Analysis of Economic Growth in Central Java 2003 – 2019

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Abstract: Developing countries generally face economic challenges like high inflation and slow growth. Inflation has dual positive and negative impacts; high inflation can hinder economic growth and vice versa. Additionally, inflation affects unemployment; rising inflation tends to decrease real income and increase poverty. This study evaluates economic growth in Central Java Province from 2003-2019 using a quantitative time series approach with secondary data and OLS for multiple linear regression. T-test results indicate that inflation, poverty, and unemployment did not significantly impact economic growth in Central Java during this period.

Keywords: Inflation, Unemployment, Poverty, Economic Growth, Central Java

1. INTRODUCTION

According to Reni Mulyani(2020) Developing countries generally face economic challenges such as high inflation rates and slow economic growth. Inflation itself is a phenomenon in the monetary sector that causes a decrease in the purchasing power of a currency. The impact of inflation on the economy can be positive or negative, and inflation plays an important role in influencing currency exchange rates. In developing countries, inflation still occurs frequently. However, this situation is not only influenced by monetary factors, but is also triggered by several other factors, for example *natural inflation, human error inflation, cost push inflation, spiralling inflation, imported inflation* (Kurniawati, 2019).

Unemployment is not only caused by economic growth, but also by inflation. According to Philips' theory, there is a relationship between the inflation rate and unemployment (Siregar et al., 2023). The increase in the number of unemployed can be triggered by population growth, economic development, and increased inflation (Guretna, 2018). Unemployment is a problem that is difficult to avoid and can have social and economic impacts. This situation has the potential to reduce the level of prosperity and consumption capacity of the community. The decline in the levelunemployment, the prosperity of the people in a country increases, and vice versa (Pratiwi, 2022).

High inflation causes people who were previously able to meet their needs to experience difficulties due to the spike in prices of goods and services, which can ultimately push them into poverty (Sitanggang et al., 2022).

Economic problems in Central Java Province include the still high number of unemployed and people living in poverty. If this condition is not addressed immediately, the number of poor and unemployed people is feared to continue to increase every year. However, the distribution of development is still uneven and this is caused by problems with population, unemployment rates, poverty and slow economic growth. These are development challenges that are commonly found in various regions(Amanullah & Robertus, 2023).

The following is a graph illustrating economic growth from 2003 to 2019
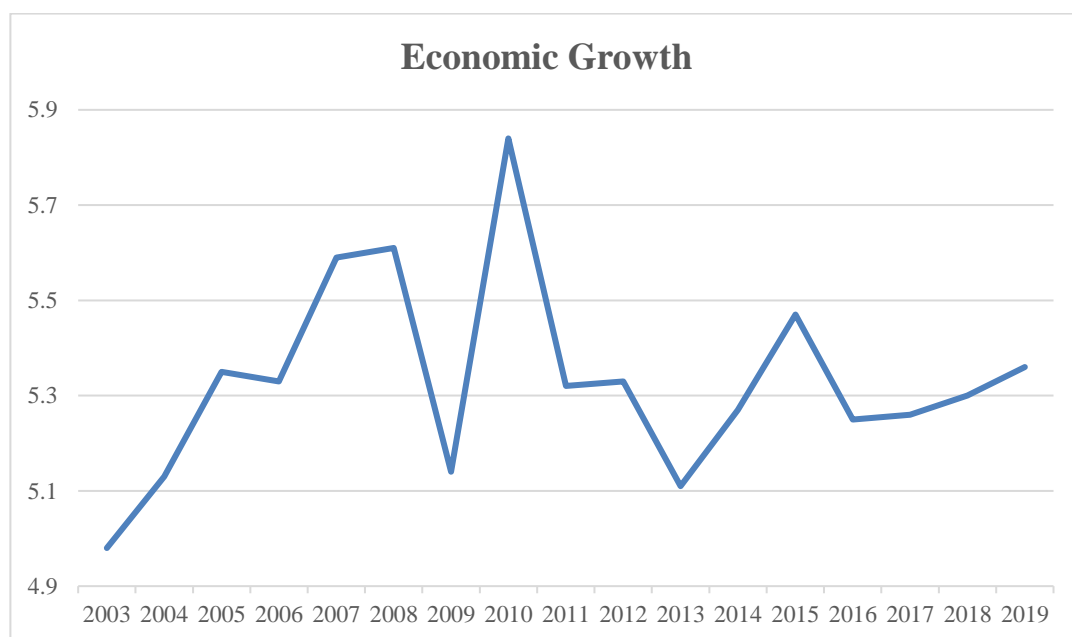
Picture 1. Development of Economic Growth Rate in Central Java 2003-2019

Picture 1 shows that the instability in the acceleration of economic growth in Central Java is likely influenced by several factors related to economic variables. The economic growth of a particular region, both in total and based on its sectors in a certain period, can be measured by the percentage increase in Gross Regional Domestic Product (GRDP). This means that if there is an increase in the added value of the production of goods and services, it can be concluded that the regional economy is growing. In Central Java, the availability of large natural resource potential is part of an important element in driving its economic growth.

Economic growth is a strategic issue that needs to be pursued seriously, with the hope of achieving significant acceleration. Every country has a similar goal, namely to encourage economic growth. Failure in this regard can trigger various economic and social problems, such as increasing poverty rates.

Case studies on the relationship between inflation, unemployment, poverty, and various measures to encourage economic growth have been conducted previously. However, this study remains relevant considering that high inflation can disrupt macroeconomic stability and have a broad impact on the Indonesian economy.

Research by NaufanNadiefAlbasyari and UnggulPriyadi(2023) using panel data regression showed that inflation has a detrimental effect on economic growth in Central Java Province.

Erika Feronika Br Simanungkalit's(2020) study used an econometric approach through OLS using a simple linear regression model.

revealed that inflation has a negative impact and the significant F-test results also indicate that inflation has an impact on economic growth in Indonesia in 1983-2014.

A study by Novita Pratiwi (2022) using a panel data model showed that in 2017-2021, inflation showed a real impact on economic growth in Central Java Province with a coefficient of determination of 0.995547.

Rahel Veronika Siregar et al.'s study (2023) applied the OLS method statistical test resulting in no significant relationship between economic growth and the inflation rate in Indonesia in the 2000-2021 period. However, a significant positive effect was found between the unemployment rate and inflation during that period.

Although there has been a lot of research exploring the influence of inflation on economic growth, it shows that there is still a gap (*research gap*). There is a need to fill this knowledge gap to further examine the impact of inflation on economic growth in a series of case studies.

Referring to the explanation above, the author determines the title**"ANALYSIS OF ECONOMIC GROWTH IN CENTRAL JAVA 2003 – 2019"**.

2. METHODOLOGY

This study utilizes secondary data in *time series* for the period 2003–2019. Inflation data is taken based on data obtained from the official website of Bank Indonesia (www.bi.go.id), while economic growth data was taken from the official website of the Central Statistics Agency (www.bps.go.id). To study the influence of inflation, unemployment, and poverty on economic growth, through econometric models with regression *Ordinary Least Square* (OLS) used are listed below:

$$GROWTH = \beta_0 + \beta_1 INF + \beta_2 UNEMP + \beta_3 POV + \varepsilon$$

Explanation :

GROWTH	: Economic growth
INF	: Inflation (%)
UNEMP	: Unemployment (%)
POV	: Poverty (%)
ε	: Error term (error factor)
β_0	: Constant
$\beta_1 \cdots \beta_3$	: Regression coefficient of independent variables

3. RESEARCH RESULT

The estimation of the econometric model and bound test is concluded as follows:

Table 1. Econometric Model Estimation Results

PE = 5,140911	+ 0,016888INV	- 0,031935POV	+ 0,103731UNEMP	
	(0,3246)**	(0,1765)**	(0,1656)**	
R-Square = 0,182152	DW-Stat = 2,379275	F-Statistic = 0,965127		Prob (F-statistic) = 0,438566

DiagnosticTest
(1) Multikolinieritas (VIF)
    INF = 1,363636; POV = 2,711307; UNEMP = 2,218164
(2) NormalitasResidual (Jarque Bera)
    JB = 0,815521; Probability = 0,665138
(3) Otokorelasi (BreuschGodfrey)
    Obs. R-Squared = 1,939565; Prob. Chi-Square (3) = 0,5850
(4) Heteroskedastisitas (White)
    Obs* R-Squared = 7,543386; Prob. ChiSquare (9) = 0,5807
(5) Uji Spesifikasi Model (Ramsey Reset)
    F-Statistic = 0,561215; Pobability = 0,5860

* Significant at $\alpha = 0.01$; ** Significant at $\alpha = 0.05$; *** Significant at $\alpha = 0.10$.

The numbers in parentheses are the probability values of the t-statistics.

1) Multicollinearity analysis indicates that there are no multicollinearity issues among the inflation, poverty and unemployment variables.

2) Residual normality test using the method*Jarque-Bera,*hypothesis H0states the distribution of Ut normal, the alternative hypothesis states the U distributiont abnormal. The probability value of the JB test is 0.665138 > 0.05 so that H0 approved and distribution Ut can be considered normal.

3) Autocorrelation with test*Breusch-Godfrey,* H0 which states that there is no autocorrelation constraint. The test results show a probability value of 0.5850 > 0.0, which leads to the acceptance of H0, indicating that there is no autocorrelation constraint in the model.

4) Heteroscedasticity through testing*White,* hypothesis H0 which states that there is no heteroscedasticity problem in the model. The test probability value of 0.5807 > 0.05, leads to the acceptance of H0, which means there is no heteroscedasticity problem.

5) Model specifications are tested*Ramset Reset,* hypothesis H0 which states that the model is linear. The test results show a probability of 0.5860 > 0.05, which supports the acceptance of H0, indicating that this model is linear.

6) Coefficient of determination (R^2) is worth 0.182152, 18.22% of the change in economic growth can be explained by the independent variables, while the remaining 81.87% is influenced by elements not included in the model.

7) **Uji T** serves to evaluate the relationship of each independent variable to the dependent variable. If the value of t > α, then the variable does not have a significant effect, whereas if the value of t < α, then the variable has a significant effect.

Table 2. T-Test Data Processing

Variabel	Prob.t	α	Keterangan
Inflation (INF)	0,3246	> 0,05	The inflationvariablehas nosignificanteffect
Poverty (POV)	0,1765	> 0,05	The povertyvariable has nosignificanteffect
Unemployment (UNEMP)	0,1656	> 0,05	The unemploymentvariable has No. significanteffect

4. CONCLUSION

From the findings obtained from this study, several conclusions can be drawn, namely:

1. Inflation shows a good effect on economic growth in Central Java Province between the periods of 2003-2019, not showing a significant effect, as reflected by the higher inflation value (0.3246> 0.05). Although there was an increase in inflation, economic growth also increased, but the increase was not consistent enough to be considered to have a major impact.

2. Poverty hampers economic growth in Central Java in 2003-2019, but the influence is not significant. The results of the analysis show that poverty is more significant (0.1765 > 0.05). Although poverty increases, economic growth tends to decline, but this influence is not strong enough to be declared significant.

3. Unemployment has a beneficial effect on economic growth in Central Java Province in 2003-2019, although the effect is not significant. The test shows that the significance value of unemployment is greater(0.1656 >0.05). Although unemployment increases, economic growth also increases, although this is contrary to general economic theory. This phenomenon may be caused by the lack of job creation in economic growth or the presence of other factors that influence the relationship outside the analyzed model.

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