

CAUSAL RELATIONSHIP AMONG ECONOMIC GROWTH, UNEMPLOYMENT AND INFLATION IN SULAWESI ISLAND

Union Sartika Sahiba¹, Ahmad², Muhamad Armawaddin³

Halu Oleo University, Kendari^{1,2,3}

Email: unionsartikasahiba@gmail.com¹, ahmaddduho.23012020@gmail.com², adiox68@gmail.com³

Abstract

This research aims to test and analyze the causal relationship among economic growth, unemployment and inflation in Sulawesi Island. This study uses quantitative data with panel data types consisting of 6 provinces in Sulawesi Island during the period 2009-2023. The data analysis method used is the Granger causality panel test. The results of this study indicate that the variables of economic growth and unemployment have a two-way causal relationship, while the variables of unemployment and inflation have a one-way relationship from inflation to economic growth and there is no causal relationship between the unemployment and inflation variables.

Keyword: *Economic Growth; Unemployment; Inflation*

A. INTRODUCTION

Economic development is a process in development interactions that can increase economic growth, which can then improve people's standard of living, expand employment opportunities and reduce social inequality. Economic development is generally carried out in an integrated manner and in line with the needs and priorities of each region. The development of a region can be said to be successful when viewed in terms of its economic growth, where a region is considered prosperous in terms of development if its economic growth is high. Uneven economic growth can create a gap between the poor and the rich which can weaken the humanitarian crisis in certain communities. Thus, each region always strives to optimize its economic growth rate in order to achieve a better life.

Some factors that influence economic growth include unemployment and inflation. In the Phillips Curve theory, there is a negative relationship between unemployment and inflation variables. When there is an increase in aggregate demand, inflation will increase and unemployment will also decrease because the workforce is needed to produce more goods and with reduced unemployment, economic growth will increase. Conversely, when economic growth slows and unemployment increases, inflation tends to decrease (Mankiw, 2003). However, according to Keynes' theory, in the long term, high inflation can inhibit economic growth and worsen the unemployment rate (Lubis, 2014).

Unemployment or job opportunities are major problems in a society that can have an impact on economic problems and can reduce purchasing power and the level of community welfare. The lower the unemployment rate, the more prosperous the lives of the people of a region, and vice versa. Unemployment can occur due to changes in the workforce that are not supported by adequate employment opportunities or low growth rates in job creation to accommodate workers who are ready to work (Imanto et al., 2020). High unemployment often causes poverty to spread, making individuals or families unable to meet their basic needs and can worsen the humanitarian crisis.

Inflation is the process of increasing the price of goods in general in a certain time. Inflation also be interpreted as one of the macroeconomic indicators to measure economic stability, where this inflation can have an impact on economic growth. When a country has low purchasing power, the economy is said to be not growing. This is due to the lack of economic activity in relation to the demand for goods and services. However, high inflation must also be controlled because it can have an impact on economic decline such as a food crisis that makes many people unable to buy sufficient and nutritious food, causing health problems and a decline in the quality of life of the community.

Research Wahyuni et al., (2022) states that economic growth and unemployment have a two-way causal relationship while research Hamidah et al., (2024) shows that economic growth and unemployment do not have a causal relationship. Research Nadirin (2017) says that economic growth and inflation have a two-way causal relationship or can also be said to have a causal relationship while research Meilvidiri et al., (2022) finds that economic growth and inflation have a one-way causality from

inflation to economic growth. Research Sari et al., (2023) states that economic growth and inflation do not have a causal relationship, either one-way or two-way. According to Kusumastuti & Sasana (2023) shows that unemployment and inflation have a one-way causal relationship from unemployment to inflation. However, research Priatna (2020) states that unemployment and inflation do not have a one-way or two-way causal relationship.

B. RESEARCH METHODS

This study utilizes secondary data, which as described in Sugiyono (2013), refers to data collected indirectly through such as books, online resources, literature, and various data publications. The data in this research is panel data. Which according to Basuki & Rosnawintang (2021), combines cross-sectional and time series data. The cross-sectional data includes information on economic growth, unemployment and inflation for provinces on Sulawesi island, specifically North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi, Gorontalo and West Sulawesi. The time series data covers economic growth, unemployment and inflation from 2009 to 2023.

Data for this study was obtained from publications by the Central Statistics Agency in Sulawesi and Indonesia. The analysis method employed is the Granger Causality Panel Test, involving steps such as testing data stationarity, determining the optimal lag length and conducting the granger causality panel test. Eviews 10 software was used as the analytical tool.

C. RESULTS AND DISCUSSION

1. RESULTS

a) Stationarity Test

The stationary data test is a test conducted to determine whether or not data in a variable is stationary. Data stationarity testing can be conducted using the *Augmented Dickey-Fuller (ADF)* test. test continuously between levels, first different and second different.

Table 1.1
Stationarity Test Results of Economic Growth, Unemployment and Inflation Data 2009-2023

Variables	Different Levels	ADF	Prob.	Results
Economic growth	Level	-2.32217	0.0101	Together stationary at the level level
Unemployment	Level	-2.39183	0.0084	
Inflation	Level	-3.01273	0.0013	

Source: *Eviews 12 output*

Table 1.1 shows that the variables of economic growth, unemployment and inflation are stationary at the level. Which can be seen from the *Augmented Dickey-Fuller (ADF)* test method. test with probability all smaller than 0.05. Thus, all variables are stated to be stationary at the level.

b) Determining Optimal Lag Length

Lag is the relationship between one variable and another variable in a time interval. In determining the length of the lag, there are several criteria that are determined, namely FPE (*Final Prediction Error*), AIC (*Akaike Information Criterion*) and SC (*Schwarz Information Criterion*) and HQ (*Hannan-Quinn Information Criterion*). With the existence of several criteria, it can be said that the length of the lag can be optimal when the value contained in the criteria has the smallest absolute value (Gujarati, 2011).

Table 1.2
Optimal Lag Length Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-200.5297	NA	0.967338	8.480406	8.597356	8.524602
1	26.97269	417.0878	0.000108	-0.623862	-0.156062*	-0.447080
2	43.50977	28.25085	7.91e-05	-0.937907	-0.119257	-0.628538
3	54.91873	18.06419	7.24e-05	-1.038281	0.131220	-0.596325
4	72.20819	25.21380	5.24e-05	-1.383675	0.136676	-0.809132
5	80.11674	10.54473	5.70e-05	-1.338197	0.533004	-0.631068
6	104.2130	29.11630*	3.22e-05*	-1.967208*	0.254843	-1.127491*
7	109.1481	5.346329	4.15e-05	-1.797836	0.775066	-0.825533

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final prediction error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion
 Source: *Eviews 12 output*

Table 1.2 shows that the optimum lag length is at lag 6. This is in accordance with the FPE, AIC and HQ criteria which have the smallest values. In addition, the asterisk is an indication of the use of the lag recommended by the information criteria. Determination of the optimal lag length can be seen from the most * signs. Table 1.2 shows that the most * signs are at lag 6. Thus, it can be said that in this study the best lag that can be used is lag 6.

c) Granger Causality Test

Causality is a two-way relationship which can be interpreted as meaning that all variables in the econometric model are dependent variables and there are no independent variables (Armawaddin, 2013)

Table 1.3
Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
UNEM does not Granger Cause EG	54	2.70027	0.0266
EG does not Granger Cause UNEM		3.62293	0.0056
INF does not Granger Cause EG	54	2.49715	0.0376
EG does not Granger Cause INF		1.04443	0.4112
INF does not Granger Cause UNEM	54	0.25705	0.9535
UNEM does not Granger Cause INF		0.98003	0.4511

Source: *Eviews 12 output*

From the results of table 1.3, it shows that the economic growth variable with unemployment has a two-way relationship, namely the unemployment variable affects the economic growth variable with a probability value smaller than $\alpha = 5\%$ (0.05) with a value of $0.0266 < 0.05$. Likewise, the economic growth variable affects the unemployment variable with a probability value of 0.0056, so it can be said that economic growth with unemployment has a two-way causal relationship (reciprocal).

The variables of economic growth and inflation do not have a two-way relationship, namely the economic growth variable does not affect the inflation variable with a probability value greater than $\alpha = 5\%$ (0.05), with a value of $0.4112 > 0.05$. However, the inflation variable affects the economic growth

variable with a probability value of $0.0376 < 0.05$, so it can be said that inflation and economic growth have a one-way relationship, namely from inflation to economic growth.

The unemployment variable with inflation does not have a two-way relationship, namely the unemployment variable does not affect the inflation variable with a probability value greater than $\alpha = 5\%$ (0.05) with a value of $0.9535 > 0.05$. Likewise, the inflation variable does not affect the unemployment variable with a probability value of $0.4511 > 0.05$, so it can be said that unemployment with inflation does not have a causal relationship (reciprocal).

2. DISCUSSION

a) Causality Between Economic Growth and Unemployment in Sulawesi Island

the study's results indicate a bidirectional causal relationship between economic growth and unemployment. This implies that economic growth influences unemployment and unemployment also impacts economic growth. Consequently, both current and historical data on economic growth can help reduce unemployment. In other words, as economic growth rises, unemployment tends to decline and vice versa. These findings align with previous research Wahyuni et al., (2022) that also identified a reciprocal relationship between economic growth and unemployment. This indicates that in Sulawesi Island, economic growth can overcome the problem of unemployment, and vice versa. When economic growth occurs sustainably and inclusively, economic sectors tend to develop, creating more jobs which ultimately help reduce unemployment rates and humanitarian crises. High unemployment in Sulawesi Island can lead to a humanitarian crisis, which is characterized by when people are unable to meet their basic needs, including access to food, education and health.

b) Causality Between Inflation and Economic Growth in Sulawesi Island

From the results of the study between inflation and economic growth, it states that there is no two-way relationship but has a one-way relationship, namely from inflation to economic growth. The increase or decrease in inflation will affect economic growth. When inflation decreases, economic growth will increase and vice versa if inflation increases, economic growth has the potential to decrease. In reality, the more stable inflation is, the greater the hope of achieving better economic growth, conversely if inflation soars, economic growth will decrease. For this reason, inflation has a great influence on increasing economic growth. The results of this study are in line with previous research Meilvidiri et al., (2022) which states that inflation and economic growth have a one-way relationship, namely from inflation to economic growth. Thus, it can be interpreted that increasing inflation can cause an increase in the price of goods, which then has a direct impact on people's purchasing power. The implication of the decline in people's purchasing power is a decrease in household consumption so that economic growth will also decrease. High inflation has a greater impact on low-income people, resulting in food shortages, limited access to health care, and a decrease in the quality of life. In conditions where people find it difficult to meet their basic needs, a humanitarian crisis will arise, especially in areas with high poverty rates. Thus, low and stable inflation is needed so that economic growth can increase and the humanitarian crisis can be resolved.

c) Causality Between Unemployment and Inflation in Sulawesi Island

Based on the research results, unemployment does not have a reciprocal relationship with inflation. This means that unemployment does not cause changes in inflation itself, which can be interpreted that current and past information about inflation cannot be said to reduce unemployment. Or in other words, an increase in inflation will not affect an increase in unemployment and vice versa. The results of this study are in line with previous research Priatna (2020) which states that unemployment and inflation do not have a reciprocal relationship. However, the results of this study are not relevant to the Phillips Curve theory which states that unemployment and inflation have an inverse relationship. This indicates that unemployment and inflation do not always directly influence each other, because there are other factors such as economic growth, wages and investment.

D. CONCLUSION

From the results of the data analysis and discussion, it can be concluded that:

1. There is a two-way causal relationship between economic growth and unemployment (reciprocal).
2. Inflation and economic growth there is a one-way relationship from inflation to economic growth.
3. There is no causal relationship between unemployment and inflation, either one-way or two-way.

E. Suggestion

From the results of this research, the following things are recommended:

1. For the government, it is necessary to control inflation and stabilize food prices as well as hold more adequate job training programs so that economic growth can increase.
2. For further researchers, they can add relevant variables such as wages and investment and can use the VAR panel analysis method.

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