

THE INFLUENCE OF ECONOMIC GROWTH TO POVERTY AND ITS RELATION TO THE PRO POOR IN INDONESIA

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Abstract

This research aims to examine the extent to which Indonesia is able to carry out pro poor growth. To solve this problem, the authors use Pro Poor Growth Index as an analysis tool. The results show that during 2004-2013, economic growth in Indonesia is pro-poor so that the benefits of economic growth can be felt throughout society. Another objective of this research was to determine the effect of economic growth on poverty in Indonesia, both directly and indirectly. In the indirect effects, economic growth will affect intermediary aspects. These aspects consist of inequality, human development, and unemployment. The author used path analysis as an analysis tool. The results showed that human development is the most influential intermediary aspect on the relationship between economic growth and poverty so that the government has to increase the education, health, and purchasing power aspects so that the poverty rate decreased faster.

Keywords: *pro-poor growth, economic growth, inequality of income distribution, human development, unemployment, poverty, path analysis*

1. INTRODUCTION

Poverty is a classical problems that suffered all over countries in the world especially the third world countries such as Indonesia. Poverty alleviation issue is the responsibility of the Indonesian government. It has listed in the Indonesian Constitution article 34, paragraph 1-4. In the past period especially in the orde baru regime, Indonesia using trickle down effect as a poverty alleviation. This method explains that economic growth could improve the welfare of the whole society through the labor creation. It shows that poverty is highly dependent on the capitalist, so that this methods has a low level of effectiveness to reduce the poverty issue. Based on the research by Kakwani and Pernia (2000) in Farwati (2012), trickle down effect actually increases the inequality of income distribution so that the the number of poverty would be increased. This is because the poor are dependent on the employers/capitalists who have a larger capital and greater income level than other people in a country.

Based on the explanation above, it can be concluded that poverty issue can be solved through economic growth acceleration. This is in line with the research of Siregar (2006) where economic growth is the most essential thing to

alleviate poverty issue, and it would be more effective if government can synchronize the economic growth with equalization of income distribution. On the other hand, Bourguignon (2004), with the Triangle of Poverty-Growth-Inequality Theory said that there are three essential aspects that can reduce poverty issue, that is economic growth, distribution of income equalization, and poverty itself.

Economic growth is not always pro-poor. In some cases, there is inequality increasing of income distribution which triggers an increase in the number of poor families in a country. The above statement is in line with the research by Hull (2009), which indicates that economic growth will produce a positive effect on poverty if economic growth is employment intensive. Otherwise, when the economic growth is capital intensive, the unemployment will not be absorbed properly or even increased, thus increasing inequality of income distribution and social welfare will decrease. This will actually increase the number of poverty in a country.

The core of the problem above is, has the Indonesian government been able to implement pro-poor growth economic policy? Moreover, because poverty is a multidimensional problem and affects many aspects, it can be said that the problem of poverty can be solved in many different ways. In this research, economic

growth allegedly able to alleviate the poverty directly or indirectly. In the indirect effects, economic growth is expected to affect other aspects first before affects the poverty. In this research, the intermediary aspects consist of inequality of income distribution, unemployment, and human development. This research aims to find the most influential intermediary aspect that can reduce the number of poverty in Indonesia.

This research aims to determine whether the economic growth that occurred during the research period has been pro-poor or not, also to find how pro poor is the Indonesian economic growth along period studies. It can be measured using the Pro Poor Growth Index (PPGI). In addition, this research will examine the effects of economic growth on poverty, where this effect is divided into direct effects and indirect effects. The amount of direct and indirect effect can be measured using the path analysis. Based on the result of the indirect effect, there will be found the intermediaries aspect that have the most impact on poverty alleviation. This research uses the panel data, where the unit of analysis is all provinces in Indonesia during 2007-2013.

2. RESEARCH METHOD

2.1. Data and Variables Measurement

The scope of this research are all the Indonesian provinces for the period of 2007-2013. For this reason, a panel data analysis would be the most appropriate method because the data used are time series data of all provinces in Indonesia during the period 2007-2013. There are some major benefits from using panel data. First, to get more reliable estimation parameter of the model. Second, to identify and measure effects that cannot be identified and measured individually using cross-sectional data or time-series data. Third, to control for unobservable factors that vary across units and over time. Based on these reasons, the model can substantially reduce estimation bias. Furthermore, panel data analysis is also usually less multi colinearity among explanatory variables rather than time-series or cross-section data alone. As a result, the empirical model will has more pre- cise parameter estimates.

The sample of this research is 33 Indonesia provincial data that consist of five variables, that

is poverty rate, economic growth, inequality of income distribution, human development, and unemployment. On this research, the proxy of economic growth is regional gross domestic product (GRDP) per capita. Then the proxy of poverty rate is poverty headcount index (PO), inequality of income distribution is Gini Index, the proxy of human development is Human Development Index (HDI), and the proxy of unemployment is open unemployment rate.

All data used in this research are collected from Indonesian Central Statistic Agency (BPS), so these data are secondary data.

2.2. Research Method

This research uses two types analysis tool, those are path analysis and Pro Poor Growth Index (PPGI). Path analysis aims to find the most influence intermediary variabel in the indirect effect of economic growth to poverty, and PPGI aims to determine whether the economic growth that occurred during the research period has been pro-poor or not, also to find how pro poor is the Indonesian economic growth along period studies.

The path analysis used in this research divided into two substructure. The first substructure aims to describe the relationship between economic growth (X) with all of the intervening variables, those are inequality of income distribution (Z1), human (Z2), unemployment (Z3). The first substructure contains three linear regression equations based on the amount of intevening variables stated above:

$$Z_1 = b_1X + \varepsilon_1 \dots \dots \dots (1)$$

$$Z_2 = b_2X + \varepsilon_2 \dots \dots \dots (2)$$

$$Z_3 = b_3X + \varepsilon_3 \dots \dots \dots (3)$$

The second substructure aims to describe the relationship of economic growth (X), inequality of income distribution (Z1), human development (Z2), and unemployment (Z3) to poverty (Y). This substructure contains a multiple linear regression equation as stated below:

$$Y = b_4X + b_4Z_1 + b_4Z_2 + b_4Z_3 + \varepsilon_4 \dots \dots \dots (4)$$

The next step after find the result of those substructure for each path is the trimming test. This trimming method would be used when there is a path that does not have any significant value to influence the endogenous variables (this endogenous can be the intervening variable/ Z1, Z2, Z3, or the dependent/Y variable). This

insignificant variables will be removed from the path analysis model.

Then to measure the value of Pro Poor Growth Index (PPGI), the first step is to find the best model between common effect (OLS), fixed effect, and random effect because this research using panel data. Model selection among these three approaches will be conducted using F test and Hausman test. F test is used to choose which is the best model between common (OLS) and fixed effects is. Meanwhile, random effects against fixed effects approach will be selected based on Hausman criterion. A Hausman test is a widely accepted method to compare the fixed and random effects for testing to this assumption (Baltagi, 2005). The next step is the hypothesis testing, these are R2 test, F test, and t test. The last step is measuring the PPGI value. The PPGI contains two model, those are:

Gross Impact

$$\text{Log } P_{kt} = \omega + \gamma \text{Log } W_{kt} + \delta \text{Log } G_{kt} + \omega_k + \varepsilon_{kt} \dots \dots \dots (5)$$

Index:

- P_{kt} : The poverty rate in the k area in t period
- γ : Gross elasticity of economic growth on poverty
- G_{kt} : Gini index for the k area in t period
- W_{kt} : Economic growth in the k region in t period
- ω_k : Fixed effect/random effect
- ε_{kt} : Error term

Net Impact

$$\text{Log } P_{kt} = \varphi + \lambda \text{Log } W_{kt} + \varphi_k + \varepsilon_{kt} \dots \dots \dots (6)$$

Index:

- P_{kt} : The poverty rate in the k area in t period
- λ : Net elasticity of economic growth on poverty
- ω_k : Fixed effect/random effect
- ε_{kt} : Error term

After all the above steps done, then the next step is to determine the amount of pro-poor growth index which is the goal of this research. At this stage, this research used the Pro-Poor Growth Index (PPGI) developed by Kakwani and Pernia (2000) in Laksani (2010) as shown in the following equation:

$$PPGI = \frac{\text{Net Impacts of Growth to Poverty}}{\text{Gross Impacts of Growth to Poverty}}$$

To find which categories of pro poor Indonesia are, see the index below:

- $\emptyset \leq 0$: anti pro poor
- $0 < \emptyset \leq 0,33$: low pro poor
- $0,33 < \emptyset \leq 0,66$: moderate pro poor
- $0,66 < \emptyset \leq 1,0$: pro poor
- $1,0 < \emptyset$: very pro poor

3. RESEARCH FINDING AND DISCUSSION

3.1 Path Analysis

The path analysis test results on the whole path shown on this figure below:

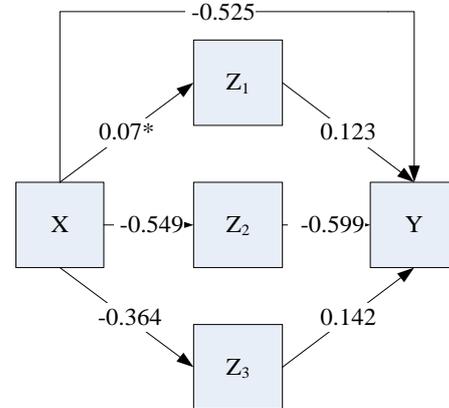


Figure 1. Path Analysis Result (Before Trimming)
Source: Author's calculation

Index:

- X : Economic Growth
- Z₁: Inequality of Income Distribution
- Z₂: Human Development
- Z₃: Unemployment
- Y : Poverty
- * : Non-significant

The result of path analysis of both substructures are shown on the figure 1. On the figure 1, there is a path/variable relation that has a non-significant value, that is X→Z1. It is showed that economic growth does not affect the inequality of income distribution. Because of this path was not significant, then this path should be excluded (trimmed) on the next step.

The result after trimming test shown on the Figure 2.

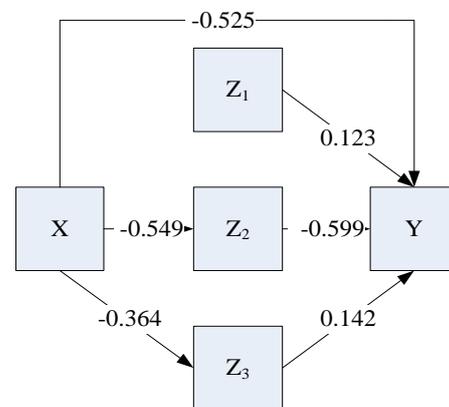


Figure 2 Path Analysis Result (Before Trimming)
Source: Author's calculation

3.1.1. Indirect Effect of Economic Growth on Poverty through Income Distribution Inequality

On the indirect effect of economic growth on poverty through the inequality of income distribution, the path coefficient is not significant. This shows that during the research period, the rise and fall of the Gini index is not affected by economic growth. But on the other path, the path of inequality of income distribution to poverty ($Z1 \rightarrow Y$), it was found that the inequality of income distribution have a positive and significant impact on poverty. The path coefficient is 0.123. It means that for each 1% changes in the Gini index, then the poverty will increase by 0.123% in the same period.

This results is in line with Ravallion (2001) and Adams (2004) where GDP per capita does not affect inequality of income distribution. That research used a sample of 50 developing countries. Both studies showed a rejection of the Kuznets hypothesis in which there is a trade off between economic growth and inequality of income distribution. Referring to the statement of Arsyad (2010), one of the factors behind the inequality of income distribution is just because the amount of capital intensive investment are larger than the amount of labor intensive investment so the number of unemployment tend to increase. These factors are relevant to the conditions that occurred during the research period. In that period, the number of capital-intensive investment are greater than the number of labor-intensive investment. During the 2008-2013 period, the labor sector in Indonesia is still dominated by the informal sector workers and around 70% while the rest is formal sector workers.

This research found that there is no significant effect of economic growth on the inequality of income distribution. This is in line with Tambunan (2009), the positive relationship between economic growth and income distribution equalization in the long-term period only occurs in countries with a high level of GDP. In low-income countries, the relationship between economic growth and inequality of income distribution tends to be unstable or volatile so the ups and downs of economic growth does not give any effect to the rise and fall of the inequality of income distribution. This may explain why on the path of economic growth to inequality of income distribution

($X \rightarrow Z1$) is not significant. This happened because Indonesia's GDP is low. Based on data from the World Bank, Indonesia is at the lower middle income country category so that the effect of economic growth on inequality of income distribution tends to be not significant.

3.1.2. Indirect Effect of Economic Growth on Poverty Through Human Development

On the indirect effect of economic growth on poverty through human development, the path coefficient is negative and significant, or in other words, economic growth was able to reduce poverty through human development. These indirect effects are divided into two path. Those path are the effect of economic growth to human development ($X \rightarrow Z2$) and the effect of human development to poverty ($Z2 \rightarrow Y$). Both of them have a significant influence, but in a different direction. Economic growth provides a significant and positive impact on human development during the research period. The results showed that for every 1% increase in economic growth will increased the HDI to 0.549%. This suggests that economic growth is able to improve the welfare of the society during the research period. The education, health, and the level of purchasing power which are the HDI components would be increased if the economic growth is on a positive trend. On the path of the human development effect to poverty, there is a negative and significant. This research shows that for every 1% increase in human development, the poverty level would fall by 0.599%. So, when human capital increases, the poverty will decline. Total coefficient obtained is equal to -0.329. So, at every 1% increase in economic growth will reduce the number of poor people as much as 0.329% if through human development first.

3.1.3. Indirect Effect of Economic Growth on Poverty Through Unemployment

On the indirect effect of economic growth to poverty through unemployment intervening variables, the path coefficient is negative and significant, or in other words, economic growth was able to reduce poverty through unemployment. These indirect effects are divided into two paths, those are the effect of economic growth on unemployment ($X \rightarrow Z3$) and the effects of unemployment to poverty ($Z3 \rightarrow Y$). Both of them have a significant influence, but in a different direction. Economic

growth provides a significant negative impact on unemployment during the research period. The results showed that for every 1% increase in economic growth will push down 0.364% the unemployment rate. This shows that economic growth affected a rise in employment over the research period. On the path of unemployment to poverty, there is a positive and significant relationship. This research shows that in every 1% increase in the open unemployment rate, then poverty would increase by 0,142%. So, when the unemployment rate increases, the poverty will be increase. Total coefficient obtained is equal to -0.052. So, at every 1% increase in economic growth will reduce the number of poor people as much as 0.052% if through unemployment first. This effect is smaller compared with the direct effects of economic growth on poverty.

The conclusions obtained in this research is, during the research period, the economic growth tends to be pro-job and this means Indonesia can achieve one of the triple track strategy that stated on their RPJMN. And we can said that the economic growth is labor intensive rather than capital intensive.

3.2 Pro Poor Growth Index (PPGI)

3.2.1. Data Panel Analysis

The first step is to found the best model that can describe the gross impact and net impact properly. The best model taken between three models those are OLS, Fixed Effect, and Random Effect. The best method to describe the gross impact shown on Table 1.

Table 1. Chow and Hausman Test for Gross Impact

Test	Chi ²	P-Value	Result
Chow	731.4	0.0000	FEM
Hausman	5.8	0.0548	REM

Source: Author's computation

To decide the best method between OLS and Fixed Effect Model (FEM), we have to use Chow Test. The result shows that the chi-square and the p value of this test is significant on the 5% of confidence level ($\alpha=0.05$), so we can reject the null hypothesis and the best model on the Chow test is Fixed Effect Model (FEM). Then we conduct the Hausman test to found the best method between Fixed Effect Model (FEM) and Random Effect Model (REM). Based on the Hausman test on figure above, the p-value is not significant on 5% confidence level ($\alpha=0.05$), so

we fail to reject the null hypothesis. Thus, instead of Fixed Effect Model, Random Effect Model (REM) is favour to explain the gross method model.

After that, we have to do the similar test to find the best method to describe the net impact. The test result shown on the Table 2.

Table 2. Chow and Hausman Test for Net Impact

Test	Chi ²	P-Value	Result
Chow	671.61	0.0000	OLS
Hausman	10.3	0.0013	FEM

Source: Author's computation

Chow test result shown that the chi-square and the p value of this test is significant on the 5% of confidence level ($\alpha=0.05$), so we can reject the null hypothesis and the best model on the Chow test is Fixed Effect Model (FEM). Then we conduct the Hausman test to found the best method between Fixed Effect Model (FEM) and Random Effect Model (REM). Based on the Hausman test on figure above, the p-value is significant on 5% confidence level ($\alpha=0.05$), so we can reject the null hypothesis, and the best method on this Hausman test is Fixed Effect Model (FEM).

The next step is do the hypothesis testing using t-test, F-test, and R2 test on gross impact and net impact model. The result of those test shown on Table 3.

Table 3 Hypotesis Testing on Gross Impact

Variable	R ²	P-Value	Coeff
W→P	0.520	0.000	- 0.489
G→P	0.520	0.000	0.397

Source: Author's computation

Based on the test above, both of economic growth (W) and inequality of income distribution (G) affect poverty (P) because the p-value of W and G are significant on 5% confidence level ($\alpha=0.05$).

Then the result of hypothesis testing on net impact shown on Table 4.

Table 4. Hypotesis Testing on Net Impact

Variable	R ²	P-Value	Coeff
W→P	0.960	0.000	- 0.460

Source: Author's computation

Based on the test above, economic growth (W) affects poverty (P) because the p-value of P and W is significant on 5% confidence level ($\alpha=0.05$).

Then the last step is PPGI calculation. the PPGI calculation is derived from the ratio of the net effect of economic growth on poverty ($W \rightarrow P$ net impact) to the gross effect of economic growth on poverty ($W \rightarrow P$ gross impact). The result of this calculation shown on Table 5.

Table 5. PPGI Measurements

Net Impact	Gross Impact	PPGI
- 0.460	- 0.489	0.941

Source: Author's computation

During the research period, the Indonesian government is able to implement the pro-poor growth so that economic growth that occurs can be enjoyed by all levels of society. This is in line with the results of the pro poor growth measurements using Pro Poor Growth Index which is worth close to 1 ie 0.941. Based on PPGI index, this value is classified as pro-poor.

4. CONCLUSION AND SUGGESTION

Overall, the direct and indirect influence of economic growth on poverty is positive and significant, but the effect of economic growth on poverty through the inequality of income distribution does not have a significant influence in affecting poverty. Based on the analysis performed, it was found that the intervening variables that have the greatest influence on the relationship between economic growth and poverty is human development. This shows that the aspect of education, health, income levels and purchasing power is the most important aspects to solve the poverty issue in Indonesia so that the government should increase the investment in human capital that can be realized by building or improving the schools and universities quality on all over Indonesian region. In addition, the government should improve the quality of teaching staff, one of them through a certification program, also increase the distribution of teaching staff to the remote areas, so the inequality of education in Indonesia can be decreased. In health sector, the government should increase the number of health infrastructure such as hospitals and health centers, and make the treatment cost more affordable through BPJS program and improve the distribution of paramedic to the remote areas so that the limited access to health care can be minimized.

Based on the identification rate of economic growth on poverty alignments using PPGI analysis tools, economic growth in Indonesia is

pro-poor poor. These findings also indicate that the Indonesian government has been able to carry out a triple-track strategy because the economic growth is pro poor. In addition, economic growth during the research period is also on a positive trend. For the aspects of pro-jobs, economic growth that occurred during the research period showed that economic growth gives a negative influence and significant impact on the unemployment rate, or it can be said that the economic growth during the research period were able to decrease the unemployment rate so that pro job strategies can be said to be going well.

5. ACKNOWLEDGEMENT

The deepest gratitude is delivered to:

1. Prof. Dr. Ir. Mohammad Bisri, M.Si. as the Rector of Brawijaya University.
2. Prof. Candra Fajri Ananda, Ph.D. as the Dean of Economic and Business Faculty of Brawijaya University.
3. Dr. Moh. Khusaini, SE., M.Si., as the Head of Master Study Program Department Brawijaya University.
4. Prof. Dr. Khusnul Ashar, SE., MA. and Mr. Devanto Shasta Pratomo, SE., M.Si., Ph.D. as promotor and co-promotor.
5. Dr. Moh. Khusaini, SE., M.Si., MA and Dr. Sri Muljaningsih, SE., M.Sp. as supervisor and co-supervisor.

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