

## THE EFFECT OF ECONOMIC GROWTH AND POVERTY ON INCOME INEQUALITY IN INDONESIA

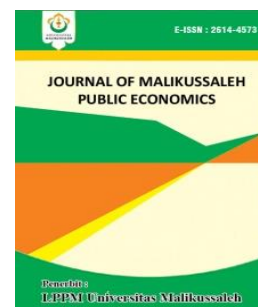
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### ARTICLE INFORMATION

### ABSTRACT

**Keywords:** *Economic Growth, Poverty, Income Inequality.*

*This study aims to determine the impact of economic growth and poverty on income inequality in Indonesia. This study uses secondary data in the form of time series data from Indonesia's Central Bureau of Statistics. The data analysis method used is multiple linear regression methods using Eviews 9. Partial test results show that economic growth has a positive and significant impact on income inequality in Indonesia, and poverty has a negative and significant impact on income inequality in Indonesia. At the same time, economic growth and poverty are positively affecting income inequality in Indonesia.*

### 1. INTRODUCTION

The success of development is not only seen from economic growth but also need to focus on government income structure of the population in each region and economic sectors. In fact, rapid economic growth create a level of income inequality. This occurred because we ignore the situation where economic growth is greater or smaller than population growth in a country (Sukirno, 2006). One of the main development goals is to increase fair income and equitable income so that income inequality does not occur. Income inequality is the unequal distribution of income received by society. Inequality is also linked to dictatorships and governments that don't respect property rights (Gleaser & Saks, 2006).

Economic growth is an increase in the long-term ability to provide various economic benefits for the population. The growth of addition of goods and services value can be seen in percentage. The value of economic growth can be seen whether positive or negative depend on the number of increasing or decreasing value of good and service in a country. The number of income inequality, economic growth and poverty level in Indonesia can be seen in table 1 as follows

**Table 1.1**

**Data on Income Inequality, Economic Growth, and Poor Population in Indonesia.**

| year | Income Inequality (Gini Index) | Economic Growth (%) | Poverty level (%) |
|------|--------------------------------|---------------------|-------------------|
| 2002 | 0,341                          | 4,5                 | 18,20             |
| 2003 | 0,32                           | 4,78                | 17,42             |
| 2004 | 0,32                           | 5,03                | 16,66             |
| 2005 | 0,355                          | 5,69                | 15,97             |
| 2006 | 0,35                           | 5,5                 | 17,75             |
| 2007 | 0,376                          | 6,35                | 16,58             |
| 2008 | 0,368                          | 6,01                | 15,42             |
| 2009 | 0,367                          | 4,63                | 14,15             |
| 2010 | 0,378                          | 6,22                | 13,33             |
| 2011 | 0,388                          | 6,17                | 12,36             |
| 2012 | 0,413                          | 6,03                | 11,66             |
| 2013 | 0,406                          | 5,56                | 11,47             |
| 2014 | 0,414                          | 5,02                | 10,96             |
| 2015 | 0,402                          | 4,79                | 11,13             |
| 2016 | 0,394                          | 5,02                | 10,70             |
| 2017 | 0,391                          | 5,07                | 10,12             |
| 2018 | 0,384                          | 5,06                | 9,66              |

Source : (BPS, 2019)

We can see that income inequality increase sharply from 0,341 in the year 2002 to almost

reaching 0,4 in the year 2018, which means that income inequality is moderate and close to high. If we look at the 2016 global version of the wealth report, The inequality in Indonesia is by the fourth worst inequality country after Russia, India and Thailand. The inequality in Indonesia is caused by rising prices of basic needs unequal inflation rates and also about two thirds of wealth is controlled by fewer rich Indonesians. The average income inequality data in Indonesia from 2002-2018 is 0.36.

Economic growth increase slowly from 2002 about 4,5 to 5,06 in 2018, even though there was a steady increase from 2005 to 2012 which heals from 5,60 percent to 6 percent. Poverty level is decreases sharply from 18,20 percent in 2002 to 9,06 percent in 2018. Unless, in the year 2006 poverty level increases to 17,75 percent due to increase in fuel price.

## 2. LITERATURE REVIEW

### Income inequality

Income inequality can also be interpreted as a situation where income cannot be equalized. This is driven by the level of development. Income inequality is also associated with dictatorships and governments that do not respect property rights (Gleaser & Saks, 2006).

According to (Musfidar, 2012) in this case, developed regions with those who are left behind. the greater the variability of income distribution, resulting in income inequality, only a small minority group with certain goals will benefit from the results of national achievements. High income inequality can reduce opportunities for a better life and increase family economic and Income inequality is a situation where income cannot be equalized. This is driven by unequal level of development. According to (Musfidar, 2012) income inequality is those who are left behind. The greater variability of income distribution only receive in a small group that will benefit from national achievements. High income inequality can reduce opportunities to have a better life and increase family income, along with reduce access to pursue high education between communities.

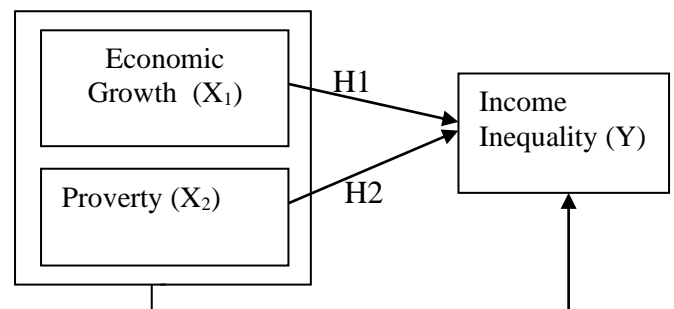
This creates an opportunity to gain livability. Income inequality follows an inverted U-shaped pattern, as Simon Kuznest suggests. In this model, inequality increases and then decreases along with the development process (Kuncoro, 2010). Income Inequality in this study depend on economic growth and proverty.

Economic growth is an ability of an economy to increase of availability goods and services in a coutry. According to (Kuncoro, 2004), economic growth can also be defined as an increase in Gross Domestic Product to provide more types of economic goods to the population. It grows in line with the necessary institutions and technology.

According to (Todaro, 2005) economic growth is a process of increasing long-term production of a country. Kuznest defines economic growth as an increasing of more types of economic goods for the population. This progress grows in line with technological advances and is needed according to ideology (Jhingan, 2010). Economic growth can be interpreted as the development of economic activities that lead to an increase in producing goods and services (Sukirno, 2011).

Poverty is the inability of a person to fulfill his needs. According to (Mikkelsen, 2003) poverty is a person's inability to obtain basic needs such as food, clothing and shelter. Poverty is also a condition in which a person fails to fulfill his basic rights to create a dignified life (Bappenas RI, 2005). The definition of poverty is also defined as household income is too low to obtain basic rights (Parkin, 2008).

### Conceptual Framework



**Figure 2.1 Conceptual framework**

Based on the conceptual framework, it is explained that the effect of the independent variable towards the dependent variable, namely economic growth ( $X_1$ ) poverty ( $X_2$ ) on income inequality ( $Y$ ) will be tested partially using the T test, and collectively all independent variables on the dependent use the F test.

### Hypothesis

The alternative hypotheses given in this study are as follows:

H1: It is assumed that economic growth has a negative and significant effect on income inequality in Indonesia

H2: It is assumed that poverty has a positive and significant effect on income inequality in Indonesia.

### 3. RESEARCH METHODOLOGY

The objects of this research are economic growth, poverty and income inequality. The research focuses on Indonesia. The study uses the data used is secondary data from 2002 to 2018.

#### Definition of Operational Variable

This part will explain the definition of each dependent and independent variables which are used in this research the definition is as follows,

#### Economic Growth ( $X_1$ )

Economic growth is a change in the economic conditions in Indonesia which can be seen from the increase in national income. This variable is measured in percent.

#### Poverty ( $X_2$ )

Poverty defines as the number of people who are inability to provide adequate food, clothing, housing, education and health less than the standard of living prevailing in the surrounding community. This variable is measured in percent.

#### Income Inequality (Y)

Income Inequality is defines as the high level of deferenciation between high and low income in Indonesia. The study uses the value of gini ratio.

#### Normality test

Normality test is used determine whether the residual has a normal distribution in the regression model. If there is normality, the normal is independent, i.e. the difference between the predicted and the real or the error is symmetrically distributed within the mean or zero. If one recognizes this normality, it occurs through residual observations (Ghozali, 2013). The normality test can be concluded by calculating the probability value of JB (Jarque-Bera) with an alpha value of 0.05 (5%). If the calculated JB probability is greater than 0.05 then the residuals are normally distributed. The normality test aims to find out the independent variables in the regression model have a normal distribution or not (Ihsan & Dkk, 2018).

#### Classical assumption test

##### Autocorrelation Test

The classical acceptance test consists of knowing whether a form of linear regression has a correlation between the interference error where the current state is influenced by the previous condition. The test uses the LM Orrelation serial test. To identify indications of autocorrelation or not, the value of  $obs * R$  square should be compared with the value of the chi-square table ( $\lambda^2$ ). This can also be seen from the chi-square probability value ( $\lambda^2$ ) which is greater than 0.05.

##### Heteroscedasticity Test

Heteroscedasticity test is used to determine whether there is an inequality of residual variance from one observation to another in the regression model. To identify heteroscedasticity, the  $obs * R$ -square value should be compared with the chi-square ( $\lambda^2$ ) table value. If the significance of the correlation is less than 0.05 then it has a heteroscedasticity problem, and vice versa. (Prayitno, 2010)

##### Multicollinearity Test

The purpose of the multicollinearity test is to see whether the regression model finds perfect and near perfect correlations between independent variables. In a good regression model, there should be no perfect or near perfect correlation with the independent variables (Prayitno, 2012). The correlation value between independent variables must be below 0.8 (Gujarati & Porter, 2009) so that the model can be described as free of multicollinearity.

#### Data analysis method

This study uses quantitative analysis methods. The quantitative analysis used consists of estimation of time series data regression model, the data analysis software is Eviews 9. Several linear regression equations using the OLS method, classical acceptance deviation test and statistical tests. Multiple linear regression analysis is used to see the effect of independent variables on dependent variable with not one independent variable (Yamin & Kurniawan, 2011). The linear equations is as follows:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + e_t$$

definition:

Y = Income Inequality(Gini Index)

$X_1$  = Economic growth(%)

$X_2$  = Poverty(%)

$\beta_0$  = Constant

$\beta_1, \beta_2$  = Regression coefficient  
 $e_t$  = Error- term

### Hypothesis test

#### Partial Test (t-Test)

The t-test is conducted to determine whether the independent variables had a partial or significant effect on the dependent variable. Provisions can be known by using the t test. The determination of acceptance of the hypothesis by t test is as follows:

- The  $t_{count}$  regression value is compared to  $t_{table}$ . If  $t_{count} > t_{table}$ , then there is a partially significant effect
- If  $t_{count} < t_{table}$  then there is no partially significant effect.

#### Simultaneous Test (F-Test)

The F test is used to determine whether all of the independent variables simultaneously have a significant effect on the dependent variable. Proof is done by comparing the ( $f_{count}$ ) value to ( $t_{table}$ ) value as the following criteria:

- If  $f_{count} > f_{table}$  then hypothesis alternative is accepted, meaning that statistically it can be proven that the independent variables have an effect on the dependent variable.
- If  $f_{count} < f_{table}$  then hypothesis null is accepted, meaning that statistically it can be proven that the independent variables have no effect on the dependent variable

To determine the value of  $f_{table}$ , we can look at the significant level of 5% with degrees of freedom  $df = (n-k)$  and  $(k-1)$  where  $n$  is the number of observations.

#### Coefficient of Determination ( $R^2$ )

According to (Prayitno, 2010) states that the analysis of determination is used to determine the percentage contribution of the influence of the independent variable (X) simultaneously on the dependent variable (Y).

If  $R^2 = 0$ , then there is no contribution of influence given by the independent variable to the dependent variable, the variation of the independent variable used in the model does not explain the slightest variation of the dependent variable. On the other hand, if  $R^2 = 1$ , then the percentage contribution of the effect given by the independent variable to the dependent variable is perfect, or the variation of the independent variable used in the model explains 100% of the variation in the dependent variable.

### Correlation Coefficient (R)

The correlation coefficient is a value that indicates whether or not there is a strong relationship between one to another variable. According to (Sugiyono, 2009) if the correlation coefficient is 0.70 to close to 1.00 indicates a high degree of relationship, the correlation coefficient is greater than 0.40 and below 0.70 indicating the degree of moderate relationship, if the correlation coefficient is above 0.20 to 0.40 then it indicates a low degree of relationship.

## 4. RESEARCH RESULTS AND DISCUSSION

### Results of data analysis

#### Statistical descriptive analysis

In the descriptive statistical analysis will be seen how the average, maximum value, minimum value and standard deviation in the study. The results of the descriptive analysis as stated in table 4.1 are as follows :

**Table 4.1 Descriptive Statistical Results**

|              | Income Inequality | Economic Growth | Poverty  |
|--------------|-------------------|-----------------|----------|
| Mean         | 0,374529          | 5,378235        | 13,73765 |
| Median       | 0,378000          | 5,070000        | 13,33000 |
| Maximum      | 0,414000          | 6,350000        | 18,20000 |
| Minimum      | 0,320000          | 4,500000        | 9,660000 |
| Std. Dev.    | 0,029445          | 0,605085        | 2,949090 |
| Observations | 17                | 17              | 17       |

Source : Processed Data (2019)

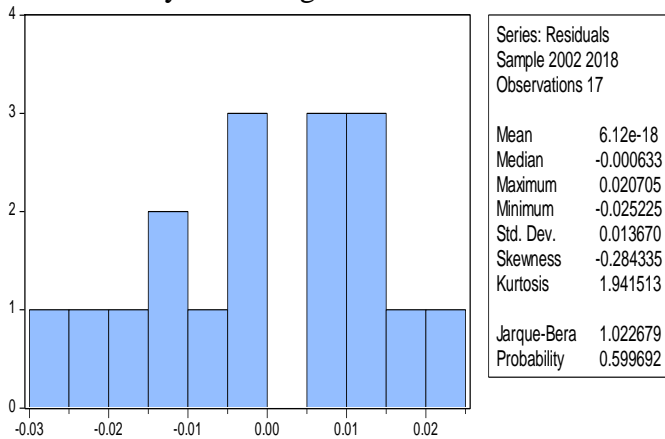
By looking at table 4.1 above, it showed that income inequality has a mean of 0.37 with a standard deviation of 0.029. The mean value is above the standard deviation which indicates that the fluctuation of the dependent variable between 2002 and 2018 is low (small). The highest value of income inequality is 0.41 and the lowest value is 0.32. The number of observations of income inequality is 17.

The first independent variable is economic growth measured in percent. It has an average of 5.4 with a standard exchange rate of 0.60. If the mean is high than the standard deviation, it indicates that the fluctuation in the data is a small fluctuation. The highest economic growth is 6.35 and the lowest is 4.50.

The second independent variable is the level of poverty as measured by percent. It has a mean of 14 with a standard deviation of 2.94 where the mean is higher than the standard deviation value which indicates that the fluctuation of the data is a small fluctuation. The highest poverty rate is 18.20 and the lowest is 9.66 percent.

**Normality test results**

Normality test is done to see whether the mixed or residual variables have a normal distribution in the regression model. The results of the normality test in Figure 4.1 below:



Source: Data processed (2019)

**Figure 4.1 Normality test results**

Based on the picture 4.1 above, it can be seen that the Jarque Bera value is smaller than the Chi-Square ( $\lambda^2$ ) table of  $1.022 < 5.99$ , and the probability value is  $0.59 > 0.05$ . Therefore, it can be concluded that the residual data in this study is normally distributed.

**Classical Assumption Test Result**

**Autocorrelation Test Results**

The way to detect an indication of autocorrelation or not is by looking at the obs\*R square value compared to the Chi-Square value, and it can also be seen from the ( $\lambda^2$ ) probability value greater than 0.05. The results of the autocorrelation test can be seen in Table 4.2.

**Table 4.2 Autocorrelation Test Results**

reusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 2.197908 | Prob. F(2,12)       | 0.1537 |
|               |          | Prob. Chi-Square(2) |        |
| Obs*R-squared | 4.557801 |                     | 0.1024 |

Source : Processed Data (2019)

From the results of the table 4.2 above, we can see that Obs\*R-squared is compared to the chi-square table ( $\lambda^2$ ) of df(2) at 5%, or 5.99. Where  $4.55 < 5.99$  and the probability value of ( $\lambda^2$ ) is  $0.1024 > 0.05$ , and it can be concluded that there is no autocorrelation.

**Heteroscedasticity test results**

Heteroscedasticity is a test to know whether in a regression model has a residual variance in inequality from one to another observation. The level of significance is less than 0.05. The results can be seen in table 4.3 as follows :

**Table 4.3 Heteroscedasticity Test Results**

Heteroskedasticity Test: White

|                     |          |                     |        |
|---------------------|----------|---------------------|--------|
| F-statistic         | 0.964526 | Prob. F(2,14)       | 0.4051 |
|                     |          | Prob. Chi-Square(2) |        |
| Obs*R-squared       | 2.058747 |                     | 0.3572 |
| Scaled explained SS | 0.657291 | Prob. Chi-Square(2) | 0.7199 |

Source: Data processed (2019)

From the results of table 4.3, it can be concluded that the value of obs\*R-square is 2.05 smaller than 5.99 compared to the chi-square table  $\lambda^2$  in df (2). This is can also be seen from the probability value of  $\lambda^2$   $0.3572 > 0.05$  then there is no symptom of heteroscedasticity.

**Multicollinearity Test Results**

The correlation between independent variables should be below 0.8 (Gujarati & Porter, 2009). Then the problem of multicollinearity is free from the model. The results of multicollinearity test are presented in table 4.4.

**Table 4.4 Multicollinearity Test Results**

|                 | Economic Growth         | Poverty Level           |
|-----------------|-------------------------|-------------------------|
| Economic Growth | 1                       | 0,01369572363993<br>956 |
| Poverty Level   | 0,01369572363993<br>956 | 1                       |

Source: Data processed (2019)

From table 4.4 above, is can be seen that the dependent variable has a value below 0.8. Thus, it can be concluded that the multicollinearity is free from the regression model.

**Multiple Linear Regression Analysis Results**

This regression test is to find out how the influence of the independent variable on the dependent variable. Based on the results of multiple linear regression tests are presented in table 4.5 below :

**Table 4.5 Multiple Linear Regression Analysis Results**

| Variable           | Coefficient | Std. Error         | t-Statistic | Prob.    |
|--------------------|-------------|--------------------|-------------|----------|
| Economic Growth    | 0.013186    | 0.006039           | 2.183550    | 0.0465   |
| Poor Population    | -0.008456   | 0.001239           | -6.825171   | 0.0000   |
| C                  | 0.419784    | 0.036632           | 11.45946    | 0.0000   |
| R-squared          | 0.784457    | Mean dependent var |             | 0.374529 |
| Adjusted R-squared | 0.753665    | S.D. dependent var |             | 0.029445 |
| F-statistic        | 25.47610    | Durbin-Watson stat |             | 1.072306 |
| Prob(F-statistic)  | 0.000022    |                    |             |          |

Source: Processed data (2019).

From the table 4.5 above, multiple linear equation can be from as,

$$Y = 0.419784 + 0.013186 X_1 - 0.008456 X_2$$

From the equation above, we can see that the results of multiple linear regression analysis are:

1. The constant of 0.419784 indicates that if the variables of economic growth and poverty are zero, then the dependent variable of income inequality (Y) will be at 0.419784.
2. The coefficient variable of economic growth ( $X_1$ ) has a value of 0.013186. There is a positive impact of  $X_1$  to Y. That is, for an increase of 1% in  $X_1$ , will increase income inequality by 0.013186.
3. The coefficient regression of poverty ( $X_2$ ) has a value of -0.008456. It has a negative impact on income inequality. This means that if poverty increases by 1%, then income inequality decreases by 0.008456.

## Hypothesis Test Results

### Partial test results (t-test)

This study uses t-test to test the hypothesis. The t-test is used to see partially the effect of the independent variable on the dependent variable. The decision criterion is to look at the t value by comparing it to the t table value. The results of the hypothesis test are:

1. Economic growth has a positive and significant effect on the dependent variable. This is indicated by the  $t_{count} > t_{table}$  which is  $2.183 > 1.761$  and the probability of  $\alpha$  is smaller than 0.05 which  $0.04 < 0.05$ . This study accepts hypothesis alternatif (H1).
2. Poverty has a negative and significant effect on income inequality. This is indicated by the results of  $t_{count}$  is greater than  $t_{table}$  which is  $6.825 > 1.761$  and the level of probability of  $\alpha$  is smaller than 0.05 which  $0.00 < 0.05$ . So this study accept hypothesis alternatif (H2).

### F.test results

Based on table 4.5, it turns out that  $f_{count}$  is greater than  $f_{table}$  which is  $25.476 > 4.49$ . The probability of  $\alpha$  is smaller than 0.05 which is  $0.000 < 0.05$ . This allows us to conclude simultaneously economic growth  $X_1$  and poverty ( $X_2$ ) have a positive effect on income inequality (Y)

## Coefficient of determination ( $R^2$ )

Based on the results of the multiple linear regression of  $R^2$  test in table 4.5, the value of the Adjusted R Square is 0.753665 or 75.37 percent. This means that the economic and poverty greatly affect the dependent variable by 75.37 percent. While the remaining 14.63% is influenced by other factors outside the model.

## Correlation coefficient (R)

From the results of the table 4.5, it can be concluded that the determination ( $R^2$ ) is 0.7845, these results are very positively related, because the value of R is 0.88572 and close to one.

## Discussion

### The Effect of Economic Growth on Income Inequality

The economy has a positive impact on income inequality. That is, along with increasing economic growth, income inequality also occurs and vice versa. It is in line with Karl Marx's theory. Economic growth in Indonesia is still in developing stage because the national income of Indonesia is dominantly used by the upper class, so the government must create inclusive growth, namely growth that expands opportunities to economy, for example income stability can be enjoyed by all levels of society, not just a group of upper class people. This study is in line with research (Chambers, 2010) and (Rubin & Segal, 2015) which conclude that economic growth has a positive and significant effect on income inequality.

### Impact of Poverty on Income Inequality

The result of this research is against the theory. This impact is caused by the reason of the stage of developing country where the government is not much paying attention on stabilizing the income inequality in the country, especially government creates level intensive on industrial and agricultural sectors. These sectors can create jobs to generate income for the poor. This study is in line with research (Abdullah, 2013) which concludes that poverty has a negative and significant impact on income inequality.

## 5. CONCLUSIONS AND SUGGESTIONS

### Conclusion

Based on the results of the research and discussion, the result concludes to the following condition :

1. Economic growth has a positive and significant impact on income inequality in Indonesia
2. Poverty has a significant and negative impact on income inequality in Indonesia.
3. Economic growth and poverty simultaneously give a positive impression of income inequality in Indonesia. Economic growth and poverty explain income inequality in Indonesia as much as 75.37%, while the remaining 14.63% is explained by other variables.

### Recommendation

The recommendation in this study are as follows:

1. For the Indonesian government, it should pay attention to the condition of the level of income inequality so that the government have to work to decline income inequality.
2. Economic growth must be increased inclusively, such as developing agriculture-based industry (agribusiness).
3. Poverty reduction can be pursued by increasing labor intensive development activities and developing the agricultural sector.
4. For future research, it is recommended to add other variables in the study, such as unemployment.

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