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Causality of Inflation and Unemployment In Lampung Province

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Abstract

Inflation and unemployment are major economic challenges in Indonesia that are often influenced by sub-optimal economic growth. This study aims to examine the causality relationship between inflation and unemployment with a focus on Lampung Province. The methodology used is descriptive and quantitative, with secondary data analysis from the Central Bureau of Statistics (BPS) for the period 1990-2023. The Granger causality test results show a one-way relationship, where inflation affects unemployment, with a Prob probability value of 0.02787 which is less than 0.05. This finding suggests the existence of a long-run causality relationship between inflation and unemployment, which is reinforced by the cointegration test results, where the probability values for both variables are also below 0.05. This study provides an in-depth insight into the interaction between inflation and unemployment and its implications for regional economic policy, which can help in formulating strategies to overcome economic problems in Lampung Province.

Keywords: Causalitas Granger, Inflation, Unemployment

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1. Introduction

Unemployment happens when amount power work in an area exceeds amount vacancy available work. As a result, some people don't Can work and must unemployed temporary until There is work suitable new one with qualification they. Unemployment is problems in all countries, fine proceed nor develop. Developing country generally No capable give allowance to unemployed, while developed countries Can.

Increasing unemployment cause gaps and costs social increased, as well lower growth economy . This also raises gap economy between central and regional . Unemployment caused by imbalances in the energy market work , where is the amount power available work more Lots than work required . This is one challenge big thing to face government in provide work for all its inhabitants . Unemployment happen consequence inequality between amount power work and opportunities Work .

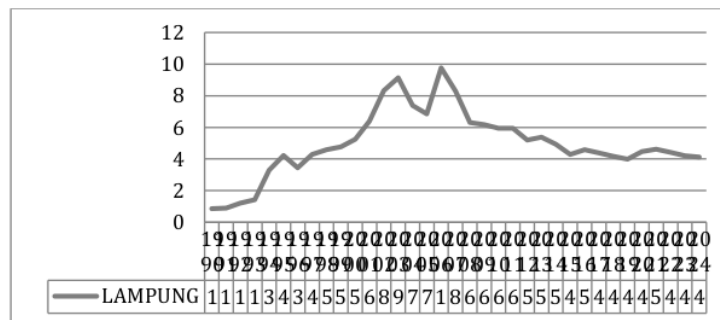


Figure 1. Development of unemployment rate (%)

Source: Indonesian Central Statistics Agency



Figure 1 shows that unemployment fluctuates each year , with enhancement significant in 2020 reaching 7.07 % due to COVID-19. Growth field Work No Enough balance growth population and participation force work , as well slowdown economy cause Lots worker laid off . Okun's Law and research show that enhancement unemployment lower growth economy. According to Keynes, unemployment caused low request aggregate , inhibit growth economy. In addition , inflation , which is measured with index price consumers , too, need it guarded Because can increase gap and lower growth economy . The Phillips curve shows that there is a trade-off between inflation and unemployment : when unemployment down , inflation tends to rise. Policy economy No Can target low inflation and unemployment in a way simultaneously

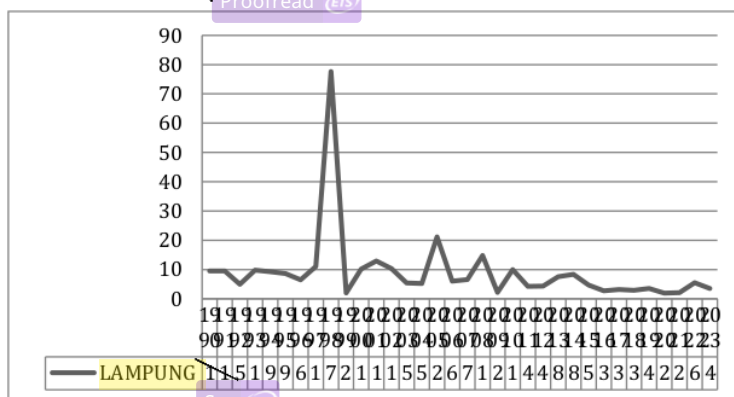


Figure 2. Development Inflation
 Source: Indonesian Central Statistics Agency

Based on Figure 2, inflation fluctuates Because uncertainty price goods and services , which decreases mark currency . Exchange rate affected by imbalance trading international and activity business . Chart show that when rising inflation , unemployment down , but growth the economy is also declining. Government need arrange economy , improve Power buy society , and lower unemployment For reduce gaps and costs social influences growth economy . Study show that inflation influence unemployment Good period long nor short , with effect negative period significant short. Another study found connection one way between unemployment and inflation : unemployment influence inflation , however No on the contrary . Difference results This push studies more carry on about connection between inflation and unemployment , such as in research " Causality Inflation and Unemployment in Lampung Province ."

2. Methods

Study This nature descriptive and quantitative using secondary data obtained from the Central Statistics Agency (BPS). Variable independent variables are used is level unemployment , meanwhile variable dependent variable is level inflation . Study This focus on the Lampung area with range time from 1990 to 2023 .

Definition Operational Variable

For give direction in study this , then will explained Miscellaneous variable that becomes focus For analyzed . Variables the is :

A. Inflation

Inflation is percentage level increase price a number goods and services that are general consumed House ladder . In deciding inflation a country, index price consumer be one indicator in measure level inflation a country and provide relevant information with development of the average change price goods or services in general consumed at home ladder in period time certain (For inflation can be measured with average inflation with CPI (

Consumer Price Index) approach . Study This using sourced data from BPS during period 1990-2023

$$\text{CPI year-on- year (yoy)} = [\text{Int}/(\text{ln}(t-1))] \times 100$$

Where:

Int : CPI month nth year to -t

ln(t-1) : CPI month nth year to (t-1)

B. Unemployment Rate

Unemployment is residents who don't Work but currently look for work , or prepare something effort , or feel No Possible get job (drop out hope), or Already accepted Work but Not yet start work (Central Statistics Agency . 2014). Unemployment caused Because power work offered more increase compared to with power requested work so that happen excess amount power Work . Study This using sourced data from BPS during period 1990-2023.

$$\ln \text{UNEMP}_t = \alpha + \beta_1 \ln \text{INFL}_t + \mu_{it}$$

Where :

UNEMP : Unemployment

INFL : inflation in the year to -t (Percent)

α : intercept

β : slope

β_1 : suspected own influence

ln : Natural logarithm

μ_{it} : error term

3. Results and Discussion

In this research, researcher aim for know influence variable independent to variable dependent on the period 1990 to 2023. Data used For testing and analysis obtained from the Central Statistics Agency . the data covers various indicator relevant economics for support study, independent and dependent in study. This data will analyzed for understand emerging trends and patterns during period the .

A. Stationarity Test

Stationary test done For ensure inflation and rate data unemployment Already stationary . This matter important For avoid results invalid regression on data that is not stationary . In research this , stationary test use Augmented Dickey Fuller (ADF) method with E-views 13 software.

Table 1. Stationarity Test Results

| Method | Statistics | Prob.** |
|-------------------------|------------|---------|
| ADF - Fisher Chi-square | 23.3068 | 0.0001 |
| ADF - Choi Z-stat | -3.29428 | 0.0005 |

** Probabilities for Fisher tests are calculated using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Source: Data Processing

Intermediate ADF test results UNTITLED

| Series | Prob. | Lag | Max Lag | Obs |
|--------------|--------|-----|---------|-----|
| INFLATION | 0.0000 | 0 | 7 | 33 |
| UNEMPLOYMENT | 0.2471 | 0 | 7 | 33 |

Source : *Eviews 13 data processing results*

Based on table above , results Data processing using the ADF test at the level shows that variable inflation and rates unemployment is stationary . This matter proven with mark less probability from 0.05. Therefore that , you can conclude that data stationary and viable For processed more carry on .

B. Determination of Optimum Lag

In the optimum lag test , before determine the optimal lag, necessary determine the maximum lag of a stable model . In research Here , the maximum lag is selected is lag 8. Determination of optimal lag is based on criteria information , esp via the Akaike Information Criterion (AIC). Result of determining the optimal lag can be seen in Table 5 below :

Table 2. Results for Determining Optimum Lag

| Variables | Coefficient | Std. Error | t-Statistics | Prob. |
|--------------------|-------------|------------------------|--------------|----------|
| INFLATION(-1) | -0.042462 | 0.189672 | -0.223872 | 0.8244 |
| UNEMPLOYMENT | 0.604362 | 2.659106 | 0.227280 | 0.8218 |
| UNEMPLOYMENT(-1) | -0.620573 | 2.495732 | -0.248654 | 0.8054 |
| C | 9.461565 | 6.654043 | 1.421927 | 0.1657 |
| R-squared | 0.003265 | Mean dependent var | | 9.049697 |
| Adjusted R-squared | -0.099845 | SD dependent var | | 13.01752 |
| SE of regression | 13.65193 | Akaike info criterion | | 8.178852 |
| Sum squared resid | 5404.883 | Schwarz criterion | | 8.360247 |
| Log likelihood | -130.9511 | Hannan-Quinn criterion | | 8.239886 |
| F-statistic | 0.031667 | Durbin-Watson stat | | 2,000154 |
| Prob(F-statistic) | 0.992259 | | | |

Source : *Eviews 13 data processing results*

Based on the above results , after done determining lag from 0 to lag 8, the lowest AIC value found at Lag 1, namely 8.178852. This result show that the model with lag 1 has more quality Good based on criteria AIC information . Therefore that's a recommendation For study This is use lag length 1 for build optimal models.

C. Cointegration Test Results

After determine the optimal lag, step furthermore is carry out cointegration tests For evaluate is there is balance period long between the variables studied , show stability relationships and movement uniform among they . Results of the cointegration test can seen in Table 6 below :

Table 3. Cointegration Test Results

| Hypothesized No. of CE(s) | Eigenvalues | Trace Statistics | 0.05 Critical Value | Prob.** Critical Value |
|---------------------------|-------------|------------------|---------------------|------------------------|
| None * | 0.350570 | 19.05398 | 15.49471 | 0.0139 |
| At most 1* | 0.151068 | 5.240845 | 3.841465 | 0.0221 |
| At most 2* | 0.350570 | 13.81314 | 14.26460 | 0.0588 |

Source : *Eviews 13* data processing results

Based on table above, values probability For every variable more small of 0.05, shows exists cointegration or connection period long between variable study . This implies that variable inflation and rates unemployment No only own stable relationship , but also have uniform movement in period long . Cointegration test results This strengthen that second variable each other influence in a way together in framework more time long .

D. Granger Causality Test

Granger causality test was performed For evaluate reciprocal relationship between variable or is something variable own influence significant cause and effect to variable other . This matter aim For know is One variable can influence others more from the opposite . In research this , testing Granger causality is established using an optimal lag of 1, which has been determined from optimal lag test results in Table 4.2. Results of the causality test can seen in Table 4 below :

Table 4. Granger Causality Test Results

| Null Hypothesis: | Obs | F-Statistics | Prob. |
|---|-----|--------------|---------|
| UNEMPLOYMENT does not Granger Cause INFLATION | 33 | 0.01063 | 0.09186 |
| INFLATION does not Granger Cause UNEMPLOYMENT | | 1.21708 | 0.02787 |

Source : *Eviews 13* data processing results

E. Unemployment Influential to Inflation in Lampung Province

Based on results Calculation of the Granger causality test using E-Views application , variable unemployment own connection positive or influential to inflation . This matter proven with F value- Statistics amounting to 0.01063 which is more small from 0.05. Therefore that is , H0 is rejected , which means there is connection causality between unemployment and inflation in Lampung Province .

F. Inflation Has No Effect to Unemployment in Lampung Province

Granger causality test calculation results using E-Views app shows that variable inflation No own influence to unemployment. This is evidenced with F value- Statistics amounting to 1.21709 which is more big from 0.05. So, H0 is accepted , which means No there is connection causality between inflation and unemployment in Lampung Province. This result show that in Lampung Province, unemployment can influence inflation , however inflation No influence unemployment. Findings This important For consideration in formulate policy economy in the region.

4. Conclusions

The Granger causality test show that there is connection One the direction in which unemployment is influence inflation , with F value- Statistics amounting to 0.01063 which is more small from 0.05. Significant influence This show exists connection in period long , as proven by the results of the cointegration test which shows mark probability For each variable more small from 0.05. This indicates exists cointegration or connection period long between variable research , ie unemployment and inflation . From the findings empirical this is necessary done study more continue to consider connection between level unemployment and inflation Good in period short nor period long . It's also important to guard instrument inflation as variable macroeconomics to remain stable is at the desired target . Apart from that , the government need consider policies that can control rate growth population , especially in Indonesia.

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