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The Nexus between Economic Growth and Inflation on Unemployment in Aceh Province

Aqilah[1],Talbani Farlian[2*], Sartiyah[3], Nur Aidar[4], Meutia Handayani[5], Rollis Juliansyah[6]
[1,2,3,4] Department of Economic Development, Faculty of Economic and Business, USK
[5] Department of Public Sector Accounting, Politeknik Aceh
[6] Faculty of Economics and Business, Universitas Teuku Umar, Department of Economic Development
[1]aqilahagusnaidii@gmail.com, [2]t_farlian@usk.ac.id, [3]nuraidar@usk.ac.id , [4]sartysabang@usk.ac.id,
[5]meutiahandayani@politeknikaceh.ac.id, [6]rollisjuliansyah@utu.ac.id
* corresponding author: Talbani Farlian, t_farlian@usk.ac.id

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ABSTRACT

This study has investigated the relationship between economic growth and inflation on unemployment from 1999 to 2022, spanning 23 years, in order to understand the dynamics of unemployment in Aceh Province. Utilizing time series data and a descriptive quantitative method. A multiple linear regression analysis model (Multiple Linear Regression) based on the OLS (Ordinary Least Squares) method was used in this research. The regression analysis's findings indicate that the economic growth in Aceh Province has a positive slope; however, it is not significant. In Aceh Province, inflation has a positive and significant impact on the open unemployment rate. Therefore, this study advises policymakers to consider employment elasticity in relation to economic production that has a greater capacity to absorb young workers.

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1. Introduction

Economic activity has a significant impact on unemployment; in fact, growth and unemployment can be viewed as two sides of the same coin. When economic activity is high, more production takes place overall, which necessitates the need for more laborers to produce the increased volume of goods and services. Additionally, businesses cut staff when economic activity is weak, which results in higher unemployment. In that regard, unemployment is countercyclical in that it increases during periods of weak economic growth and vice versa. (Oner, 2020) The percentage of the open unemployment rate in Aceh province in the last seventeen years has decreased relatively; the highest unemployment rate was in 2005 at 14 percent. It can be concluded that the tsunami in 2004 had an impact on the Acehnese people, who lost their jobs. After the tsunami in 2004, the rate of inflation in Aceh experienced a high increase of 34,88 percent from the previous, rising inflation was mainly due to high food and transportation prices, this is due to the disconnection of road access due to the tsunami and the transportation of supplies of goods experiencing obstacles in meeting the increasing demand for goods in large numbers in the reconstruction effort (Isnaini, 2019)

Research from the Phillips curve theory says that a trade-off explains the nexus between Inflation on Unemployment. On the other hand, if Inflation decreases, Unemployment will increase. This means that the Phillips curve theory is assumed to apply to describe the relationship

between Inflation and Unemployment in Aceh. However, inflation does not have a significant effect on future personal welfare expectations because inflation is a pre-evaluation of current well-being relative to the future (Lisy, 2014). Based on the Okun law, which shows that there is an inverse proportional relationship between the change in the Economic growth (EG) and the change in the Open Unemployment Rates. The relationship between economic growth and unemployment shows that there is a high correlation between the economic growth rate and the decrease in unemployment rates (Hjazeen, 2021)

The next economic indicator that affects the unemployment rate is economic growth. Economic growth through increased productivity by GDP is expected to absorb labor in the country because an increase in national income through GDP is likely to increase production capacity. Determining the success of a province is not only measured by economic growth and inflation, but also must take into account the income inequality experienced by the community, also known as the Gini Ratio. In terms of inequality that affects open unemployment, Inequality in income distribution is a direct result of inequality in the implementation of economic development and can be seen in measuring income distribution inequality in a country or region using the Gini ratio. Income inequality causes the quality of human resources to be low, because they do not have the capital to invest in education and health, so that the reaction increases because it is difficult to get job opportunities, which for which to obtain it must be supported by steep human resources through education, health, and access to public services (T, 2016) In this research is therefore an attempt to quantify the effect of economic growth also inflation on unemployment in Aceh Province based on the background information provided above. This makes it necessary to carry out a study titled the Nexus Between Economic Growth and Inflation on Unemployment in Aceh Province.

2. Literature Review

2.1 Theory Basis

2.1.1 Unemployment

Several theories explain unemployment in Indonesia, such as the classical view, Keynes' Theory, the Population Theory of Malthus, and Devece (2016). The classical view states that unemployment occurs due to a temporary misallocation of resources and can be overcome by the price mechanism. The Keynes Theory states that unemployment actually occurs due to low aggregate demand, which cannot be delegated to a free market mechanism. Devece's definition of unemployment is the number of people who are available, willing, and able to work at standard wages but who are unable to find employment. The concept of open unemployment is not limited to the week before the enumeration, so those who are trying to find a job and whose application was sent more than a week ago are still considered looking for work. Setting up a business is an activity carried out by a person in the framework of preparing for a "new" business/job, which aims to earn income/profits at their own risk. There are three types of unemployment: Cyclical, Frictional, and Structural Unemployment. Cyclical Unemployment is caused by demand being lower than the economy's potential output, while structural unemployment is caused by the lineup within this type and hours of work. Structural Unemployment is caused due to a mismatch between the structure of the workforce and the potential output of the economy.

2.2 Inflation

Inflation is a monetary phenomenon caused by an increase in the money supply that is faster than the rate of output. It is measured by the Consumer Price Index (CPI) figures, which are expressed in percentage figures. Keynes and his supporters emphasize that demand-pull inflation is a result of rising aggregate demand. The most important details in this text are the three main theories of inflation: quantity theory, Keynes' theory, and structural theory. Quantity theory states that inflation can only take place if there is an increase in the amount of money in circulation and people's perceptions of rising prices. Keynes' theory states that a society's willingness to live above its means results in an effective public demand for goods that is greater than the number of goods available. Structural theory suggests that inflation is a structural phenomenon, or cost-push inflation, rather than just a phenomenon of the money supply.

2.3 Economic Growth

Economic growth is the progress or development of the economy in a country. It is often used as the main indicator because it has implications for other macroeconomic performances. It is a function of profit sharing in national income, and is positively related to higher profit rates and higher growth rates in the long run. Adam Smith was the first to systematically discuss economic growth, and David Ricardo advanced the economic growth in his book The Principles of Political Economy and Taxation. Economic Growth is an increase in real capital in a country's income over a long period, as well as an increase in the number of goods and services measured for a nation's production. There are several tools used to measure economic growth, such as gross domestic product (GDP), income per capita, and hourly earnings.

2.4 Gini Ratio

In an effort to increase economic growth and regional progress, he will always accompany him. Inequality of development at the level of society is to optimize human resources as well as the human level. Two indicators support relevant results when measuring the level of inequality, including the Williamson Index and the Kuznets Hypothesis.

2.2 Relationship Between Variables

2.2.1 Unemployment and inflation relationship: Phillips curve

The study by AW.W. Phillips explains the relationship between unemployment and inflation by showing that inflation is a reflection of an increase in aggregate demand. The Phillips Curve, which illustrates the inverse relationship between the unemployment rate and the inflation rate, can also be used to infer the relationship between the nominal wage rate and the unemployment rate. However, the hypothesis that since the rate of change in unemployment is widely accepted, the change in the money wage rate follows suit is speculative.

2.2.2Relationship between Economic Growth and Unemployment: Okun's Law

The theory of Okun's law predicts rising unemployment to coincide with a decline in economic growth. But this is not always the case, Okun's First Law is not a close relationship, as many growth slowdowns do not lead to an increase in unemployment and this varies from the period and the business cycle (Nikolli, 2014) In 1962, Okun in his article presented two empirical relationships linking the unemployment rate and real growth, which became known as Okun's Law. To date, the two simple equations developed by Okun have been used as a rule of thumb. The first Okun relationship reveals how changes in the unemployment rate from one quarter to the next move every quarter in real Growth. The form of the formula

2.2.3 Relationship between Gini Ratio and Unemployment

One of the factors that influences development inequality between regions is due to differences in demographic conditions. Regions with good demographic conditions will tend to have higher work productivity, so that this will encourage increased investment, which in turn will increase the supply of employment and economic growth in the area concerned. The Effect of Unemployment on Economic Growth. According to Chand (2017), Makaringe et al (2018), and Hjazeen et al (2021), the objectives of the research that explain the Auto-Regressive Distribution the research methodology employed in this study findings demonstrate the impact model's prediction that unemployment and economic growth had a long-term relationship.

3. RESEARCH METHOD

This research uses a multiple linear analysis model (Multiple Regression Model) using the classical assumption test model of Ordinary Least Squares (OLS) regression, in various forms (correlation, multiple regression) For the period from 1999 to 2022, conducted an analysis using multiple linear regression to estimate economic growth and inflation in Aceh Province to find out how the influence of the independent variables in testing these variables. Explanation from Slinker L (2008) from the responsive correlation between Economic Growth, Inflation, and Unemployment in Aceh Province is expressed in the following way:

$$OURt=C+\beta 1\ INFt+\beta 2\ GDPt+\beta 3\ GRt\text{……...(1)}$$

3.1 Regression Result

The relationship between a predictor variable and the response is described by regression coefficients, which estimate the unknown population parameters. Coefficients are the values that multiply the predictor values in a linear regression. The following can be represented as the model in the linear form:

$$Yi=\alpha+\beta 1\ X1i+\beta 2\ X2i+\upsilon i\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

3.1.1 T-test

1. Formulate H0 and Ha
   Ho:βi=0
   H1:βa≠0
2. Tested with a level of significance of 0.05. Determine the α- (Level of Significance)
3. Test Criteria
   Ho is approved if: $-t(\alpha/2; n-1) \leq t \leq t(\alpha/2; n-1)$
   H0 is decline if: $t > t(\alpha/2; n-1)$ atau $t < -t(\alpha/2; n-1)$
4. Calculation of t value
5. Conclusion whether Ho is approved or declined

3.1.2 F-test

If the significant value is F < 0.05 and F < 0.10, it can be concluded that the independent variable simultaneously affects the dependent variable or vice versa, as follows. (Ghozali, 2013):

1. Formulate Ho and Ha
   Ho:β1=β2=⋯…..……=βk
   Ha:β1≠β2≠⋯……≠βk
2. Level of significance is selected on (0,05 or 0,01)
3. Test Criteria
   Ho is accepted if F ≤ ; k-1; k (n-1)
   Ho is rejected if F > ; k-1; k (n-1)
4. F value calculation
5. Conclusion whether H0 is approved or declined

3.1.3 Coefficient of Determination Test (R2)

R2 square is a measurement of the independent variable's influence on the dependent variable. The ratio of independent variables' combined effects on the value of the dependent variable, or R-squared, is a number with a range from 0 to 1. In addition, R-squared 0.75 falls under the strong category, R-squared 0.50 under the moderate category, and R-squared 0.25 under the weak category. (Anderson et al, 2011)

3.2 Definition of Operational Variable

The operational definition of each variable is as follows:

- Open Unemployment Rate is the percentage of the labor force that is unemployed to the total labor force, expressed as a percentage.
- Inflation Rate is the average change in price for goods and services households consumed over a specific period based on the CPI, expressed as a percentage change.
- Economic Growth is an improvement in the economic goods and services that a society produces and uses, both in terms of quantity and quality. And represent using specific Economic Growth data on Economic Growth rate data by expenditure in Aceh as a percentage change
- Gini Ratio is an indicator that shows the overall level of expenditure inequality, processed through Gini Ratio data by Province as a percentage change

4. RESULT AND DISCUSSION

The data processed are: Open Unemployment Rate, Inflation, Economic Growth, and Gini Ratio in Aceh Province from the end of 1999 to the end of 2022.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF	0.173101	0.048510	3.568349	0.0021***
EG	-0.082413	0.227025	-0.363014	0.7206
GR	-3.403495	1.717377	-1.981799	0.0622**
C	8.520486	1.119092	7.613749	0.0000
R-squared	0.536655	Mean dependent var		8.404348
Adjusted R-squared	0.463495	S.D. dependent var		1.964336
F-statistic	7.335390			
Prob(F-statistic)	0.001844			

Figure 1. Open Unemployment Rate, Inflation, Economic Growth, and Gini Ratio in Aceh Province from the end of 1999 to the end of 2022

The magnitude of the regression equation's nominal slope is described. Explanation of how much of the estimated model sample was used. Think about the below-estimated log-linear regression model. The regression coefficient Inflation is positive, meaning that when the price of goods and services increases by 1 percent, it will significantly increase unemployment by 0,17 percent, Economic Growth does not affect the increase of Open Unemployment Rate and the regression coefficient Gini Ratio is negative, meaning that when the gini ration increases by 1 percent it will significantly reduce the open unemployment rate by 3,40 percen. The coefficient of determination can be calculated using the value of R^2 or Adjusted R-Square, according to the value of adjusted R-Squared in Table 4.6 which is 0,53. In particular, 53 percent of the Open Unemployment Rate is influenced by Inflation, Economic Growth, and Gini Ratio, with the remaining 57 percent being influenced by other factors that are not included in the regression model.

4.1 Hypothesis Test

4.1.1 F-test

If the probability value F count is less than the error rate (α) 0,05, the estimated regression model is said to be feasible. On the other hand, the estimated regression model is said to be infeasible if the prob value F count is greater than the error rate > 0.10. The results of the F test are shown in Table 4.6. It can be divined that the estimated regression model can be used to explain how Inflation, Economic Growth and Gini Ratio affect the Open Unemployment Rate because the Probability value F (Statistic) 0,001844 is less than the significance level of 0,10.

4.1.2 t-test

- If the independent variable's probability of a significant impact on the dependent variable (prob. t) is less than the error rate (alpha) of 0.10,
- If probability t > larger than the error rate of 0.10, it can be said that the independent variable has no appreciable influence on the dependent variable.

Consequently, it can be concluded from the above table that,

- Inflation has a significant effect on the Open Unemployment Rate in Aceh Province
- Economic Growth has insignificant effect to the Open Unemployment Rate in Aceh Province
- Gini Ratio has significant effect to the Open Unemployment Rate in Aceh Province.

4.4.2 The Influence of Inflation on the Open Unemployment Rate in Aceh Province

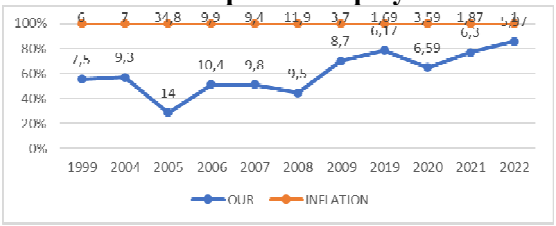

Figure 2. Inflation on the Open Unemployment Rate in Aceh Province

The effect of inflation on the unemployment rate based on the results of the analysis, it can be explained that the inflation variable has a positive and significant with a coefficient of 0,17 percent

on the Open Unemployment rate and a probability value of 0,002 in the province of Aceh. It explains that when the Inflation in Aceh Province increases by 1 percent thus reduces unemployment in the Aceh province by as much as 17 percent

The assumption underlying the distribution of the relationship between inflation and the unemployment rate is that inflation is a reflection of rising aggregate demand. However, the Phillips curve shows a long-term positive correlation between inflation and unemployment, but a short-term negative correlation between the two. This result is in accordance with the criticism of Milton Friedman in 1976, who said that the basic theory of the Phillips curve only occurs in the short term, but not in the long term. This response is known as the Natural rate hypothesis or the Accelerationist hypothesis (P.W. & Nordhaus, 2012).

4.4.3 The Influence of Economic Growth on the Open Unemployment Rate in Aceh Province

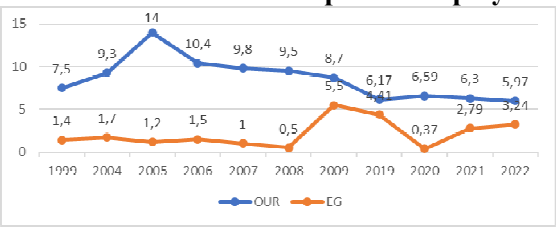

Figure 3. Economic Growth on the Open Unemployment Rate in Aceh Province

The effect of Economic Growth on the Open Unemployment Rate in Aceh Province based on the results of the analysis can be explained that Economic Growth has a negative slope and is not significant. these results are not in accordance with the theory and previous research which became the theoretical basis in this study. According to Nikolli (2014), Okun's law applies to the Albanian economy during the period 1992-2012. This happened because of the situation in Albania, the economic crisis that started in 2008 and is still continuing and the change of government that affected the Albanian economy as a whole.

It can be interpreted in the figure above that the economy in 2020 experienced deflation or a drastic decline because economic developments in Indonesia had stable movements, the changes that occurred were influenced by the Covid-19 pandemic. resulting in an increase in the open unemployment rate. The increase in OUR occurred due to an increase in the Labor Force Participation Rates, and in almost all sectors there was a reduction in the number of people working, due to the impact of Covid-19. this insignificant supported by previous research from P. A. (2012) because the main goal of Economic growth is to provide employment and wealth for the population. Therefore, the search for economic activity is closely related to the use of labor which affects the level of employment and reflection in the form of action.

4.4.3 The Influence Gini Ratio on the Open Unemployment Rate in Aceh Province

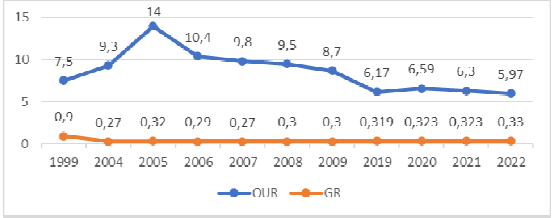

Figure 4. Gini Ratio on the Open Unemployment Rate in Aceh Province

The effect of Economic Growth on the Open Unemployment Rate in Aceh Province based on the results of the analysis can be explained that Gini Ratio has a negative slope but is significant. It explains that when the income inequality in Aceh Province increases in 1 percent thus reducing unemployment in the Aceh province by as much as 548 percent, The Open Unemployment Rate to the Gini Ratio in Aceh Province is significantly negative due to policies implemented by the government, such as social assistance from the government in the form of the Family Hope Program, Non-Cash Food Assistance, Prosperous Rice, Village Funds, Indonesian Cards Health and Smart Indonesia Card have been running normally. The significant Gini Ratio in influencing

the Open Unemployment Rate can also be seen based on the data above that the increase in the Open Unemployment Rate rate in Aceh Province from 2017 to 2021 is not always accompanied by the Gini Ratio rate. According the research is also in line with Aulia (2014) which is where the authors draw conclusions that can be drawn from research on the effect of Economic Growth, Open Unemployment Rate, and Capital Expenditures on Income Inequality in Regencies/Cities of Central Java Province for the 2007-2013 period, namely the Open Unemployment Rate has a negative and significant effect on Income Inequality.

5. CONCLUSION AND RECOMMENDATION

The conclusions may be drawn in the research that has been done, there are:

- Inflation variable has a positive and significant, in this study; if inflation increases, it will cause an increase in the open unemployment rate in Aceh Province. This suggests the Phillips curve analysis shows a long-term positive correlation between inflation and unemployment. but a short-term negative correlation between the two.
- The Economic Growth variable has a negative and insignificant effect on the Open Unemployment Rate. Because the increase in Economic Growth that has occurred in Aceh Province is not always followed by the Open Unemployment Rate.
- The Gini Ratio variable has a negative and significant effect on the Open Unemployment Rate. Because the increase in the Gini Ratio that has occurred in Aceh Province is not always followed by the Open Unemployment Rate.

In this research analysis, the author's recommendations are as follows:

1. The findings of this study are anticipated to serve as a benchmark for the government when formulating policies on inflation, having allowed a greater impact on Aceh Province's Unemployment rate.
2. The government should focus more on finding ways to balance the inflation rate and encourage economic growth in Aceh Province, given the positive correlation between inflation and unemployment rates there. This is because the issue of unemployment cannot simply be ignored.
3. This study advises policymakers to consider employment elasticity in relation to economic production and concentrate on industries that have a greater capacity to absorb young workers.

Anticipated that future research will involve more years of study and other factors, including economic and non-economic ones like population growth, wages, and education, that have an impact on unemployment.

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