

The Influence of Inflation and Unemployment on the Indonesian Economy: VAR Approach

Erlen Berliantina Kusumasari¹, Bambang Hadi Prabowo², Yusuf Iskandar³
^{1,2,3}STIE Jaya Negara Tamansiswa Malang, Indonesia

Abstract

This paper will examine the effect of inflation on economic growth, as well as its impact on the unemployment rate Indonesia Country. The research data was obtained from World Bank sources and measured the period 1997-2020. We use inflation, GDP and unemployment as research variables. Furthermore, the data will be tested and analyzed using the Vector Autoregressive (VAR) model. We find that inflation in the past had an influence and impact on current economic growth. The increase in inflation tends to reduce and hinder the country's economic growth. In addition, the historical inflation rate has a detrimental effect on the current unemployment rate. On the other hand, the historical unemployment rate and current GDP economic growth have an interesting link. However, since they are inversely correlated, GDP growth has a negative effect on the unemployment rate, causing a decline in the current rate of unemployment to occur after an increase in past growth. Along with reducing inflation, supportive policies for economic growth must be taken into account by policymakers. Additionally, Indonesia's unemployment rate will be minimized and decreased with maximal economic development.

Keyword: Inflation, GDP, Unemployment.

JEL Classification: E31, E24, O47.

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Background

The interaction that occurs between inflation and economic growth is interrelated in the long term. In these nations, control strategies must be put in place to lower inflation and so support economic growth. Policy makers need to ensure that economic growth is carried out without increasing inflation. In addition, there is an interesting relationship between unemployment and economic growth which has a unidirectional relationship and does not provide feedback between the two. Thus, unemployment can have a negative impact by reducing economic growth, but economic growth cannot reduce unemployment (Widarni, Irawan, Harnani, Rusminingsih, & Alim, 2022).

Policy makers can pursue ways by implementing effective active employment policies to remedy labor market dysfunctions. This is done in order to minimize unemployment. In addition, sustainable economic growth needs to be achieved by the state, one of which is by perfecting macroeconomic policy instruments that are useful for encouraging economic growth, which in turn will control unemployment (Sahnoun & Abdennadher, 2019). In addition, Due to the loss of small employers, an increase in inflation may cause small businesses to close and large ones to grow. However, this could lead to the creation of low-wage jobs and a reduction in economic disparity. The government can consider this reality of non-uniform income inequality when formulating any policy, particularly fiscal policy. Increased low-level employment does not imply more evenly distributed income. The upper class is earning far more than the lower class due to a growth in production activities, although employers and those receiving high salaries are much less numerous than unskilled and semi-

skilled workers. As a result, there is a clear direct correlation between Pakistan's GDP growth rate and income disparity (Shabnum & Malik, 2023). The equilibrium between inflation and unemployment will be critical for as long as countries use monetary, trade, and exchange rate policies to grow their economies. For governments, it is essential to comprehend how cutting unemployment may impact inflation and vice versa (Leightner, 2020).

Inflation and unemployment have a negative relationship and influence in the short term. As more workers were hired and started making money, their wages rose, increasing the demand for products and services. Estimates show that the unemployment rate decreased by 0.299 percent as inflation increased by 1 percent. The economy must produce more products and services, which necessitates hiring more workers, to stabilize rising prices. The unemployment rate and the inflation rate are positively correlated throughout time. Long-term unemployment increases by 0.801 percent for every 1% increase in inflation. This has a higher likelihood of occurring if inflation is not controlled. For instance, worry about inflation may deter investment and impede economic expansion, which leads to unemployment (Tenzin, 2019).

Gross capital formation is beneficial for both economic expansion and unemployment. As a result, economic growth and employment are perceived as being stimulated by gross capital formation. On the other hand, as might be predicted, the unemployment rate has little impact on economic expansion. Fiscal authorities must execute expansive fiscal policies that encourage investment, employment, and economic growth. To generate jobs and encourage economic growth, the government must spend more on capital goods (Pasara & Garidzirai, 2020 ; Prabowo, Sasongko, & Damayanti, 2022). Poverty due to unemployment, although positively correlated, is a key factor in short-term national growth. On the other hand, unemployment has a negative correlation with growth. This shows that the nation will progress even though there are people who are really poor. Even if more people lived in the world, the economy would still grow. In spite of the fact that the number of poor people has risen throughout time, this is also true in the short run, showing that the economy has expanded. Therefore, it is very important to realize that even if the value of the dollar increases, a high percentage of unemployed will result in a high poverty rate (Adelowokan, Babasanya, & Adesoye, 2019).

The adversely statistically negligible association between unemployment and economic growth in South Africa may be caused by capital-intensive technology or manufacturing processes that replace human labor with machines to cut costs. In order to reduce South Africa's growing unemployment rate and foster economic growth, these call on companies and the government to implement policies that favor labor-intensive methods of production in the mining and agriculture sectors. Additionally, it might be claimed that in order to lower unemployment in South Africa, the government should give subsidies to enhance the skill sets of people who are proficient in businesses and those who are untrained to skill them via education. This is so because unemployment hinders economic growth (Hlongwane & Daw, 2021). The high inflation rate in Indonesia is not due to a high jobless rate. High inflation is being brought on by rising prices for basic items and fuel. Additionally, the majority of Indonesian companies use capital-intensive tactics, which restrains the growth of the labor force in the nation. The possibility of increased unemployment for local labor who lost out in the competition increases as more international employees arrive in Indonesia (Wulandari, Utomo, Narmaditya, & Kamaludin, 2019). This study examines and analyzes the relationship and gives the impact of inflation and unemployment and their impact on economic growth in Indonesia.

Research Method

The research of this study will examine the effect of inflation on economic growth, as well as its impact on the unemployment rate in Indonesia. The research data was obtained from World Bank sources and measured the period 1997-2020. We use inflation, GDP, and unemployment as research variables. Furthermore, the data will be tested and analyzed using the Vector Autoregressive (VAR) model. Here are the similarities:

$$\begin{aligned} INF_t &= \beta_0 + \beta_1 GDP_{t1} + \beta_2 UEM_{t2} + e_t \\ GDP_t &= \beta_0 + \beta_1 INF_{t1} + \beta_2 UEM_{t2} + e_t \\ UEM_t &= \beta_0 + \beta_1 INF_{t1} + \beta_2 GDP_{t2} + e_t \end{aligned}$$

Information:

- INF = Inflation
- GDP = Economic Growth (in percent)
- UEM = Unemployment Rate
- β = Konstanta
- e = Error term
- t = Time Period

Result and Discussion

Stationarity data is expected to be achieved in research in order to facilitate further testing. Stationary testing through unit root test to see stationary variables at a certain level is shown in table 1.

Table 1. Unit Root Test INF, GDP, and UEM Result

Variable	Level		First Difference	
	Prob.	Description	Prob.	Description
INF	0.0090	Fulfil	0.0000	Fulfil
GDP	0.0161	Fulfil	0.0000	Fulfil
UEM	0.7757	Not Fulfil	0.0045	Fulfil

Table 1 shows that there are no problems in data stationarity. All variables in this study do not experience data stationarity problems the level and the first difference. Subsequent tests determine the optimum lag to be used in this study, shown in below.

Table 2. Optimum Lag Test Result

Lag	LogL.	LR	FPE	AIC	SC	HQ
0	-184.2198	NA	2360.243	16.27999	16.42809	16.31724
1	-155.0893	48.12870*	414.2998*	14.52951*	15.12194*	14.67850*

Based on the optimum lag test in table 2, the lag that will be used is lag 1. Then a cointegration test is carried out with the aim of knowing whether the Vector Autoregressive (VAR) model can be used. Cointegration test in table 3.

Table 3. Cointegrating Test Result

Hypothesized	Eigenvalue	Trace Statistic	0,05 Critical Value	Probability
None*	0.931401	72.64931	29.79707	0.0000
At most 1	0.395311	13.70083	15.49471	0.0915
At most 2	0.112835	2.633933	3.841466	0.1046

Table 3 provides information on cointegration testing in this study which shows that there is no cointegration so that VAR analysis can be carried out. VAR testing will be shown in table 4 below.

Table 4. VAR Test Result

	INF	GDP	UEM
INF(-1)	0.443242 (0.62699) [0.70694]	-0.135894 (0.16397) [-0.82876]	-0.016674 (0.02292) [-0.72764]
GDP(-1)	1.160588 (2.30262) [0.50403]	-0.272293 (0.60219) [-0.45217]	-0.115324 (0.08416) [-1.37034]
UEM(-1)	0.361054 (2.88151) [0.12530]	1.219739 (0.75359) [1.61857]	0.965066 (0.10531) [9.16361]
C	-0.856723 (16.4404) [-0.05211]	-0.175754 (4.29960) [-0.04088]	0.868408 (0.60087) [1.44525]

Table 4, the results of the VAR test show that INF(-1) and GDP have a significant negative relationship with the t-statistic value [-0.82876]. INF(-1) and UEM have a significant effect on the t-statistic value [-0.72764]. Furthermore, GDP(-1) and UEM have a significant negative relationship with the t-statistic [-1.37034]. Besides that, UEM(-1) and GDP also have a significant influence and correlation on the value of the t-statistic [1.61857].

Inflation in the past had a significant impact on current economic growth. The increase in inflation tends to reduce and hinder the country's economic growth. In addition, inflation in the past has also had a detrimental effect and impact on the current unemployment rate. On the other hand, there is an interesting relationship in which the past unemployment rate has a positive impact on current GDP economic growth. However, it is inversely proportional, meaning that GDP growth has a negative impact on the unemployment rate to follow an increase in past growth.

Table 5. Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
GDP does not Granger Cause INF	22	2.34418	0.1262
INF does not Granger Cause GDP		1.48502	0.2544
UEM does not Granger Cause INF	22	10.3282	0.0012
INF does not Granger Cause UEM		0.91010	0.4212
UEM does not Granger Cause GDP	22	1.75143	0.2034
GDP does not Granger Cause UEM		1.62629	0.2258

Table 5, the Granger causality tested to see the direction of the relationship between variables. Based on the table above, there is a one-way relationship between UEM and INF with a probability value of 0.0012 < 0.05.

Conclusion

Rising inflation will have a negative relationship to Indonesia's current economic growth. The increase that occurred in inflation was the result of an increase in inflation that occurred in the past. In addition, an interesting relationship exists because past increases in inflation actually

had a negative impact on the unemployment rate. However, this is also supported by GDP which has a negative impact on the unemployment rate so that increased economic growth provides impetus for a decrease in the unemployment rate. Policy makers must consider supportive policies for economic development, as well as controlling the inflation rate. In addition, maximum economic development will minimize and reduce the unemployment rate in Indonesia.

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