

# Could Economic Growth Moderate Population, Education and Unemployment to Poverty in Indonesia?

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## ABSTRACT

Poverty is still a major issue in development throughout the world. From the Millennium Development Goal (MDG's) to Sustainable Development Goals (SDGs) poverty alleviation is still the first goal. There have been many studies examining poverty and causal relationships between population, education, unemployment, economic growth, and poverty, but there has been no research using moderated regression analysis test. The purpose of this study is to analyze economic growth as a moderator that could influence the population, education, and unemployment of poverty in Indonesia. The data used is panel data from 34 provinces from 2012 - 2018, using the common effect model and moderated regression analysis (MRA) methods. The results showed that the moderating variable is a homologize moderator. Economic growth could not moderate the population education and unemployment to poverty. For further research, it is recommended to use other variables to be used as moderator variable.

**Keywords:** *poverty, population, education, unemployment, moderation analysis*

## 1. INTRODUCTION

World Bank (2018) released that globally, more than 800 million people still live on less than the US \$ 1.9 per day Purchasing Power Parity (PPP), so the problem of poverty (No Poverty) is the first objective of 17 Sustainable Development Goals (SDG's). There have been many types of studies conducted and there are several factors that are often used as concepts in efforts to reduce poverty. As Pratama's research (2012) sees that education can significantly reduce poverty in Indonesia, but in Uganda, from the results of Dartzberger's study (2018) education cannot help people move out of poverty. According to Cazzavillan et.al (2013) education is very influential on poverty in Sub-Saharan Africa compared to G7 countries.

The population is also one that affects poverty. According to Arif (2013) an increase in population will increase poverty both macro and micro, added by Gupta (2014) the impact is mainly on poor and developing countries because population growth is not matched by the addition of natural resources. According to Dwiningmarni et.al (2018), Population growth harms unemployment and economic growth in Central Java.

An increase in population and a low level of education will affect poverty. According to Quy (2016), unemployment affects poverty in Vietnam. The results of a similar study from Dwiningmarni et.al (2018) that unemployment is one of the factors affecting poverty in Central Java Province. Economic growth is very influential in efforts to reduce poverty. The results of the study of Nguyen et.al (2018)

of Vietnam's economic growth in 1993-1998 can reduce poverty, but in the 2004-2008 periods, economic growth did not affect poverty levels. Meanwhile, according to Quy (2016), economic growth can affect poverty, as well as Perera (2013) that economic growth affects poverty reduction in 9 developing countries in 1985-2009.

In other words, economic growth can moderate or influence the relationship between population, education, and unemployment in reducing poverty. By this arena, this research was conducted to determine whether economic growth could strengthen or weaken the influence of these variables on poverty.

According to Todaro (2009), those in poverty live below a certain minimum real income level. Welfare is part of the discussion on poverty. According to Pindyck (2009), poverty is the antithesis of well-being. Nuryitmawan's opinion (2016) when individual income increases continuously, then individual satisfaction will continue to increase along with the increasing number of goods and services consumed. Chamber (2006) said that poverty is an integrated concept that has five dimensions that form a poverty trap (deprivation trap), namely (1) Powerlessness, (2) Vulnerability, (3) Physical Weakness, (4) Material Lack, and (5) Isolation.

According to Maier (2015) high population growth rates not only adversely affect the food supply, but also increasingly create obstacles for the development of savings, foreign exchange reserves, and human resources. The human capital according to Meyer is the process of increasing the knowledge, skills, and expertise of all the people of a country (Jhingan: 2016). Education is a determinant in poverty (Thapa: 2013, Rahman et al: 2013,

Santos: 2012). The higher level of education, the faster increased to expected income. Increasing income can reduce poverty levels.

Unemployment is a macroeconomic problem that where jobless decrease in living standards and psychological stress (Mankiw: 2016). Unemployment is included in the labor force, who is actively looking for work at a certain wage level but cannot obtain the desired job (Sukirno: 2009). There is a positive relationship between unemployment and poverty (Elmi et al: 2018). Unemployment and those who work half the time are spread among the poor (Quy: 2016). Unemployment has an impact on reducing people's income and decreasing the level of welfare (Sukirno: 2009).

Economic growth illustrates the economic development and the achievement of the level of prosperity in a certain period compared to the previous year (Sukirno: 2009). Meanwhile, according to Warr (2005), the most effective economic growth in reducing poverty does not have to be the same as economic growth to reduce income inequality, but economic growth in favor of the poor population will affect the reduction of inequality due to an increase in income (Klasen: 2008)

Unemployment harms economic growth. In the Okun law introduced by Arthur Okun in 1962, it was stated that a 1% increase in economic growth would cause a decrease in the unemployment rate of 1% (Mudrajad: 2015). Mankiw (2016) argues that Okun's Law explains the unemployment rate has a negative relationship with real GDP. Systematically the relationship between these independent variables in influencing the dependent variable influenced by the moderating variable can be described as follows:

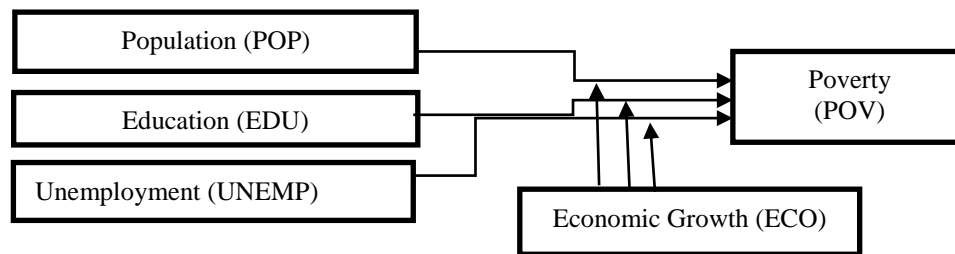


Figure 1.: Conceptual Framework

## 2. METHODS

The data used in this study are the percentage of poor population, total population, mean years of schooling, unemployment, and economic growth per capita in 34 provinces in Indonesia from 2012-2018, using the Moderated Regression Analysis and Pooled Data Method Model. The form of the linear equation test is as follows;

a.  $LogPOV_{it} = \beta_1 POP_{it}$   
 a.  $LogPOV_{it} = \beta_1 POP_{it} + \beta_2 ECO_{it}$   
 b.  $LogPOV_{it} = \beta_1 POP_{it} + \beta_2 ECO_{it} + \beta_3 POP_{it} * ECO_{it}$

a.  $LogPOV_{it} = \beta_1 EDU_{it}$   
 b.  $LogPOV_{it} = \beta_1 EDU_{it} + \beta_2 ECO_{it}$   
 c.  $LogPOV_{it} = \beta_1 EDU_{it} + \beta_2 ECO_{it} + \beta_3 EDU_{it} * ECO_{it}$

a.  $LogPOV_{it} = \beta_1 UNEMP_{it}$   
 b.  $LogPOV_{it} = \beta_1 UNEMP_{it} + \beta_2 ECO_{it}$   
 c.  $LogPOV_{it} = \beta_1 UNEMP_{it} + \beta_2 ECO_{it} + \beta_3 UNEMP_{it} * ECO_{it} \dots (\psi)$

Note:

$POV_{it}$  = Poverty

- $\alpha$  = Constanta
- $\beta_1 \dots \beta_3$  = Regression
- Coefficients
- $POP_{it}$  = Population
- $EDU_{it}$  = Education
- $UNEMP_{it}$  = Unemployment
- $t$  = Economic
- $ECO_{it}$  = Economic Growth as Moderator Variable
- $POP_{it} * ECO_{it}$  = Economic Growth Moderated Population
- $EDU_{it} * ECO_{it}$  = Economic Growth Moderated Education
- $UNEMP_{it} * ECO_{it}$  = Economic Growth Moderated Unemployment
- $(\psi)$  = Cross Section
- $t$  = Time Series
- $U$  = Error Term

Table 1. Result of Moderate Variable Types

| No | Test results                                   | Moderation type       |
|----|--|-----------------------|
| 1  | M is not significant<br>XM significant         | Pure Moderator        |
| 2  | M significant<br>XM significant                | Quasi Moderator       |
| 3  | M significant<br>XM is not significant         | Predictor Moderator   |
| 4  | M is not significant<br>X M is not significant | Homologizer Moderator |

### 3. RESULTS AND DISCUSSION

The following conclusions are the results of the regression test for determining the type of moderating variable.

The results of the classic assumption test to fulfill the BLUE (Best Linear Unlimited Estimator) assumption is the normality test

and the heteroskedasticity test. The normality test's summary in Table 3. shows that the probability value of 0.06 or  $> 0.05$ , means the residual value of the variable is distributed normally.

**Table 2.** Result of Moderate Variable Analysis

| No | Variable    | Prob. Var Moderation | Prob. Var Moderation with Var. Independent | Moderator Type |
|----|-------------|----------------------|--|----------------|
| 1  | ECO * POP   | 0.06                 | 0.14                                       | Homologizer    |
| 2  | ECO * EDU   | 0.46                 | 0.23                                       | Homologizer    |
| 3  | ECO * UNEMP | 0.26                 | 0.82                                       | Homologizer    |

*Source: Data Processing with Eviews 10, 2019.*

**Table 3.** Summary of Normality Test

| No | Variable    | Probability |
|----|-------------|-------------|
| 1  | ECO * POP   | 0.71        |
| 2  | ECO * EDU   | 0.06        |
| 3  | ECO * UNEMP | 0.59        |

The results of heteroskedasticity test in Table. 4 shows that the probability value of

each variable  $> 0.05$ , it means that there is no problem of heteroskedasticity on the variables.

**Table 4.** Summary of Heteroskedastisity Test

| No | Var.    | Prob. | Var.    | Prob. | Var.      | Prob. |
|----|---------|-------|---------|-------|-----------|-------|
| 1  | C       | 0.56  | C       | 0.13  | C         | 0.11  |
| 2  | POP     | 0.82  | EDU     | 0.06  | UNEMP     | 0.27  |
| 3  | ECO     | 0.65  | ECO     | 0.53  | ECO       | 0.66  |
| 4  | POP*ECO | 0.57  | EDU*ECO | 0.94  | UNEMP*ECO | 0.26  |

*Source: Data Processing with Eviews 10, 2019.*

Based on the results that population was a negative effect and significant to poverty. The population that moderated by economic growth has a significant positive effect on poverty in Indonesia with a probability value of 0.14 or  $> 0.05$ . The first hypothesis in this study proved to be rejected. It means that the economic growth could not moderate population effect on poverty.

Based on the result of this study for the second hypothesis, education has a negative and significant effect on poverty. After it was moderated by economic growth, it has a negative and not significant effect on poverty in Indonesia. With a probability value of 0.26  $> 0.05$ , the hypothesis of this study proved to be rejected; it means economic growth is not able to moderate the effect of education on poverty.

**Table 5.** Summary of Estimation Result

| No | Variable    | Before Moderated |        | After Moderated |        | Hypothesis |
|----|-------------|------------------|--------|-----------------|--------|------------|
|    |             | Probabilitas     | t-Stat | Probabilitas    | t-Stat |            |
| 1  | POP         | 0.89             | -0.14  | 0.26            | 1.14   | -          |
| 2  | EDU         | 0.00             | -9.25  | 0.00            | -3.51  | -          |
| 3  | UNEMP       | 0.03             | -2.15  | 0.88            | 0.14   | -          |
| 4  | ECO * POP   | -                | -      | 0.14            | -1.47  | Rejected   |
| 5  | ECO * EDU   | -                | -      | 0.26            | -1.21  | Rejected   |
| 6  | ECO * UNEMP | -                | -      | 0.82            | -0.23  | Rejected   |

Source: Data Processing with Eviews 10, 2019.

For the third hypothesis, before it interacts with economic growth, unemployment has a positive and significant effect on poverty. After it is moderated by economic growth, the result has a negative and not significant effect on Poverty in Indonesia with a probability of 0.37. Probability value > 0.05, the third hypothesis proved to reject; it means that economic growth is not able to moderate the effect of unemployment on poverty.

#### 4. CONCLUSIONS

The increasing of economic growth could not moderate the effect of population, education, and unemployment on poverty in Indonesia on 2012-2018 periods. Although the moderate variable is a moderator homologizer, which means that the variable was potential to be a moderator, but the result shows that economic growth does not moderate to poverty.

Economic growth is cannot to optimize employment, although the level of population education obtained to increase. The mismatch of skills and expertise needed in employment with formal education that has been applied is one of the causes of unemployment.

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