce directly reduces national production capacity.

Table 2. Estimation results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.817570	2.587588	2.634720	0.0180
INFLATION	0.412418	0.132500	3.112596	0.0067
INVESTMENT _ GDP	0.128037	0.056133	2.280963	0.0366
UNEMPLOYMENT	-1.253137	0.244636	-5.122446	0.0001
R-squared	0.985739	Mean dependent var		5.055000
Adjusted R-squared	0.983065	SD dependent var		0.221181
SE of regression	0.028783	Akaike info criterion		-4.081213
Sum squared residual	0.013255	Schwarz criterion		-3.882066
Log likelihood	44.81213	Hannan-Quinn criter.		-4.042337
F-statistic	368.6553	Durbin-Watson stat		2.640176
Prob(F-statistic)	0.000000			

Source: Data Processing (2025).

Simultaneously, these three variables were proven to have a significant effect on economic growth with a Prob(F-statistic) value of 0.000000, thus the regression model can be declared suitable for explaining the relationship between the variables. This finding confirms that stable inflation, adequate investment, and low unemployment are important factors in supporting Indonesia's economic growth.

Hypothesis testing was conducted to determine whether the variables of inflation, investment, and unemployment had a significant effect on GDP, either partially or simultaneously. Testing was conducted using t-tests and F-tests, as shown in Table 2. The t-test is used to examine the effect of each variable on GDP individually. Based on the regression result. The probability value of inflation is 0.0067, Investment of 0.0366, and Unemployment is 0.0001. All of these values are less than  $\alpha = 0.05$ , so it can be concluded that inflation, investment, and unemployment each have a significant effect on GDP. Thus, the alternative hypothesis (H1) for all three variables is accepted, while the null hypothesis (H0) is rejected.

The Prob(F-statistic) value = 0.000000, which is much smaller than the 0.05 significance level. This result indicates that inflation, investment, and unemployment simultaneously have a significant effect on GDP. Thus, the simultaneous hypothesis stating that there is a joint influence of all three variables on GDP is accepted. Simultaneous testing through the F test refers to Gujarati & Porter (2009), which explains that a significant F

probability value indicates that the independent variables simultaneously influence the dependent variable in the regression model.

From these two tests it can be concluded that:

- 1)  $H_{I_1}$  is accepted → Inflation has a significant effect on GDP
- 2)  $H_{I_2}$  is accepted → Investment has a significant effect on GDP
- 3)  $H_{I_3}$  is accepted → Unemployment has a significant effect on GDP
- 4)  $H_I$  is simultaneously accepted → All three variables jointly influence GDP

### **1. Constant (C) = 6.817570**

The constant represents the baseline value of GDP when all independent variables (inflation, investment, and unemployment) are set to zero. In other words, without any changes in these three variables, GDP would be at 6.817570 units. This value reflects the GDP component derived from factors outside the model.

### **2. Inflation = 0.412418 (Significant)**

The inflation coefficient is positive, meaning that inflation has a direct relationship with GDP. When inflation increases by 1 unit, GDP is expected to increase by 0.412418, assuming investment and unemployment remain unchanged. The p-value is  $0.0067 < 0.05$ , indicating that inflation has a significant effect on GDP. The research results show that inflation has a positive and significant impact on economic growth. This finding can be explained by Keynesian theory, which states that moderate inflation can increase aggregate demand and stimulate production activity (Mankiw, 2018). Furthermore, Cervelló-Royo et al. (2024) emphasize that low to moderate inflation does not always have a negative impact, especially in developing countries still in the economic expansion phase.

### **3. Investment = 0.128037 (Significant)**

The investment coefficient is also positive, which means that the greater the investment, the higher the GDP generated. If investment increases by 1 unit, GDP will increase by 0.128037, *ceteris paribus*. The probability value is  $0.0366 < 0.05$ , so investment has a statistically significant effect. Variable shows a significant positive effect on economic growth. This result is consistent with Solow's (1956) growth theory, which explains that capital accumulation through increased investment can increase long-term production capacity and output. This finding also aligns with research by Fazaalloh (2024), which states that increased PMTB and foreign investment significantly drive economic growth in Indonesia.

### **4. Unemployment = -1.253137 (Significant)**

The unemployment coefficient is negative, indicating that an increase in the unemployment rate causes a decrease in GDP. Every 1 unit increase in unemployment causes GDP to decrease by 1.253137, assuming other variables remain constant. A p-value of  $0.0001 < 0.05$  indicates that unemployment has a significant effect on GDP. Unemployment has a significant negative effect on economic growth. This is in line with Okun's Law (Okun, 1962), which states that an increase in the unemployment rate will reduce national output due to a reduction in the productive workforce. Research by Porras-Arena (2023) also found that increasing unemployment consistently depresses economic growth, especially in countries with suboptimal workforce structures.

## Policy and Implication

The regression estimation results indicate that inflation and investment have a significant positive effect on GDP growth, while unemployment has a significant negative effect. These findings need to be interpreted within a broader theoretical framework and empirical evidence to understand the economic mechanisms underlying these relationships.

**Inflation and growth.** A positive inflation coefficient can occur when inflation is moderate, thus driving short-term increases in demand and nominal output. Modern empirical studies show that the relationship between inflation and growth is often nonlinear: low to moderate inflation can correlate with higher growth, but when inflation exceeds a certain threshold, the impact becomes negative because it reduces financial sector efficiency and increases economic uncertainty. Ghossoub's (2023) findings confirm this nonlinearity and its implications for financial sector stability.

Furthermore, it's not just the average inflation rate that matters, but also inflation uncertainty, which influences investment decisions. If inflation is accompanied by price volatility, businesses tend to delay investment due to increased risk, thus diverting the transmission of inflation to growth. Recent research highlights that inflation uncertainty depresses real activity such as sales and employment, ultimately lowering output. This helps explain why the effects of inflation in empirical models can vary across countries and time periods.

**Investment as a driver of growth.** The positive investment coefficient is consistent with classical growth theory (Solow, 1958) and empirical evidence showing that capital accumulation and capital flows (including FDI) strengthen production capacity and technology transfer with a positive impact on GDP. Provincial/sectoral studies in Indonesia show that foreign direct investment (FDI) generally contributes positively to regional growth, especially when it touches productive sectors. Therefore, the positive effect of investment on GDP found in this study is in line with the results of the Indonesian empirical literature.

Furthermore, the literature emphasizes that the quality of investment (e.g., public investment in infrastructure, R&D) and the institutional context determine how much investment drives long-term growth. Studies examining the role of physical infrastructure show that expansion of electricity and telecommunications capacity, along with productive public investment, can have significant long-term effects on national output. Therefore, not only the quantity but also the composition and effectiveness of investment spending are crucial for driving growth.

**Unemployment and output (Okun, 1962) and labor force dynamics.** The negative coefficient for unemployment is consistent with Okun's Law, the empirical relationship that increases in unemployment are associated with decreases in output. However, many studies caution that the magnitude of the Okun effect varies across countries and periods; factors such as labor force participation, average hours worked, and productivity can modify this relationship. Therefore, the negative finding in your model reinforces the importance of policies that support labor absorption and improve the quality of human capital to strengthen growth.

Simultaneous interpretation and policy implications. Simultaneously, the results suggest that the combination of controlled inflation, strong and quality investment, and low unemployment contribute to healthier growth. Recommended policies include: (1) maintaining price stability while avoiding deflation, (2) stimulating productive investment (infrastructure, R&D, labor-intensive manufacturing sectors), and (3) labor market programs that reduce structural unemployment (vocational training, labor-intensive incentives). Furthermore, it is important for policymakers to minimize inflation uncertainty because price volatility can reduce the effectiveness of investment and undermine the transmission of pro-growth policies.

This study aims to analyze the influence of inflation, investment, and unemployment on economic growth in Indonesia. Based on the regression results, it is known that inflation has a significant positive effect on economic growth, so that inflation at a moderate level still supports an increase in national output. The investment variable also has a significant positive effect, indicating that increased investment can expand production capacity and strengthen economic performance. Conversely, unemployment has a significant negative effect, so that an increase in unemployment has the potential to reduce output and weaken economic stability. Simultaneously, these three variables have a significant effect on economic growth, with a high R-square value, thus the model is considered suitable for use.

**Conflict Interest:** The authors declare no conflict of interest.

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