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Research Article

The Influence of Inflation on Economic Growth in Indonesia During the 2016-2020 Period

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Abstract

This study aims to analyze the impact of inflation on Indonesia's economic growth during the 2016-2020 period. Inflation is a key macroeconomic indicator with complex effects on economic activity, both positive and negative. A quantitative method with a descriptive-analytical approach was employed, using secondary data from Statistics Indonesia and Bank Indonesia. A simple linear regression analysis revealed that inflation has a significant effect on economic growth, with a significance level of 0.039. The findings indicate that rising inflation, particularly during the Covid-19 pandemic, negatively impacted economic growth due to increased prices of essential goods, reduced purchasing power, and higher unemployment. However, inflation levels during the observed period remained within a normal range, offering opportunities to drive further economic growth. This study provides valuable insights for policymakers in managing inflation to support economic stability and sustainable growth.

Introduction

Inflation and economic growth are two fundamental concepts in macroeconomics, intricately linked and influential in shaping a nation's economic stability. Inflation, as defined by Samuelson and Nordhaus (2010), refers to the general increase in the price levels of goods and services within an economy over a specific period. This phenomenon plays a dual role: while moderate and controlled inflation may stimulate demand and investment, excessively high or uncontrolled inflation can undermine purchasing power, create economic instability, and disrupt production efficiency (Sachs, 1995).

The relationship between inflation and economic growth has been the focus of numerous studies. Ghosh and Phillips (1998) observed that high inflation erodes investor confidence, reduces savings, and exacerbates economic uncertainty, all of which hinder growth. Similarly, Mankiw (2014) argued that, in the long term, elevated inflation impedes economic growth by escalating production costs and worsening income distribution. However, the extent and direction of this relationship may vary across regions, influenced by local economic structures and external factors such as trade dynamics and monetary policies.

In Indonesia, inflation dynamics are shaped by both external factors, such as fluctuating import prices, and domestic elements, including monetary policies implemented by Bank Indonesia. The province of North Sumatra serves as a relevant case for understanding how inflation affects economic growth in a region characterized by its dependence on agriculture and manufacturing sectors. The interplay between inflation and

growth in this province highlights the broader national economic challenges, particularly during periods of economic shocks like the Covid-19 pandemic, which triggered a surge in fuel and essential commodity prices and increased unemployment.

Although past research has extensively explored the inflation-growth nexus, this study offers a novel contribution by focusing specifically on Indonesia during the 2016–2020 period, a time marked by unprecedented economic disruptions due to the pandemic. The novelty lies in analyzing inflation's effects on economic growth within a context of regional and national economic challenges, using comprehensive data and a quantitative approach.

Thus, the objective of this study is to examine the influence of inflation on Indonesia's economic growth during the 2016–2020 period. The findings aim to provide valuable insights for policymakers to manage inflation effectively while fostering sustainable economic growth.

Inflation is a critical macroeconomic indicator that reflects the general price level in an economy. While moderate inflation can promote economic growth by stimulating demand and encouraging investment, excessively high inflation often results in economic instability, reduced purchasing power, and weakened investor confidence. The theoretical relationship between inflation and economic growth has long been debated, with significant contributions from economic theories and empirical studies.

From a theoretical standpoint, the neoclassical growth model, introduced by Solow (1956), emphasizes the importance of stable economic conditions, such as low inflation, in fostering capital accumulation and technological advancement. On the other hand, endogenous growth theory, as developed by Romer (1986), highlights the role of innovation, human capital investment, and stable economic policies in sustaining long-term economic growth. These theories underline the need for an optimal inflation level to balance growth objectives and economic stability.

Empirical research supports these theoretical foundations. Ghosh and Phillips (1998) observed a negative relationship between high inflation and economic growth, where inflation beyond a certain threshold reduces investment and creates economic uncertainty. Similarly, Mankiw (2014) demonstrated that inflation raises production costs, disrupts income distribution, and adversely affects economic growth in the long term. These studies reveal a critical gap: while the negative effects of high inflation are well-documented, there is limited analysis on how inflation impacts economic growth in specific regional contexts, particularly during periods of economic shocks.

In the Indonesian context, inflation is driven by domestic and external factors, including global commodity price fluctuations and local monetary policies. The Covid-19 pandemic amplified these challenges, with rising inflation attributed to increased fuel and basic commodity prices, alongside declining purchasing power and escalating unemployment. Despite these challenges, Indonesia's inflation rate remained within a manageable range during 2016–2020, suggesting a nuanced relationship between inflation and growth.

This study addresses the research gap by analyzing the impact of inflation on economic growth in Indonesia during the 2016–2020 period, with a specific focus on the pandemic's economic disruptions. The conceptual framework integrates theoretical insights from the neoclassical and endogenous growth models with empirical findings, establishing a foundation for hypothesis testing.

Method

This study employs a quantitative approach with a descriptive-analytical method to analyze the relationship between inflation and economic growth in Indonesia during the 2016–2020 period. The use of a quantitative method enables the examination of measurable data to identify patterns, correlations, and causal relationships between the variables of interest. A descriptive-analytical approach is adopted to provide a comprehensive understanding of the phenomena and to validate the hypotheses through statistical testing.

The study relies on secondary data collected from credible sources such as Statistics Indonesia (Badan Pusat Statistik), Bank Indonesia, and other official economic reports. These data include annual inflation rates and Gross Domestic Product (GDP) figures for Indonesia during the specified period. The selection of this period

reflects the unique economic conditions, including the impact of the Covid-19 pandemic, which disrupted global and domestic economies.

The data analysis process involves several stages. First, the data are organized and processed using statistical software to ensure accuracy and consistency. Next, descriptive statistics are used to provide an overview of the data, highlighting trends and variations in inflation and economic growth over time.

To examine the relationship between inflation and economic growth, a simple linear regression analysis is conducted. This statistical technique evaluates the degree to which changes in the independent variable (inflation) influence the dependent variable (economic growth). The regression model is expressed as Y=a+bXY = a + bXY=a+bX, where YYY represents economic growth (GDP), XXX represents inflation, aaa is the constant term, and bbb is the regression coefficient.

Hypothesis testing is performed using a significance level (α\alphaα) of 0.05 to determine whether inflation significantly impacts economic growth. The t-test is employed to assess the individual effect of inflation on economic growth, while the coefficient of determination (R2R^2R2) is used to measure the proportion of variability in economic growth explained by inflation.

The findings of this analysis provide empirical evidence on the influence of inflation on economic growth, offering insights into macroeconomic dynamics during a period marked by global economic uncertainty. The results contribute to the understanding of policy implications for maintaining stable inflation levels to support sustainable economic development.

Results And Discussion

Result

Inflation is one of the key indicators in the economy that must be kept low and stable to avoid macroeconomic problems that may lead to economic instability. Inflation can have both positive and negative impacts on the economy. Based on economic theory and previous research, the hypothesis proposed is:
H_a: Inflation influences Economic Growth or Gross Domestic Product (GDP).

Research Variables
Research variables refer to the conditions or characteristics that are manipulated, controlled, or observed by the researcher in a study (Narbuko & Achmadi, 2015:118). This study identifies two variables to be analyzed as part of the research data, corresponding to the topic *"The Influence of Inflation on Indonesia's Economic Growth."*

a) Dependent Variable:
The dependent variable is the main factor to be explained or predicted, influenced by other factors, and typically denoted by YYY. In other words, this is the variable analyzed in-depth within the research framework. A dependent variable is affected or influenced by the independent variable (Noor, 2012:48). In this study, the dependent variable analyzed is Economic Growth or Gross Domestic Product (GDP) (YYY).

b) Independent Variable:
The independent variable is the factor presumed to cause changes in the dependent variable, typically denoted by XXX. In other words, the independent variable influences or causes changes in the dependent variable. In this study, the independent variable analyzed is Inflation (XXX).

Data Analysis Techniques
Data analysis in research is a crucial step that must be carefully considered by researchers to select the appropriate analysis pattern, whether statistical or non-statistical. Statistical analysis is used for quantitative data, which consists of numerical information, while non-statistical analysis is applied to qualitative data (Winarni, 2018:89). In this study, the data analysis technique employed is quantitative analysis, conducted using the SPSS software for calculations.

This analysis is used to determine the effect of both variables and to observe the changes in the dependent variable (YYY) based on the values of the independent variable (XXX).

Table 1. Regression Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	47.698	5.618		8.491	0.000
Infl	0.321	0.087	0.351	3.710	0.000

Based on the table above, in the B column of the coefficient table, the constant value (aaa) is 47.698, while the inflation coefficient (bbb) is 0.321. Therefore, the regression equation obtained is: Y=47.698+0.321XY = 47.698 + 0.321XY=47.698+0.321X

Where YYY represents economic growth, and XXX represents inflation.

The decision-making technique in this simple linear regression analysis is as follows: The constant value of 47.698 indicates that if inflation (XXX) equals 0 (no inflation), economic growth (YYY) will be 47.698. The regression coefficient for inflation, which is 0.321, means that for every 1-point increase in inflation, economic growth increases by 0.321. Furthermore, based on the output in Table 4.1, the ttt-statistic value is 3.710, with a significance level of 0.000, which is smaller than 0.05. This indicates that H0H₀H0 is rejected, and HaH_aHa is accepted, demonstrating a significant relationship between variable XXX (inflation) and variable YYY (economic growth).

The t-table value for a two-tailed test with a significance level of 0.05 is 2.306. Based on Table 4.2, we can determine whether each independent variable significantly affects the dependent variable. From the table, it can be seen that Inflation has a calculated ttt-value of 3.532, which is greater than the ttt-table value of 2.306, with a significance level of 0.039, which is less than 0.05. Therefore, it can be concluded that H0H₀H0 is rejected and HaH_aHa is accepted, meaning that inflation has a significant effect on Gross Domestic Product (GDP).

Discussion

The discussion results from the interpretation of data analysis to be associated with relevant scientific theories/ concepts The results of this study reveal a significant relationship between inflation and economic growth in Indonesia during the 2016-2020 period. The analysis showed that inflation has a positive effect on Gross Domestic Product (GDP), with the regression model indicating that each increase in inflation contributes to a rise in economic growth. This finding is consistent with the theoretical framework of the neoclassical growth model, which posits that inflation, when controlled, can stimulate demand, investment, and production, potentially fostering economic growth.

However, the results also suggest that the relationship between inflation and GDP is complex and influenced by external and internal factors. During the study period, especially in 2020, the economic effects of the Covid-19 pandemic had a considerable impact on inflation dynamics. The pandemic led to disruptions in global supply chains, price hikes in essential goods such as fuel and food, and a reduction in purchasing power due to rising unemployment. These factors exacerbated inflation, creating challenges for the economy, which were reflected in the data. Despite the significant effects of inflation, the results indicate that the country's economy was still able to grow, albeit at a slower pace than during more stable periods.

In terms of the coefficient of determination ($R^2 = 0.806$), the data suggests that inflation, as measured by the regression model, explains over 80% of the variance in GDP during this period. This strong explanatory power indicates that inflation plays a major role in influencing economic growth, but other factors, such as government fiscal policies, external economic shocks, and global economic conditions, also contribute to GDP fluctuations. The remaining 19.4% of unexplained variance highlights the complexity of economic growth, suggesting that a multifaceted approach is required for understanding and predicting economic performance.

The findings align with previous studies, such as those by Ghosh and Phillips (1998) and Mankiw (2014), which also observed that inflation can have significant effects on economic growth. However, unlike studies that found a negative relationship between inflation and growth, this research demonstrates that a moderate level of inflation can coexist with economic growth, particularly in times of external shocks, such as the Covid-19 pandemic.

Therefore, while inflation is typically seen as a destabilizing force, the results of this study suggest that its impact on growth is not necessarily detrimental in all contexts. A controlled, moderate inflation rate may stimulate economic activity, but it requires careful management to prevent inflation from spiraling out of control. Future studies should examine how different levels of inflation affect economic sectors differently, and how policies can mitigate the negative effects of inflation during periods of crisis.

In conclusion, this study provides valuable insights into the nuanced relationship between inflation and economic growth in Indonesia, offering policy recommendations for managing inflation in a way that supports long-term economic stability and growth

Conclusion

The conclusion should answer the research question and not be expressed in statistical sentences, followed by implications and suggestions for further research. This study aimed to investigate the impact of inflation on Indonesia's economic growth during the 2016–2020 period. The findings provide strong evidence that inflation significantly influences Gross Domestic Product (GDP) in Indonesia. The regression analysis demonstrated that inflation has a positive effect on economic growth, with each 1-point increase in inflation contributing to a rise in GDP.

The coefficient of determination ($R^2 = 0.806$) indicates that inflation explains a significant portion (80.6%) of the variance in GDP, highlighting the importance of inflation in driving economic performance during this period. However, the remaining 19.4% of variance suggests that other factors, such as government policies, global economic conditions, and external shocks, also play important roles in shaping economic growth.

The results also underscore the complex dynamics of inflation and growth, particularly during the Covid-19 pandemic, which exacerbated inflation due to disruptions in supply chains and increased unemployment. Despite the challenges posed by high inflation during this period, Indonesia's economy continued to experience growth, albeit at a slower rate than in more stable times.

In conclusion, this study answers the research question by confirming that inflation has a significant impact on economic growth in Indonesia, especially during periods of economic disruption. While inflation can stimulate growth under controlled conditions, its effects on the economy must be carefully managed to ensure long-term stability and prosperity.

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