

# An Analysis of Development Inequality and Economic Growth against Poverty in Papua Province in 2010-2018

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## ABSTRACT

An important goal of development is to reduce poverty. Indonesia is one of the members of the United Nations who signed the SDGs resolution, where the first goal is no poverty. Papua Province always ranks first in the highest poverty rate in Indonesia. Unstable economic growth and the dominance of the mining sector against the Gross Regional Domestic Product (GRDP) is one of the factors affecting poverty levels in Papua Province. The purpose of this study was to analyze the relationship between development inequality and economic growth on poverty in Papua Province in 2010-2018. The variables of this study included development disparity, economic realization of economic functions, percentage of paved roads, economic growth rate, mining sector rate and poverty. This study utilized panel data analysis. The results showed that the realization of economic functions and the percentage of the paved roads had a negative impact, while development inequality, growth rates and the pace of the mining sector had a positive impact on poverty in Papua Province.

**Keywords:** *development inequality, Economic Growth, Poverty, Panel*

## 1. INTRODUCTION

The important goals of development are to reduce poverty and improve the welfare of all its people. However, based on the National Socio-Economic Survey on September 2018, Papua's poverty rate was ranked as number 1 as the poorest population in Indonesia [1]. This is because of its difficult geographical location for which poverty and development gaps in Papua province are increasingly visible. The Construction Cost Index of the Province of Papua in 2017 ranks in the first place at 229.82 [2]. It shows that carrying out development in Papua Province requires the most expensive cost in Indonesia. This certainly has an impact on the slow pace of the development in Papua Province which will eventually lead to development imbalances and an increase of poverty in Papua Province. Yusuf, et al. in his research on regional development inequality in Indonesia in 2014 said that by reducing development inequality in Indonesia it would reduce the level of poverty in the region [3]. Besides poverty, the success of an area's economic growth is measured using the rate of economic growth based on the Gross Regional Domestic Product (GRDP) at constant prices. Economic growth also plays an important role in poverty alleviation. Papua Province's economic growth rate tends to fluctuate. This partly is caused by the main economic activity in Papua Province that is still extractive and relies on sectors that utilize natural resources so that

growth has not been maximized [4]. The highest economic growth in Papua Province between 2012-2017 was achieved in 2016; it was above the national economic growth rate of 9.14 percent [4]. The economy in Papua generally still relies on the primary sector consisting of the mining sector, which is around 36 percent contributing to economic growth. Research by Ames states that economic growth that impacts on poverty is influenced by the composition of sectoral growth [5]. It indicates that mining and quarrying business fields are the backbone of the economy in Papua and give a signal that changes in the business fields will have a significant impact on the economy as a whole and will certainly have an impact on poverty. Dependence of an area on the mining sector can make the economic growth of the area slow. Furthermore, if it lasts for a long time, it can lead to a Dutch disease phenomenon as mentioned by a research conducted by Loayza and Rigolini in Peru which results in the mining sector having a dual effect. The negative effect is the gini ratio of 0.6 percent which is greater than non-mining areas. The positive effect is that consumption per capita is 9 percent higher than in non-mining areas, while poverty is lower at 2.6 percent [6]. Kakwani state economic growth with a focus on the poor will improve the level of community welfare and income distribution will be more equitable so that it reinforces the impact of growth on poverty alleviation [7]. In line with this research Evans (2000) defines that economic growth that can reduce poverty is called pro-poor economic growth [8]. However, based on the existing reality, the economy of the Papua

Province grows positively together with the high poverty. It shows that the welfare has not been felt by every element of society in Papua Province. This phenomenon contradicts the Trickle Down Effect theory which explains that economic progress will trickle down where it will create jobs and various economic opportunities thereby creating an equitable distribution of economic growth results. All this time, it is believed that reducing poverty requires high economic growth because high economic growth is expected to create a trickle down effect that can improve Poverty reduction has always been a central agenda of government and a priority development agenda. Infrastructure differences cause a sharp disparities in the development between districts so that it becomes one of the triggers of high poverty in Papua Province. World Bank (2017), Indonesia loses more than 1 percentage point of additional GDP growth per year due to lack of investment in infrastructure [9]. Besides, the mining factor also makes the GRDP in Papua Province unstable. Theoretically, it is stated that high economic growth will be followed by a reduction in inequality and in the end there will be a decrease in poverty, but this condition does not occur in Papua. Therefore, it is very interesting to know the relationship between inequality, economic growth and poverty that occur in Papua Province.

**2. RESEARCH METHODOLOGY**

The type of data used in this study is secondary data. All data are the combination of cross section data and time series data. Cross section data used are 29 districts in Papua Province with time series data from 2010 to 2018. Thus, the panel data estimation approach model is in accordance with the objectives of this study, which is to analyze the effect of independent variables in the form of inter-district development inequality as measured by the contribution of districts to the regional index, realization of the Regional Revenue and Expenditure Budget (APBD) of economic functions, infrastructure measured by the percentage of paved roads, the rate of economic growth and the rate of the mining sector on the dependent variable, namely poverty in the districts of Papua Province.

**3. HYPOTHESIS**

- The following are the hypotheses in this study:
1. Development inequality has a significant effect on poverty in Papua.
  2. The realization of the Regional Revenue and Expenditure Budget (APBD) of economic functions influences poverty in Papua Province
  3. Infrastructure in the form of unpaved roads significantly influences poverty in Papua.
  4. Economic growth has a significant effect on poverty in Papua.

5. The GRDP of the mining sector has a significant effect on poverty in Papua.

**4. RESULTS AND DISCUSSION**

Chow test results showed that the prob value in the cross section F indicated a smaller number than  $\alpha$  of 0.05. Therefore, H0 was rejected and the selected model was the Fixed Effect Model.

**Table 1. Chow Test Results**

Redundant Fixed Effects Tests  
Equation: Untitled  
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	91.306742	(28,198)	0.0000
Cross-section Chi-square	610.799488	28	0.0000

Henceforth, a retesting between the Fixed Effect Model and the Random Effect Model using hausmant test was performed.

**Table 2. Hausmant Test Results**

Correlated Random Effects - Hausman Test  
Equation: Untitled  
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	30.444458	5	0.0000

Table 2 shows that the probability value is smaller than  $\alpha = 0,05$  which indicates that H0 is rejected. The conclusion is that the best model that is suitable for use in this study is the Fixed Effect Model with a confidence level of 95%.. By fixed Effect Model Estimation Results above, the following equation is obtained:

$$\text{poor} = \beta_0 + \beta_1 \text{ inequality} + \beta_2 \text{ realization of economic function} + \beta_3 \text{ percentage of paved roads} + \beta_4 \text{ eco growth} + \beta_5 \text{ rate of mining sector} + e$$

Where:

$$\text{poor} = 29.8169 + 26.0813x_1 - 2.5930x_2 - 0.031x_3 + 0.2271x_4 + 1.5471x_5$$

The above model shows the effect of each independent variable on the dependent variable. Variables that have a negative influence on poverty are the realization of the economic function budget and the percentage of paved roads, while the variables that have a positive influence are development inequality, economic growth and the pace of the mining sector.

From the above equation, the following things were discovered:

**Table 3. Fixed Effect Model Estimation Results**

Dependent Variable: MISKIN  
 Method: Panel Least Squares  
 Date: 10/12/19 Time: 21:58  
 Sample (adjusted): 2011 2018  
 Periods included: 8  
 Cross-sections included: 29  
 Total panel (balanced) observations: 232

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KETIMPANGAN	26.08130	9.248297	2.820119	0.0053
REALEKO	-2.593057	1.147418	-2.259906	0.0249
ASPAL	-0.031860	0.018272	-1.743670	0.0828
LAJU	0.227131	0.054496	4.167817	0.0000
TAMBANG	1.547184	0.413214	3.744272	0.0002
C	29.81690	6.533310	4.563828	0.0000

**Effects Specification**
**Cross-section fixed (dummy variables)**

R-squared	0.947419	Mean dependent var	31.19384
Adjusted R-squared	0.938655	S.D. dependent var	10.01421
S.E. of regression	2.480311	Akaike info criterion	4.789278
Sum squared resid	1218.085	Schwarz criterion	5.294404
Log likelihood	-521.5563	Hannan-Quinn criter.	4.992990
F-statistic	108.1088	Durbin-Watson stat	1.087117
Prob(F-statistic)	0.000000		

**1. Constant results**

A constant of 29.81690 indicates that if the independent variable is considered constant, then Y is 29.81690. Therefore, the five independent variables are not complete or certain variables. There are still uncounted variables that are not included in the model.

**2. Development inequality**

The coefficient of development inequality in the fixed effect model shows the value of 26.08130, then the change in Y is positively influenced by the x1 variable. It means that by a 95% confidence level, if development inequality increases by 1 digit, the poverty will increase by 26.08 percent. As in the study of Baransano in West Papua about the neo-classical hypothesis that at the beginning of the development process the disparity between regions will tend to increase (which will increase poverty) and when inequality reaches its peak then disparity between regions will decrease, or in other words the disparity in development between regions forms an inverted "U" (inverted U-shape) [10].

**3. Realization of regional economic budget**

Realization coefficient of economic sector APBD in the fixed effect model shows a value of -2.593057, then the change in Y is negatively affected by variable x2. It means that with a 95% confidence level, if the realization of the regional budget (APBD) in the economic sector increases by 1 trillion, it will reduce poverty by 2.59 percent. Due to the realization of the budget function of the economic budget expenditure is intended for infrastructure construction, transportation and highways, so it is thought to have a direct effect on people's welfare. Therefore, the realization of the regional budget (APBD) more in economic function is expected to reduce poverty in Papua Province. In line with Stephan Litschig's research in Brazil

that a 20 percent increase in government transfers to regions reduces poverty by 4 percent [11]

**4. Percentage of paved roads**

The percentage coefficient of paved roads in the fixed effect model shows the value of -0.03180, then the change in Y is negatively affected by the x3 variable. In line with Kwon research that an increase of 1 percent of roads with poor conditions will reduce poverty by 0.09 percent [12] However, the paved roads percentage variable is not significant to the percentage of poverty in Papua Province at a 95% confidence level. Therefore, the policies to reduce poverty in Papua should not go through this variable since the percentage of paved roads in Papua is not significant in reducing poverty.

**5. Economic growth**

The coefficient of economic growth in the fixed effect model shows a value of 1.547184, then the change in Y is positively influenced by the x4 variable. So that the increase in the rate of economic growth actually increases poverty in Papua Province. This proves that economic growth in Papua Province is not yet Pro Poor. in line with the research of Hull (2009) which explains that economic growth will reduce poverty if it is labor intensive, but if it is capital intensive it will increase unemployment so that it impacts on increasing the number of poor people [13]

**6. The pace of the mining sector**

The coefficient on the fixed effect model shows a value of 0.227131, then the change in Y is positively influenced by the x5 variable. Variable rate of the mining sector with a 95% confidence level increases poverty in Papua Province. This is because people who live in areas whose economies depend on mining and mining products tend to be less prosperous. In line with research Sachs and Warner that a region's dependence on the sector mining can slow down the region's economy [14].

**5. CONCLUSION**

Based on the discussion that has been presented in the previous section, there are some conclusions which can be drawn:

1. Realization of economic function and the percentage of paved roads have a negative impact on poverty in Papua. Increasing the realization of economic functions and the percentage of paved roads reduce poverty. However, the percentage of the paved roads is considered to be less significant and ineffective in reducing poverty so it is expected to use other policies to reduce poverty in Papua.

2. Development inequality, growth rates and the pace of the mining sector have a positive impact on poverty. It proves that the economic growth achieved is not yet inclusive since the community has not yet fully been able to access the economic opportunities that have existed and welfare has not been evenly distributed in each segment of society.

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