

Analysis of the Influence of GRDP and Inflation on the Open Unemployment Rate in Aceh Province

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ABSTRACT

The unemployment rate is a serious economic problem for the Aceh government. Indicators that affect the unemployment rate include economic growth in the region concerned and inflation. This study aims to determine how much influence GRDP and inflation have on the open unemployment rate in Aceh Province for the period 1988-2022. The data used in this research is secondary data from Badan Pusat Statistik (BPS) Aceh for 1988-2021. This research method uses multiple linear regression analysis using Eviews10 software. The results of the study show that partially GRDP and inflation each have a positive and insignificant effect on the open unemployment rate in Aceh Province for the period 1988-2021.

Keywords: Aceh Province, GRDP, Inflation, Unemployment Rate

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INTRODUCTION

Unemployment is a condition where someone belonging to the workforce wants to get a job but has not been able to get a job (Sukirno, 2011). Unemployment and inflation are macroeconomic indicators, and changes in these two indicators can have a direct impact on economic growth. There are two goals of economic policymakers to create economic stability, namely to create stable inflation with low unemployment rates. And in fast-paced economic growth, can reduce the problem of unemployment but cause an increase in inflation (Mankiw, 2020). The success of an economy can be measured from various aspects, including national or regional income, level of employment, The following describes the development of the open unemployment rate in Aceh Province for the 1988-2021 period, which can be seen in the graph below:

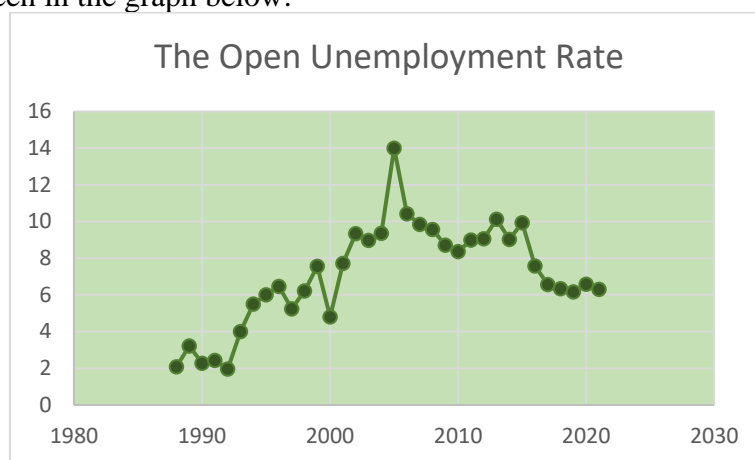


Figure 1. Development of the Open Unemployment Rate in Aceh Province in 1988-2021
Source: Badan Pusat Statistik (BPS) Aceh

The highest unemployment rate in Aceh province occurred in 2005, namely 14%. At that time Aceh was in a period of recovery after the Aceh Stunami on December 26 2004 which caused economic paralysis, especially in the city of Banda Aceh. According to CNBC Indonesia in 2015-2017 Aceh Province was ranked first with the highest unemployment rate on the island of Sumatra. However, even so, the unemployment rate in Aceh continues to experience good development because it continues to experience a significant decline from 2016 to 2021.

Gross Regional Domestic Product (GRDP) is the total gross value added generated from all economic sectors in a region (Tarigan, 2005). GRDP has an influence on the number of the labor force with the assumption that if the GRDP value increases, the number of goods or services will also increase so that it will increase the number of labor force needed, in other words when the unemployment rate decreases, it can increase economic growth which can be illustrated by an increase in a country's GDP. This is to the results of research from Soekarnoto (2014) Silaban. et al (2020) stated that there is a negative and significant relationship between GRDP and the unemployment rate.

Inflation is a process or a symptom of rising prices in general, originating from disturbances in the balance of the flow of money and goods. Therefore, inflation is a symptom where there are many price increases, either naturally or intentionally, which occur not only in one place but in all corners of the country and even the world. Price increases will continue if no solution is found for the causes of inflation. If inflation continues to

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increase, the value of a country's currency will decrease (Manullang, 1993). The relationship between unemployment and inflation according to the Philips curve theory illustrates a negative relationship or trade-off between unemployment and inflation. However, this is following the results of Silaban's research,

Based on the explanation above, the formulation of the problem in this study is (1) is there an effect of GRDP on the open unemployment rate in Aceh Province for the period 1988-2021?, (2) is there an effect of inflation on the open unemployment rate in Aceh Province for the period 1988-2021?, (3) Is there an effect of simultaneous GRDP and inflation on the open unemployment rate in Aceh Province for the 1988-2021 period.

LITERATURE REVIEW**Unemployment Rate**

Sukirno (2011) explains that unemployment is a condition where someone belonging to the workforce wants to get a job but they have not been able to get a job. as a result of an industrial downturn. Setiawan (2013) said that an increase in the unemployment rate will occur if high changes in the workforce are not matched by the existence of large enough employment opportunities so that the percentage of employment tends to be small. In other words, the supply of labor is higher than the demand for labor.

According to population science or demography, the workforce is someone who is looking for work. Based on age category, the age of the workforce is 15 years – 64 years. However, not all residents in this age range can be counted as the labor force. Because those included in the labor force are residents aged 15-64 years who are working or looking for work. And the unemployment rate is the percentage of the workforce that does not or has not found a job (Rahardja, 2008).

Gross Regional Domestic Product (GRDP)

Gross regional domestic product (GRDP) is the total net value of final goods and services generated from various economic activities in a region in a period (Dumairy, 1999). Meanwhile, according to macroeconomic theory, GDP is divided into the first two, all expenditure for goods and services produced domestically. Second, the total income generated by all owners of domestic factors of production (Mankiw, 2020).

Inflation

According to Milthon Friedman, one of the unavoidable monetary phenomena is inflation. Inflation can be said to be a monetary phenomenon only when there is a rapid and continuous increase in prices. This opinion is widely agreed upon by economists from monetarists (Mishkin, 2004). According to Nanga (2005) there are three important things that must be fulfilled so that it can be said that inflation has occurred, namely:

- a. The trend of rising prices
- b. Continuous price increases
- c. An increase in prices in general means that it does not only occur in one or several commodities but in prices in general.

Inflation based on severity. According to Boediono (1985) there are 4 types of inflation rates which are as follows:

- a Mild inflation (0% -10% per year) price increases at this inflation rate are relatively slow and take place slowly.
- b Moderate inflation (10% - 50% per year) This inflation rate is marked by the occurrence of quite large price increases in a short time.

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- c Heavy inflation (50% -100% per year) for this level of price increases significantly and is difficult to control.
- d Hyperinflation (> 100% per year) at this level inflation occurs on a large scale.

METHOD

This study uses quantitative analysis using secondary data sourced from the Central Bureau of Statistics of Aceh Province. To determine the relationship between GRDP, and inflation on the open unemployment rate. This study uses multiple linear regression analysis. The data used in Aceh Province data for the 1988-2021 period. This study uses Eviews 10 software for data processing.

RESULT AND DISCUSSION

Classic assumption test

- **Autocorrelation Test**

Table 1. DW Test Results

Dependent Variable Log_Y	
Method: Least Squares	
durbin-watson Stat	0.687773

Based on the results of the autocorrelation test in table 4.1, the output obtained from this study is that the Durbin-Watson value is not between 1.33 to 2.67 or the DW value is $0.6878 < 1.33$. It is known that if the $d < dL$ value, it can be concluded that the data in the model has positive autocorrelation problems.

To overcome this correlation problem, corrective action is needed, namely by transforming the variables using the GLS (Generalized Linear Square) model. GLS is a model with the difference between the data in period t minus the ρ value. The ρ value is considered a representation of autocorrelation. After processing the data with 1-time autocorrelation transformation, the output results of the Durbin-Watson statistics are as follows:

Table 2. DW Transformation

Y Dependent Variable	
Method: Least Squares	
durbin-watson Stat	1.942648

Based on the results of the autocorrelation test in table 4.1, the output obtained from this study is the Durbin-Watson value of 1.943, which is between 1.33 and 2.67. It is known that if the value of $d < d_u$, it can be concluded that the data in the model does not have autocorrelation or negative autocorrelation problems.

- **Normality test**

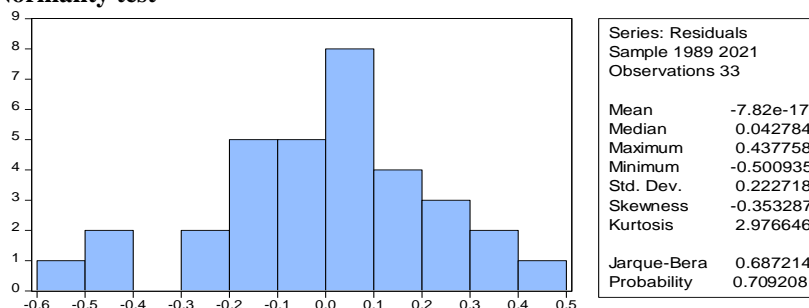


Figure 2. Normality Test

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Based on the results of the normality test in Figure 4.1. it is known that the Jarque-Bera Probability value is $0.709 > 0.05$, so the data is normally distributed.

• Heteroscedasticity Test

Table 3. Heteroscedasticity Test

Heteroskedasticity Test: White			
F-statistics	2.448069	Prob. F(5,27)	0.0593
Obs*R-squared	10.29378	Prob. Chi-Square(5)	0.0673
Scaled explained SS	8.407916	Prob. Chi-Square(5)	0.1351

Based on the results of the heteroscedasticity test in table 4.3. it is known that the value of Probability Chi-Square Obs*R-Square $0.067 > 0.05$ means there is no heteroscedasticity.

• Multicollinearity Test

Table 4. Multicollinearity Test

	Y	X1	X2
Y	1.000000	0.235561	0.125999
X1	0.235561	1.000000	-0.056726
X2	0.125999	-0.056726	1.000000

Based on the results of the multicollinearity test in table 4.4. it is known that the output value is < 1 then there is no multicollinearity. It can be concluded that the observational data is free from the classical assumption problem test, the regression model is accepted.

Regression Test

The results of the regression equation in this study are:

$$UNP = 0.0667687297045 * GRDP + 0.00194046893076 * INF - 0.022829819288$$

The results of the regression equation above can be explained as follows:

- GRDP coefficient value of 0.0667687297045 indicates that if there is an increase in GRDP by 1 (one) unit, then the unemployment rate will increase by 0.0667687297045.
- The INF coefficient value of 0.00194046893076 indicates that if there is an increase in INF by 1 (one) unit, the unemployment rate will increase by 0.00194046893076.

Test the Coefficient of Determination R²

Table 5. The coefficient of determination R²

Y Dependent Variable	
Method: Least Squares	
R-squared	0.074973
Adjusted R-squared	0.013305

Based on the results of data processing table 4.5. an R-Squared value of 0.074973 was obtained, which means that the GRDP and inflation variables were able to influence the open unemployment rate in Aceh Province in 1988-2021 by 7.4% and the rest was influenced by other factors not examined in this study.

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T test

Table 6. T test

Y Dependent Variable Method: Least Squares				
Variables	coefficient	std. Error	t-Statistics	Prob.
NLPDRB	0.066769	0.048229	1.384421	0.1764
NLINF	0.001940	0.002441	0.794924	0.4329
C	-0.022830	0.457808	-0.049868	0.9606

From the results of data processing above it can be concluded as follows:

- a. The effect of GRDP on the open unemployment rate in Aceh Province in 1988-2021
Based on the results of multiple linear regression analysis, the GRDP regression coefficient (X1) is 0.066769, meaning that if the independent variable has a fixed value and GRDP increases by 1 percent, the open unemployment rate (Y) will increase by 0.66769 percent assuming the other independent variables are constant. The coefficient is positive, meaning that there is a positive relationship between GRDP and the open unemployment rate, the higher the GRDP, the higher the unemployment rate. Partially the GRDP variable (X1) has a positive and insignificant effect on the open unemployment rate in Aceh Province in 1988-2021 with a probability value of $0.1764 > 0.05$.
- b. The effect of inflation on the open unemployment rate in Aceh Province in 1988-2021
Based on the results of multiple linear regression analysis, the inflation coefficient (X2) is 0.00194, meaning that if the independent variable has a fixed value and inflation has increased by 1 percent, the open unemployment rate (Y) has increased by 0.00194 assuming the other independent variables are constant. Partially, the inflation variable (X2) has a positive and insignificant effect on the open unemployment rate in Aceh Province with a probability value of $0.9606 > 0.05$.

F test

Table 7. F test

NLTPT Dependent Variable Method: Least Squares	
F-statistics	1.215747
Prob(F-statistic)	0.310681

Based on the results of data processing in table 4.6, a Prob value (F statistic) of 0.310 simultaneously GRDP and inflation did not have a significant effect on the open unemployment rate in Aceh Province in 1998-2021.

CONCLUSION

From the results of the research above, the writer draws the conclusion that:

Partially, the Gross Regional Domestic Product has a positive and significant effect on the open unemployment rate for the 1988-2021 period, meaning that any increase in GRDP will increase the open unemployment rate in Aceh Province for the 1988-2021 period but not significantly.

Partially inflation has a positive and significant effect on the open unemployment rate for the 1988-2021 period, meaning that any increase in inflation will increase the open unemployment rate in Aceh Province for the 1988-2021 period but not significantly.

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Simultaneously the GRDP and inflation variables have no significant effect on the open unemployment rate in Aceh Province for the 1988-2021 period.

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