

The Effect of the Unemployment and Population Growth on the Level of Poverty in Discrets/Cities Throughout the Nias Archipelago

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Abstract: This study uses secondary data with panel data analysis tools, consisting of time series data during the 2015-2021 period and cross section data for 5 districts/cities in the Nias Island. The analysis model used in this study to estimate the panel data regression model is to use the Fixed Effect Model. The results in the study with a significance level of 5% show that (1) the unemployment variable has a significant effect on the poverty rate; (2) the population growth variable has a significant effect on the poverty rate.

Abstrak: Penelitian ini menggunakan data sekunder dengan alat analisis data panel, yang terdiri dari data deret waktu selama periodel 2015-2021 dan data cross section 5 kabupaten/kota di kepulauan Nias. Model analisis yang digunakan dalam penelitian ini untuk mengestimasi model regresi data panel adalah dengan menggunakan Fixed Effect Model. Hasil dalam penelitian dengan tingkat signifikansi 5% menunjukkan bahwa (1) variabel pengangguran berpengaruh signifikan terhadap tingkat kemiskinan; (2) variabel pertumbuhan penduduk berpengaruh signifikan terhadap tingkat kemiskinan.



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INTRODUCTION

Poverty has long been a problem for every country, especially developing countries. Poverty alleviation aims to improve the welfare of the people in the country. A June 2022 World Bank study states that an increase in domestic commodity prices, triggered by movements in global commodity prices, is expected to increase the poverty rate by 0.2 percentage points. According to data from the Central Statistics Agency (BPS), in March 2022, the number of poor people in Indonesia was 26.16 million, and when compared to this data, the percentage of poor people reached 9.54%. Compared to data on poor people in September 2021, which reached 26.50 people, the number of poor people in Indonesia has decreased by 0.17%. data on poverty in Indonesia for the last five years, beginning in 2017.

The highest poverty rates occur in villages and underdeveloped areas, which ultimately affect the Indonesian economy as a whole. This is caused by several factors, namely natural factors, infrastructure, and socio-economic factors, as can be seen from the low average income and expenditure per capita in the area. Based on data from the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration of the Republic of Indonesia (KEMENDES), according to Presidential Regulation (PERPRES) Number 63 of 2020 concerning the determination of underdeveloped areas for 2020–2024, there are 62 areas that are determined to be left behind. Based on data from the Ministry of Villages, North Sumatra has four underdeveloped regions, and these areas are located in four regencies on Nias Island. In 2021, the average percentage of poor people throughout the Nias Islands was 20.38%, which was even higher than the poverty rate in North Sumatra in 2021 of 8.49%. The average percentage of poor people throughout the Nias archipelago is also higher than Indonesia's poverty rate of 9.71% in 2021.

Poverty is a condition where people are unable to meet basic needs such as food, clothing, shelter, education, and health. (Michael P. Todaro, 2006) suggests absolute poverty, namely the number of residents who are unable to obtain sufficient resources to meet basic needs. The population lives below a certain minimum real income level or below the poverty line.

According to the Biro Pusat Statistik (www.bps.go.id), those who are categorized as poor are residents who are unable to meet a minimum requirement of 2,100 calories per capita per day plus minimum non-food needs, which are a person's basic needs, which include basic needs for food, clothing, schools, transportation, and other basic household and individual needs.

Poverty can be caused by high unemployment. If the unemployment rate increase, it means that the community's income is reduced and there are many difficulties in meeting their needs. From year to year, the unemployment rate tends to increase. This is a big challenge for the Indonesian government because unemployment is an indicator of successful development. The era of globalization has made competition for labour increasingly stringent, especially because free trade has opened, which makes it easier to offer foreign workers of higher quality to enter the country. The magnitude of the unemployment rate can be said to be very important in measuring the success of economic development because unemployment is an indicator of welfare as a result of economic development.

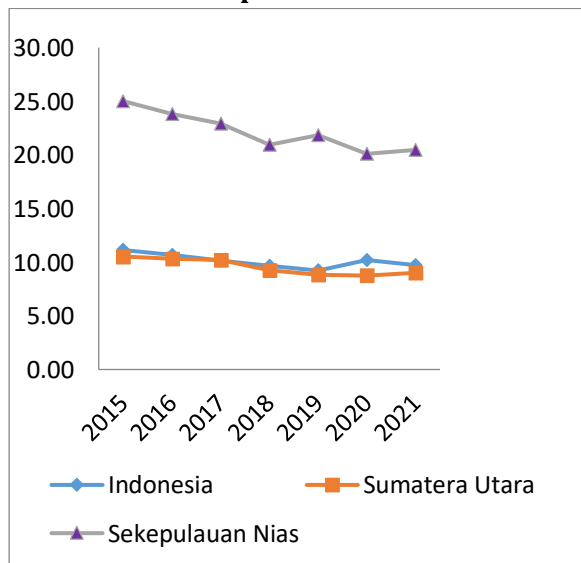
Unemployment is defined as a situation where a person belonging to the labour force does not have a job and is actively looking for work (Nanga, 2007). Unemployment is someone who belongs to the labour force and is actively looking for work at a certain wage level but does not get the desired wage (Sukirno, 2006).

Poverty can also be caused by rapid population growth that is not accompanied by development and the number of jobs.

Population growth plays an important role in influencing the number of poor people. Population is the number of people who occupy a certain area at a certain time. The population is usually associated with the growth (income per capita) of the country, which roughly reflects the progress of the country's economy (Subri, 2003:55). Mulyadi (2003, p. 13) says that population growth is the process of increasing the number of residents and the types of people who live there. This is affected by three demographic factors: births, deaths, and immigration.

Poverty is a condition in which a person cannot enjoy all kinds of choices and opportunities in fulfilling his basic needs, such as not being able to fulfil his/her needs for health, a decent standard of living, freedom, self-respect, a sense of respect for other people, and the bleak future of the nation and state. Poverty is multidimensional, which means that because people's needs are different, it has many primary and secondary components. The primary parts are a lack of assets, social and political organization, knowledge, and skills. The secondary parts are a lack of social networks, money, and information.

North Sumatra province and Indonesia.



Source: Badan Pusat Statistik (BPS)

Figure 1. Comparison of poverty rates across Nias Islands.

The poverty trend in Figure 1 indicates a decrease in the average poverty rate for districts and cities throughout the Nias archipelago. However, even though it has decreased, when compared with the poverty percentage throughout Indonesia, the average poverty percentage rate for districts and cities throughout the Nias archipelago is higher, and when compared with the poverty percentage for all districts and cities in North Sumatra Province, the average poverty percentage for districts and cities throughout the Nias archipelago is higher.

METHOD

The data collection technique used in this study is non-participant observation, where the researcher is not involved and only acts as an independent observer (Gujarati, 2008). Data is collected through this method by making observations, recording and studying descriptions from books and journals, and accessing data from the website of the Central Bureau of Statistics of North Sumatra. The data used in this study is panel data or pooled data, which is a combination of series data from 2015–2021 and cross-sectional series data from five districts or cities on Nias Island, which produces 35 observations.

The data analysis technique used in this study is a regression analysis technique with panel data. In the panel data test, there is no need to test the classical assumptions. There are three types of data analysis methods: common effect, fixed effect, and random effect. As previously explained, the independent variables in this study are the unemployment rate, economic growth, and the human growth index.

$$Y = \beta_0it + \beta_1X1it + \beta_2X2it + \mu$$

Description:

- Y = poverty
- X1 = unemployment
- X2 = population growth
- β_1, β_2 = partial regression coefficient
- i = N cross-section units
- t = time period/year

μ = disruptive error

The panel data analysis in this study was carried out using the combined quadratic approach (common effect model), the random effect model (random effect model), and the random effect approach (random effect model). One of the three panel data approach models will be selected as the most valid.

To test the suitability or goodness of the three models estimated using the Restricted F Test (Chow Test), choose between the Common Effect Model and the Fixed Effect Model. Restricted F-test. restricted F-test, with the following hypothesis:

H0: Model Common Effect valid

H1: Model Fixed Effect valid

The value of the restricted F-test is formulated as follows:

$$F = \frac{(R_{UR}^2 - R_R^2)/m}{(1 - R_{UR}^2)/df}$$

Description:

F table (α 5%, df(n-k,m)) are:

R_{UR}^2 = unrestricted R^2

m = degrees of freedom quantifier(N-1)

R_R^2 = restricted R^2

Df = denominator degrees of freedom (NT-N-k)

N = number of data cross sections

T = amount of time series data

K = the number of Variable Coefficients

If the value of F-statistics > F-table, then H0 is rejected, meaning that a good panel model to use is the Fixed Effect Model; conversely, if H0 is accepted, then the Fixed Effect Model must be tested again to determine whether to use the Fixed Effect or Random Effect model.

The Hausman test is carried out if, in the F-restricted test (Chow test), the model selected is the Fixed Effect Model. The Hausman test aims to determine whether the fixed effect model or random effect model is valid (Gujarati, 2012). The hypothesis in the Hausman test is as follows:

H0: method Random Effect valid

H1: method Fixed Effect valid

H0 is rejected if the p-value is smaller than the significant level (alpha). Conversely, H0 is accepted if the p-value is greater than the significant level (alpha).

The Lagrange multiplier test was conducted to find out which model was better between the fixed effect model and the random effect model. This test is also used to ensure that the Fixed Effect Model and Random Effect Model results are consistent with previous tests. with the following hypothesis:

H0: Model common Effect

H1: Model Random Effect

With the provision that if the Breusch-Pagan probability value is 0.05, then H0 is rejected, it means that the correct estimate for panel data regression is a random model, and vice versa. After the model selection test was carried out, a statistical test was carried out. This study uses a partial test (t test) with the provision that if the results of the statistical t test are greater than t, then H0 is rejected and Ha is accepted with the help of Eviews software.

The panel data regression results with three approaches are summarized in the following table. 1) Chow Test, the Chow test aims to determine the best modal to use between the Common Effect Model (CEM) or Fixed Effect Model (FEM) in estimating panel datas in schools. Based on the results of the chow test, with a probability value of $\alpha = 0.05$, the Common Effect Model is a valid model. 2) The hausman test, the Hausman test was carried out to determine a valid model between the Fixed Effect Model and the Random Effect Model. Based on the results of the Hausman test and a probability value of 0.05, which is equal to 0.0015, the model that is valid and good to use is the fixed effect model. The Lagrange test is no longer used because previous tests used the common effect model and the random effect model, with the results indicating that both estimation models are rejected, implying that the best model is the

fixed effect model. The Fixed Effect Model results are shown in the table below:

Table 2. Fixed Effect Model Table

Dependent Variable: KEMISKINAN
 Method: Panel Least Squares
 Date: 11/24/22 Time: 22:35
 Sample: 2015 2021
 Periods included: 7
 Cross-sections included: 5
 Total panel (balanced) observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	50.07164	9.005302	5.560240	0.0000
PENGANGGURAN	0.853258	0.417783	2.042348	0.0506
JUMLAHPENDUDUK	-0.000116	5.60E-05	-2.066923	0.0481

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.960843	Mean dependent var	33.60343
Adjusted R-squared	0.952453	S.D. dependent var	12.70100
S.E. of regression	2.769496	Akaike info criterion	5.052064
Sum squared resid	214.7631	Schwarz criterion	5.363134
Log likelihood	-81.41113	Hannan-Quinn criter.	5.159446
F-statistic	114.5129	Durbin-Watson stat	0.863108
Prob(F-statistic)	0.000000		

Data source: Preprocessed with Eviews 12 (2022)

In the table above, it can be seen that, from the panel data regression approach that has been carried out, the R-square result in the fixed effect model test is 96.0843. A f-statistic test is used to determine the amount of influence the regression has on the independent variable. Based on the estimation results table using the fixed effect model, the linear equation is derived as follows:

$$Y = 50,07 + 0,85 X1 + (-0,00X2) + e$$

Based on the Fixed Effect Model Estimation Results Table, the following results are obtained:

1. The X1 probability value of 0.05 is the same as alpha (0.05), with a statistical t value of 2.04. That is, the variable X1 has an effect on Y by in conclusion, unemployment has a partial effect on the level of poverty.
2. The probability value of X2 is 0.04, which is smaller than alpha (0.05), with a statistical t value of -2.06. It means variable.

Statistical t test basically shows how far the influence of each independent variable

individually can affect the dependent variable. The t test is carried out by comparing each statistical value with the t-table to reject or accept the hypothesis at the confidence level $\alpha = 5\%$, ($n = 35$) and the number of independent variables ($k = 3$).

Table 3. Fixed effect model table

Dependent Variable: KEMISKINAN
 Method: Panel Least Squares
 Date: 11/24/22 Time: 22:35
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 Periods included: 7
 Cross-sections included: 5
 Total panel (balanced) observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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Data source: Preprocessed with Eviews 12 (2022)

Based on the fixed effect model, the independent variable unemployment has a calculated t value of 2.0423 that is greater than the t value of 1.6938. This means that the unemployment variable has a positive effect on the level of poverty in districts and cities throughout the Nias archipelago. The results of this study are supported by Nurkse's version of the vicious circle of poverty theory, which describes low productivity as one of the causes of poverty. Unemployment can be interpreted as a person's low productivity. This is because the unemployed do not do any work to generate wages, which are later used to meet their daily needs. The greater the number of unemployed people, the greater the level of poverty. This is supported by Trisnu's research (2019) concerning "The Influence of Population Growth, Unemployment, and Education on Poverty Levels in Districts and Cities of Bali Province."

Based on the fixed effect model, the independent variable unemployment has a calculated t value of 2.0669, which is also greater than the t table of 1.6938. This means that the unemployment variable affects the poverty rate for districts and cities throughout the Nias archipelago by 2.669. If

unemployment increases, the poverty rate will also increase. This is because food supplies are unable to keep up with rapid and high population growth, so per capita income will tend to decline. This is supported by Azizah's research (2018) on "The Influence of Education, Per Capita Income, and Population on Poverty in East Java Province."

Based on the fixed effect model, the probability value of the F statistic is 0.0000, which is less than the significance rate of 5%. This means that unemployment and the number of residents have a significant effect on the poverty rate. The coefficient of determination is 0.9608, which means that this model can explain 96.08% of how unemployment and population growth affect the poverty rate. The other 3.92% can be explained by other variables.

CONCLUSION AND SUGGESTION

Based on the research conclusions, the researcher recommends the following suggestions: (1) The population or community is more prioritized by the central government in order to provide jobs and public services or programs that benefit the community so that they can live a more decent life and have their needs met. (2) For district and city governments throughout the Nias Archipelago to pay more optimal attention to their people's lives and allocate more optimal population programs to overcoming social inequality by looking at what things are most needed by the people of their regions and encouraging and supporting the various MSMEs that already exist in order to increase people's income.

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