



Economic Growth and Poverty: The Mediating Effect of Employment

Sodik Dwi Purnomo¹, Istiqomah²✉

^{1,2}Faculty of Economics and Business, Universitas Jenderal Soedirman

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Abstract

The results of previous research on the relationship between economic growth and poverty have shown inconclusive results. This could be due to the fact that the relationship between these variables is indirect. Therefore, this study tries to introduce employment opportunity as a mediating variable. In addition, the authors also examined the effect of control variables consisting of dependency ratio, education, and infrastructure. The data used in this study are panel data of 6 provinces on Java Island in the period of 2000-2017. The methods used in this study are path analysis and multiple linear regression. The results show that employment opportunity perfectly mediates the relationship between poverty and economic growth. This study also found that dependency ratio and education had a significant effect on poverty, while infrastructure had a negative, but insignificant effect on poverty. The perfect mediating effect implies that economic growth will reduce poverty only if the economic growth is able to generate employment opportunities. These findings imply the importance of inclusive growth that gives access to the poor to work and business opportunities.

Key words : Economic Growth, Employment Opportunities, Poverty, Path Analysis

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✉ Corresponding author :
Address: Jl. Profesor DR. HR Boenyamin, Purwokerto,
Banyumas
E-mail: istiqomahsubechan@gmail.com

INTRODUCTION

The purpose of development is poverty reduction that can be achieved through economic growth (Kakwani, Neri, and Son, 2010). This is based on the theory of trickle-down effect that was first triggered by Arthur Lewis (1954) and developed by Ranis and Fei (1968). This theory became one of the topics in the literature on economic development in least developed countries/LDCs) in the 1950s and 1960s (Aghion & Bolton, 1997). The trickle-down effect theory explains that the progress of a group of people will automatically trickle down, thus creating jobs and economic opportunities which will eventually grow various conditions in order to create even distribution of economic growth (Todar & Smith, 2011).

Economic growth can have a positive impact on poverty reduction if economic growth takes place in favor of the poor (Siregar & Wahyuni, 2007). Kakwani, Neri, & Son (2010) also states that economic growth is a necessary condition for poverty reduction, That is, growth should spread in each income group, including the poor (growth with equity). Previous studies show inconclusive results. Some researchers such as Suliswanto (2010), Ramdani (2015), and Moore & Donaldson (2016) found that economic growth had a negative effect on poverty.

This means that the increase in economic growth is followed by a decrease in poverty. However, other researchers such as Afzal, Malik, Begum, Sarwar, & Fatima (2012), Iswara (2014), and Berardi & Marzo (2017) found that economic growth had no effect on poverty. Thus research that can explain the differences in the findings above is needed. One explanation for the differences in the

results of these studies is that the relationship between growth and poverty does not occur directly. This means that economic growth does not necessarily reduce poverty. The authors supposed that there are intervening variables that mediate the relationship between economic growth and poverty. In this study, the authors examined whether employment opportunity mediate the relationship between economic growth and poverty.

Logically, one of the causes of poverty is unemployment. In order to alleviate poverty, economic growth must be able to create jobs. Empirical facts show that economic growth is often driven by capital-intensive sectors that do not provide employment for the community and thus have no impact on poverty alleviation. The notion of the importance of the role of employment opportunities in the relationship between economic growth and poverty alleviation is based, among others, on the arguments of Jonaidi (2012) and Awandari & Indraajaya (2016), that high economic growth should provide a lot of employment. Jonaidi (2012) explains that employment opportunities play an important role in the effect of economic growth on reducing poverty. In addition, Merdekawati Budiantara (2013) employment opportunities and poverty have a very close relationship. This study is an empirical study in 6 provinces in Java. Java Island was chosen because the number of poor people in Java is the highest compared to other islands in Indonesia. On the island of Java, there are three provinces with the highest number of poor people, namely West Java, East Java and Central Java. Table 1 shows the number of poor people by islands in Indonesia.

Table 1. Number of poor people based on islands in Indonesia 2018

No	Islands	Poor population (thousand persons)	Percentage (%)
1	Java	13,265.19	51.40
2	Sumatera	5,949.05	23.04
3	Sulawesi and Maluku	2,445.01	9.57
4	Bali and Nusa Tenggara	2,044.73	7.92
5	Papua	1,130.49	3.37
6	Kalimantan	977.73	3.78
Indonesia		25,812.19	100.00

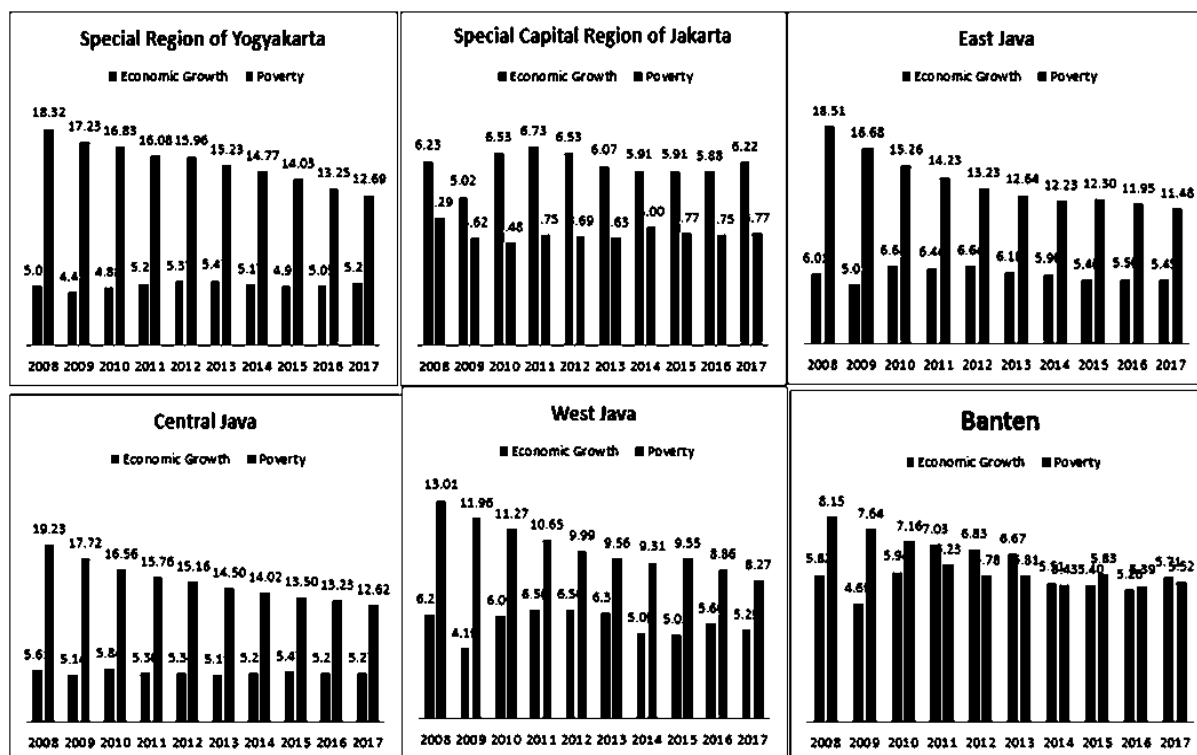
Source : Central Bureau of Statistics, 2018

The following is a description of the relationship between economic growth and poverty rates in 6 provinces in Java. In general the poverty rate of 4 provinces (West Java, Central Java, DIY and East Java) has

decreased, while the poverty rate in DKI Jakarta and Banten has fluctuated during the period 2008-2017. Economic growth in all provinces fluctuated during the same period.

In addition to examining the mediating role of employment opportunity on economic growth, this study also analyzes the effect of dependency ratio, infrastructure and education on poverty.

The higher the dependency ratio, which means the fewer productive age population, the less the output of an economy, resulting in higher poverty. According to Chaudhry (2009) poverty is influenced by the population dependency ratio. This is because the higher the value of population dependency, the higher the burden of the productive population to bear the unproductive ones.

**Figure 1.** Economic Growth and Poverty Rate by Province in Java

Source : Central Bureau of Statistics, 2018

This is supported by the findings of Gupta, Bongaarts, and Cleland (2011) which state that increasing dependency ratio will increase the proportion of the population living in poverty. Infrastructure is built with the aim, among others, to facilitate the mobility of people, goods and services, so that it is expected to have an impact on poverty reduction. According to Perkins, Fedderke, & Luis (2005) and Seetana, Ramessur, & Rojid (2009) infrastructure development is needed to support business, so that infrastructure improvements are expected to bring prosperity and increase people's income and reduce poverty.

Education is one of human capital. Investment in human capital (education, skills, health) is able to increase productivity and income, leading to higher welfare (Ogundede, Akingbade, & Akinlabi, 2012). According to Zhang (2014) education is the first indicator in alleviating poverty. This is because the higher level of education of the community, the greater the chances of getting a job and decent income.

Based on the problem formulation, the purposes of this study are 1) to examine whether employment opportunities mediate the effect of economic growth on poverty and 2) to examine the effect of the dependency ratio, infrastructure and education on poverty.

RESEARCH METHOD

This research is a causal associative study between independent variables on dependent variable by entering an intervening variable. In this study there is one dependent variable (poverty), four independent variables (economic growth,

dependency ratio, infrastructure, and education), and one intervening variable (employment opportunity). This study uses secondary data of 6 provinces in Java Island during the period 2008-2017 from Central Bureau of Statistics. Poverty is measured by poverty rate (in percent). Economic growth is measured in percentages. Dependency ratio is measured as a ratio of non-productive age (<15 and \geq 65 years) divided by the population of productive age (15-64 years) multiplied by 100 percent. The length of the asphalt road is used as a proxy for infrastructure. Education is measured by the percentage of workers with high school education and above.

To answer the first research objective, the author used path analysis, while the second research objective was addressed with multiple linear regression using panel data of 6 provinces in Java with during the period of 2008 - 2017. For path analysis, panel data is used to analyze the variable economic growth, employment opportunity, and poverty, while multiple linear regression used the variables of poverty, dependency ratio, education, and infrastructure.

There are three approaches in the calculation of panel data regression models, namely Pooled Ordinary Least Square/PLS, Fixed Effect Method (FEM), and Random Effect Method /REM. There are two tests to determine whether PLS, FEM or REM is the most appropriate model to estimate panel data regression parameters.

The choice between PLS and FEM was determined through the Chow test or the Likelihood Test Ratio. To find out whether the PLS model is better than the FEM model it can be done by looking at the significance of the FEM model with the F test.

H_0 : Pooled Least Square/PLS model

H_a : Fixed Effect Method/FEM model

If the p-value or probability of the chi-Square statistic or Cross Section random is $< \alpha$, H_0 is rejected, so Fixed Effect Method is selected.

The choice between Fixed Effect or Random Effect was determined through the Hausman test. Hausman test evaluation used chi square with degree of freedom as many as the number of independent variables.

H_0 : Random Effect Method/REM

H_a : Fixed Effect Method/FEM

If the p-value or probability of the chi-Square statistic or Cross Section random is $< \alpha$, H_0 is accepted so that the model follows random Effect Model.

The choice of which model is the most appropriate between Pooled Least Square (PLS) or Random Effect Model (REM) was determined through LM test. This LM test is based on the distribution of chi-squares with a degree of freedom equal to the number of independent variables.

H_0 : Common Effect Model

H_a : Random Effect Model

If the LM value is greater than the critical value of the chi-squares statistic, we reject the null hypothesis, which means that the right estimate for the panel data regression model is the Random Effect method.

Path analysis is used to examine the direct relationship of the independent variable to the dependent variable and the indirect relationship through the intervening variable (Sudaryono, 2011). Mediating or intervening variable is an intermediate variable that lies between the independent and dependent variables, so that the independent variable does not directly affect

the change in the dependent variable. The pattern of the direct relationship between variables without mediating variables can be seen in Figure 2.

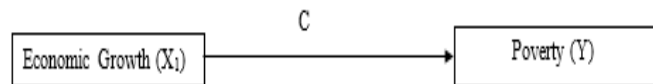


Figure 2. Regression model without mediating variable

The pattern of relationships between variables through mediating variable can be seen in Figure 3.

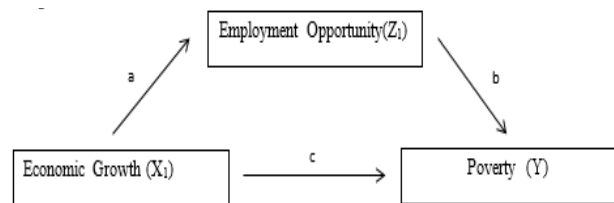


Figure 3. Model of path analysis of the effect of economic growth on poverty through employment opportunity

The effect of mediation was tested by the causal step method developed by Baron and Kenny (1986). The steps in using the causal step method are regressing the independent variable (X) on the dependent variable (Y), regressing the independent variable (X) on the mediating variable (Z), regressing the independent variable (X) and the mediating variable (Z) on the dependent variable (Y), and drawing the conclusion whether the mediating variable mediates perfectly or partially.

The above steps are translated into the following equations:

$$\text{Equation I} : Y_{it} = \alpha + \beta_1 X_{1it} + \mu_{it}$$

$$\text{Equation II} : Z_{it} = \alpha + \beta_1 X_{1it} + \mu_{it}$$

$$\text{Equation III} : Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 Z_{2it} + \mu_{it}$$

Z performs as a mediating variable if it meets the following criteria:

In equation I, the independent variable (X) affects the dependent variable (Y). Equation II, the independent variable (X) affects the variable that is assumed to be the mediating variable (Z), and equation III, the variable that is assumed to be the mediating variable (Z) affects the dependent variable (Y). The following are the criteria to conclude whether it is a perfect or partial mediation (Suliyanto, 2011). Z performs perfect mediation if after entering Z, the effect of X on Y which was significant (before entering the variable Z) becomes insignificant after entering Z into the regression equation model. Z performs partial mediation if after entering Z, the effect of X on Y which was significant (before entering the variable Z) remains significant after entering Z into the regression equation model. The multiple regression can be expressed in the following equation.

$$TK_{it} = \alpha + \beta_1 DR_{1it} + \beta_2 PDDK_{2it} + \beta_3 INF_{3it} + \mu_{it}$$

Information:

- a : intercept
- TK : poverty rate
- PJ : length of road
- PDDK : education
- DR : dependency ratio
- $\beta_1, \beta_2, \beta_3$: regression coefficients
- i : cross section of provinces on Java
- t : time series data 2010-2015
- μ_{it} : error components of t for cross section unit

The next stage is the classic assumption test where in the use of regression, there are several basic assumptions that can produce the best unbiased bias estimator or BLUE

(Best Linear Unbiased Estimator) from the regression model obtained from the Ordinary Least Square method. By fulfilling these assumptions, the results obtained can be more accurate and close to or equal to reality, where the basic assumptions are known as classic assumptions. To get the results of fulfilling these characteristics, classical assumptions were tested which included the normality test, multicollinearity test, and heteroscedasticity test, while the aautoorrelation test was not needed in this study. This is because the autocorrelation test is only used for time series data and this study uses panel data, namely a combination of cross section data and time series (Gujarati, 2012).

RESULTS AND DISCUSSION

The following is a regression equation in model I that shows the effect of economic growth on poverty with fixed effect model.

$$Y = 10.640 - 0.027X + e$$

Regression model I shows that the significance value of the economic growth (X) is 0.036 greater than the error probability of 0.05. These result indicates that economic growth (X) has a significant effect on poverty (Y). The value of R square in the regression model I is 0.87. This shows that the effect of economic growth (X) on poverty (Y) is 87 percent, while the remaining 13 percent is the influence of other variables not included in the model.

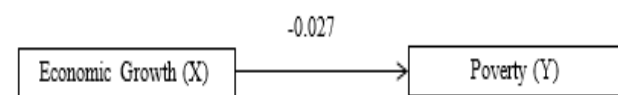


Figure 4. Path diagram of model I

The following is a regression equation in model II that shows the relationship of economic

growth and employment opportunity with random effect model.

$$Z = 15.856 + 0.453X + e$$

Regression model II shows that the significance value of economic growth (X) of 0.009 is smaller than the error probability of 0.05. This result indicates that the economic growth (X) has a significant positive effect on employment (Z). The value of R square in regression model II is 0.51. This shows that the effect of economic growth (X) on employment (Z) is 51 percent, while the remaining 49 percent is the influence of other variables not included in the model.

Thus the path diagram of model II is depicted as follows.

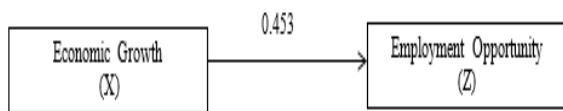


Figure 5. Path diagram of model II

The following is the regression equation in model III which shows the relationship between economic growth and employment opportunity with fixed effect model.

$$Y = 218.910 - 13.133Z - 0.069X + e_3$$

The regression model III shows that the significance value of the employment opportunity (Z) of 0.000 is smaller than the error probability so that employment opportunity has a significant effect on poverty. However, the significance value of economic growth (X) is 0.067 greater than the error probability of 0.05, so that economic growth (X) does not significantly influence poverty (Y). The value of R square in regression model III is 0.92. This shows that the effect of employment opportunity (Z) and economic growth (X) has a significant effect

on the poverty rate (Y) of 92 percent, while the remaining 8 percent is the influence of other variables not included in the model. Thus the path diagram of model III is obtained from the combination of path I and II.

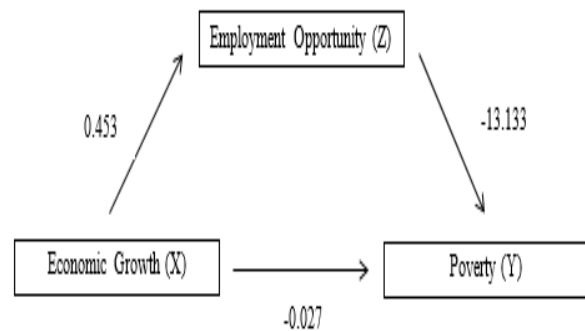


Figure 6. Path diagram of model III

Based on hypothesis testing criteria, before entering the mediating variable (employment opportunity), the effect of economic growth on poverty is significant and after the mediation variable is entered into the equation, the coefficient turned into insignificant. So the results indicate that employment opportunity perfectly mediates the relationship between economic growth and poverty.

Theoretically, efforts to alleviate poverty require quality economic growth. Quality economic growth can be realized with policies to expand employment opportunities and maximize productive investment in various economic sectors. Roemer and Gugerty (1997) provided strong support that GDP growth per capita is a strong force in reducing poverty. Ten percent GDP growth per year is associated with ten percent income growth for the poorest 40 percent of the population. For the poorest 20%, the elasticity is 0.921, meaning that 10% GDP growth is associated with 9.21% income growth. These results provide strong support for the proposition that GDP growth per capita can and

is usually a strong force in reducing poverty. However, the problem so far has been the paradox Indonesia's economic development. For example, based on BPS data, although the economic growth rate after the 1997 crisis tends to increase, unemployment also increases. In 2005 Indonesia's economic growth rose significantly from 5.03 percent in 2003 to 5.69 percent in 2005. However, this increase in economic growth has not been able to create jobs and absorb additional labor force, as a result the number of unemployed increased from 10.25 million (9.56 percent) in 2003 to be 10.85 million people (11.24 percent) of the total workforce from the previous year (Siregar, 2007; Jonaidi, 2012).

Siregar (2006) argued that economic growth is a necessity condition for poverty reduction. The adequate condition is that growth is effective in reducing poverty. This means that the growth should absorb employment in each income group, including the poor population. Directly, this means that growth needs to be ensured to occur in sectors where the poor work (agriculture or labor-intensive sectors). Indirectly, it means that the government needs to be effective to redistribute the growth benefits that may be obtained from the modern sector such as services and capital-intensive manufacturing.

The new growth theory emphasizes the importance of the role of government, especially in increasing the development of human capital, improving the quality of human resources indicated by the increase in knowledge and skills. Increased knowledge and expertise will be able to encourage an increase in work productivity, leading to help reduce the poverty rate (Suliswanto, 2010). Therefore, the economic growth needed to

reduce the number of poor people is quality and equitable growth. Investment as a contributor to growth should be carried out in the form of accelerating the accumulation of human capital through education and training, as well as the development and improvement of rural infrastructure. Requires significant government intervention and private participation (Siregar, 2006).

The combined scenario of increasing education and health expenditures accompanied by an increase in government capital expenditure has the greatest impact in reducing poverty in Indonesia (Mustaqimah, Hartoyo, and Fahmi, 2017). Development strategies that do not only prioritize physical development, but also prioritize improving the quality of human resources should be used as one of the regional development strategies in Indonesia, because the impact can be greater in reducing poverty. Given the important role of education in improving the quality of human resources, the government should make improvements to the education system in Indonesia (Mustaqimah, Hartoyo, and Fahmi, 2017).

This study explains the alternative mechanism through which the trickle down occurs. While Aghion et al. (1997) focused on borrowing and lending in the capital market: as more capital is accumulated in the economy, more funds may be available to the poor for investment purposes, this study argues that when capital accumulates as income grows, more employment will be available, which in turn will reduce poverty.

This research is in line with the findings of Jonaidi (2012) which explain that employment opportunity plays an important role in determining the effect that occurs between economic growth and a decrease in the number

of poverty. In addition, Merdekawati & Budiantara (2013) explain that employment opportunity and poverty rate have a very close relationship. According to Jonaidi (2012), and Awandari & Indrajaya (2016), economic growth must be balanced with an increase in the number of employment opportunities.

According to Dollar and Kraay (2001) economic growth will be able to provide benefits to the poor if economic growth is accompanied by appropriate policies, such as law enforcement, fiscal discipline, trade openness, and strategies in alleviating poverty. In addition, the World Bank provides policy recommendations, namely encouraging economic growth to create employment to alleviate poverty (World Development Report, 2010).

However, not all studies found a negative relationship between economic growth and poverty. Some findings also conclude that economic growth is positively related to poverty. Ahluwalia and Chenery (1974) found that that rapid economic growth in underdeveloped countries provide little benefit (about one third of the population). The failure of growth in reducing poverty is due to failure of the trickle down effect. So poverty prevails even though economic growth increases every year. This means that the relationship between economic growth and poverty is not a causality relationship because the increase in economic growth does not absolutely reduce poverty. There are many conditions that must be fulfilled to generate inclusive economic growth in terms that economic growth can be enjoyed by all people. In addition, Hidayat (2007) found that economic growth can increase income inequality but on the other hand economic

growth can reduce poverty, even increase in income inequality resulted from economic growth does not interfere with the effectiveness of poverty reduction. This means that economic growth has an impact on income inequality but the income inequality does not have a significant impact on poverty rate. Despite income inequality, this does not affect the effectiveness of poverty reduction.

Based on the results of the Langrange Multiplier (LM) test, the LM value of 2693.727 is greater than the chi-squares value of 7.81, which means that the appropriate estimation for the panel data regression model is the random effect method. The following table shows the estimated regression results with the random effect method using the Eviews 9 application.

Table 2. Results of regression analysis

Variables	Coefficient	t-Stat	Prob.
Constant	19,58825	4.429971	0.0000
DR	0,016123	7.206975	0.0368
EDU	-0,268095	-	0.0000
INF	-7.88E-05	1.100900	0.2757
R-squared 0.765730			
F-statistic 17.21212			
F-Table 13.16			
T-Table 2.00324			

Source: data processed with Eviews 9

The first classic assumption test is normality testing to find out whether data is normally distributed. Normality can be detected using the Jarque-Berra test (JB test). The JB test is a normality test based on the kurtosis and the skewness coefficients. In JB normality test can be seen from the JB probability value, if the JB probability value is > 0.05 then the data is normally distributed, conversely the probability

value is < 0.05 then the data is not normally distributed.

Heteroscedasticity test is conducted to test whether in the regression model variance inequalities occur from residual of one observation to another observation. Testing to determine the presence of heteroscedasticity can be done by Glejser test (Gujarati, 2012). Heteroscedasticity test using the Glejser test shows that the chi-square probability value is 0.213. Based on the criteria that the chi-square probability value is greater than the significance level ($\alpha = 0.05$) then the above test does not show heteroscedasticity.

Multicollinearity test is used to determine and find out whether there is a relationship between two or more interrelated variables in a model. Client detection is done by regressing an independent variable with another independent variable.

Table 3. Results of Multicollinearity Using Client Test

Independent variables	R ² auxiliary regression	R ² regression model
Dependency Ratio	0.368	0.765
Education	0.534	0.765
Infrastructure	0.536	0.765

Source: Data processed, 2019

The rule of thumb is by comparing the R² model value with R² of the auxiliary regression value. If the auxiliary R² value is greater than the R² of the regression model, then the model contains the symptoms of multicollinearity. If the auxiliary regression R² value is smaller than the R² model, then the model does not contain the symptoms of multicollinearity. Table 2 shows that the R² of

auxiliary regression of the dependency ratio, education, and $< R^2$ of regression model value. This can be interpreted that the client test shows no multicollinearity.

Table 2 shows that the dependency ratio (DR) has a positive and significant effect on poverty on Java. The coefficient of 0.016 means that if the DR increases by 1 percent, it will increase poverty rate by 0.016 percent. According to Chaudhry (2009) the higher the dependency ratio, the higher the burden on the productive population must be to bear the unproductive population. In addition, Gupta, Bongaarts, and Cleland (2011) found that the dependency ratio will increase the proportion of the population living in poverty. In addition, high birth and death rates have implications for the high dependency ratio.

Another factor that also influences poverty is the population dependency ratio. The higher the percentage of population dependence, the higher the burden on the productive population to bear the unproductive population. This is supported by the finding of Knowles (2002), which states that increasing dependency ratio will increase the proportion of the population living in poverty. High birth rate has implications for the high dependency ratio.

Education (EDU) has a negative and significant effect on poverty levels on Java. The coefficient value is -0.268, which means that when number of senior high school graduates and above increases by 1 percent, it will reduce poverty by 0.268 percent. This result supports the findings of Ogundede, Akingbade, & Akinlabi (2012) that education can reduce poverty directly, namely by increasing productivity for the poor and improving community opportunities to obtain employment with better wages. The result also supports the previous

studies by Tarabini & Jacovkis (2012) and Zhang (2014) that the level of education is an important factor affecting poverty. This is because the level of education will affect the distribution of income which in turn will also affect poverty. The higher the level of education, the distribution of income will be evenly distributed, so that poverty can be reduced. Higher education results in better work productivity that will provide greater income. The low level of education causes the choice of work to be limited to low-paid jobs.

Susanto et al. (2018) explained that education plays an important role in one's well-being in a variety of ways. Education can increase the ability of the population to obtain and use information, deepen understanding of the economy, expand productivity, and give people the choice of whether to act as consumers or producers.

The theory of the vicious cycle of poverty proposed by Nurkse (in Kuncoro, 2009) explains that it begins with the existence of low productivity, resulting in low income generation. Low productivity is closely related to the low quality of human resources. Therefore, in order to improve human resources, education is needed. It cannot be denied that education is one of the main keys in increasing economic growth and reducing poverty. This is because education itself improves knowledge and various skills needed to improve welfare, without knowledge and skills, the community cannot improve welfare and thus, living in poverty (Iswara, 2014). Education improve one's knowledge and skills. The higher the level of education, the knowledge and expertise will also encourage increased labor productivity. In the end someone who has high

productivity will get better welfare, which is shown through increased income and consumption.

The low productivity of the poor can be caused by the low access of the community to obtain education (Sitepu and Sinaga, 2004). Thus it is expected that this condition will advance the economy and reduce poverty. Center for the Study of Living Standards (2001) states that education is an important element to combat poverty, empower women, and save children from exploitation. Likewise, a statement from UNICEF said that education is an important investment for obtaining decent jobs with high wages.

The new growth theory emphasizes the importance of the role of government, especially in increasing the development of human capital and encouraging research and development to improve human productivity. Empirical studies show that investing in education will be able to improve the quality of human resources as demonstrated by an increase in a person's knowledge and skills. The higher the level of education of a person, the knowledge and expertise will also increase so that it will encourage an increase in work productivity. The low productivity of the poor can be caused by their low access to education.

The theory of human capital says that the quality of human resources is obtained from the quality of education, health, and other human capacities that can increase productivity. Education plays a key in shaping the ability of a country to absorb modern technology and to develop capacity to create sustainable and capable growth and development in reducing poverty (Todaro & Smith, 2011).

The development of human capital can increase productivity and growth, but also plays

a central role in influencing income distribution in an economy. The statement has implications for encouraging governments to create centralized poverty reduction policies or strategies on the importance of human capital development. Sachs (2005) explains that human capital is not only identified as a key contributor to growth and poverty reduction, but also encourages development goals to improve human freedom in general. In addition, the focus of global developments currently recorded in the millennium development goals has also positioned improvements in quality human capital as the main priority by making it easier for people to access education, health, and so on.

According to Sachs (2005), one of the mechanisms in poverty alleviation is the development of human capital, especially education and health, which is contained in his book entitled *The End of Poverty Philosophy*. Sen, the notion of libertarianism, Nosick and Sachs, presented six poverty alleviation packages, namely: 1) human capital, especially in health, nutrition, and skills acquired through education and training, 2) business capital facilities needed in transportation for agriculture, industry and service. 3) infrastructure: roads, electricity, drinking water. Sanitation, and so on, 4) natural capital in the form of agricultural land, biodiversity, 5) capital of public institutions such as commercial law, judicial law, government services, and 6) knowledge capital in the form of know-how of science and technology that increase productivity which can increase natural capital. With good education, everyone has the knowledge and skills, has the choice to get a job, being more

productive so that they can increase income. Thus education can break the chain of poverty and eliminate social exclusion, then improve the quality of life and realize community welfare.

Infrastructure has a negative and insignificant effect on the level of poverty on Java. The longer the asphalt road in each province on Java does not guarantee poverty reduction. This research is in line with Sari's findings (2011) which explains that infrastructure development does not have a significant impact on poverty. This may be due to the fact that infrastructure alone does not necessarily reduce poverty. Infrastructure development in this research proxy with long asphalt roads is expected to facilitate the mobility of people and goods. Thus opening access to work or business. However, this requires supports such as asset ownership and quality human resources. Seetanah et al. (2009) argued that transport and other infrastructural subsidies are widely used to help the poor, but it is difficult to limit them to the poor. Hence other means of increasing access to the poor must be identified.

Road infrastructure does not only support production activities that will create output and employment opportunities, but the existence of infrastructure also affects the efficiency and smoothness of economic activities (Nuritasari, 2013). Infrastructure is very important in supporting economic development because good infrastructure can increase effectiveness and efficiency for both business and society. With adequate infrastructure, the costs of production, transportation, communication and logistics are getting cheaper, the number of production increases, operating income increases, so it can increase people's income. The availability of infrastructure also accelerates equitable development infrastructure development that is

tailored to the needs of each and between regions, thus encouraging investment, new employment, and increasing income and welfare of the community thereby reducing poverty (Wahyuni, 2009). Amalia, Madris, & Razak (2015) found that government expenditure for infrastructure development reduces poverty. Road infrastructure will affect the mobility of goods and services, so that it will accelerate the process of production and distribution and will increase income and welfare of the community thereby reducing poverty.

Infrastructure is very important for productivity and growth. Haris (2009) states that infrastructure is the driving force of economic growth. Allocated from public and private financing, infrastructure is seen as a locomotive for national and regional development. From macroeconomic perspective, the availability of infrastructure services affects the marginal productivity of private capital, whereas in the microeconomic context, the availability of infrastructure services has an effect on reducing production costs. Reungsri (2010) states that infrastructure as a representation of public investment has an influence on two aspects, namely economic and social aspects.

Infrastructure investment is a public investment that has an impact on economic growth. The government can use this infrastructure investment as a tool to increase private investment. According to the Keynesian economic paradigm, investment can stimulate government spending which then has an impact on crowding out and crowding private investment. Infrastructure is not a factor that can directly affect economic growth. Infrastructure affects growth by

facilitating productivity through the provision of adequate facilities and infrastructure. Infrastructure, besides having an influence on economic aspects, also has an impact on social aspects, including improvement of people's welfare such as increased community welfare, measured by the reduction of poverty, equity and redistribution of income and mitigation in environmental degradation (Reungsri, 2010).

Aschauer (1989) states that public investment in infrastructure is very important as one of the supporting sources of economic growth. Aschauer examines the relationship between aggregate output and the stock and flow of government spending and concludes that core infrastructure such as roads, toll roads, airports and mass transportation systems are important government roles in increasing growth and increasing productivity.

CONCLUSION

Based on the results of the analysis and discussion above, it can be concluded that the effect of economic growth on poverty reduction is not direct. Employment opportunity perfectly mediates the effect of economic growth on poverty on Java. This means that economic growth can only reduce poverty when the growth is able to increase employment opportunity. Thus it is necessary to create human resources both in quantity and quality that can support economic growth. In addition, dependency ratio and education have a significant effect on poverty, while infrastructure has a negative and insignificant effect on poverty on Java. Therefore, controlling the composition of the population needs to be considered by maintaining a balance between productive and unproductive age groups. Education also has a significant effect on poverty reduction.

Thus the government's efforts to promote education through infrastructure development, Indonesia Smart Card, and various scholarship programs should be supported and maintained. Although the influence of infrastructure is not significant for poverty alleviation, it does not mean that infrastructure is not important. Infrastructure can encourage poverty alleviation if it is equipped with supporting environment such as ownership of assets that can be facilitated by credit programs and quality improvement of human resources.

REFERENCE

- Afzal, M., Malik, M. E., Begum, I., Sarwar, K., & Fatima, H. (2012). Relationship Among Education, Poverty and Economic Growth in Pakistan: An Econometric Analysis. *Journal of Elementary Education*. 22(1): 23-45.
- Aghion, P., & Bolton, P. (1997). A Theory of Trickle-Down Growth and Development. *The Review of Economic Studies*. 64(2): 151-172.
- Ahluwalia, M.S. Dan H Chenery. (1974). The Economic Framework", In *Redistribution with Growth*. Oxford Univ. Press. Pp.3-37.
- Amalia R, dan Madris, R. R. A. (2015). The Effects of the Government Spending on the Poverty in West Sulawesi Province. *Jurnal Analisis*. 4(2): 183-189.
- Aschauer, DA. 1989. Is Public Expenditure Productive. *Journal of Monetary Economics* 23.
- Awandari, L. P. P., & Indrajaya, I. G. B. (2016). Effects of Infrastructure, Investment, and Economic Growth on Community Welfare Through Job Opportunities. *Jurnal EP Unud*. 5(12): 1435-1462.
- Central Bureau of Statistics Daerah Istimewa Yogyakarta Province. (2008-2017). *Daerah Istimewa Yogyakarta Province in Figures 2008-2017*. Yogyakarta.
- Central Bureau of Statistics East Java Province. (2008-2017). *East Java Province in Figures 2008-2017*. Surabaya.
- Central Bureau of Statistics Jawa Tengah Province. (2008-2017). *Jawa Tengah Province in Figures 2008-2017*. Semarang.
- Central Bureau of Statistics Jawa Barat Province. (2008-2017). *Jawa Barat Province in Figures 2008-2017*. Bandung.
- Central Bureau of Statistics Daerah Khusus Ibukota Jakarta Province (2008-2017). *Daerah Khusus Ibukota Jakarta Province in Figures 2008-2017*. Jakarta.
- Central Bureau of Statistics Banten Province. (2008-2017). *Jawa Banten Province in Figures 2008-2017*. Serang.
- Baron, R. M., & Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research. Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*. 51(6): 1173-1182.
- Berardi, N., & Marzo, F. (2017). The Elasticity of Poverty with respect to Sectoral Growth in Africa. *Review of Income and Wealth*. 63(1): 147-168.
- Chaudhry, I. (2009). Poverty Alleviation in Southern Punjab (Pakistan): An empirical Evidence from the Project Area of Asian Development Bank. *International Research Journal of Finance And Economics*. 23(23): 23-32.
- Dollar, D., & Kraay, A. (2002). Growth is Good for the Poor. *Journal of Economic Growth* 7(3), 195-225.
- Ezebuilo, U., & Emmanuel, N. (2014). Does Higher Education Reduce Poverty Among Youths in Nigeria? *Asian Economic and Financial Review*. 4(1): 1-19.
- Gujarati, Damodar N. (2012). *Econometrics Basics*. Jakarta: Salemba Empat.
- Gupta, M. D., Bongaarts, J., Cleland, J. (2011). Population, Poverty, and Sustainable Development A Review of the Evidence. *Policy Research Working Paper No. 5719*. <https://doi.org/10.1596/1813-9450-5719>
- Iswara, I. M. A. (2014). The Effect of Regional Original Income, Per capita Income, and Education Level on Poverty in Bali Province at 2006 - 2011. *E-Jurnal Ekonomi Pembangunan Unud*. 3(11): 492-501.
- Haris, A. (2009). The Effect of Land Stewardship on the Success of Infrastructure and Economic Development. *National Development Planning Agency of Indonesia*.
- Hidayat, Saeful. 2007. *Economic Growth, Income Inequality, and Poverty: Estimated Parameter of Poverty Elasticity at Provincial Level in Indonesia at 1996 - 2005*. Tesis, Postgraduate University of Indonesia. Depok
- J onaidi, A. (2012). Analysis of Economic Growth and Poverty in Indonesia. *Journal of Economic Studies*. 1 (1): 140-164

- Kakwani, N., Neri, M. C., & Son, H. H. (2010). Linkages between pro-poor growth, social programs and labor market: The recent Brazilian experience. *World Development*, 38(6): 881-894.
- Knowles, James. C. (2002). A Look at Poverty in The Developing Countries of Asia. *Asia Pacific Population & Policy*, No. 52.
- Merdekawati, I. P., & Budiantara, I. N. (2013). Modeling of Spline Truncated Multivariable Regression on Factors Affecting Poverty in Districts and Cities in Central Java Province. *Jurnal Sains Dan Seni ITS*, 2(1): 19-24.
- Moore, J. D., & Donaldson, J. A. (2016). Human-Scale Economics: Economic Growth and Poverty Reduction in Northeastern Thailand. *World Development*, 85: 1-15.
- Mustaqimah, K., Hartoyo, S., and Fahmi, I. (2017). The Role of Government Capital Expenditures and Human Development Investment on Reducing Poverty in Indonesia. *Journal of Development Economics and Policy*, 6 (2): 1-15.
- Nuritasari, F. (2013). The Effect of Infrastructure, Domestic Direct Investment and Foreign Direct Investment on GDP in Indonesia. *Economics Development Analysis Journal*, 2(4): 456-467.
- Perkins, P., Fedderke, J., Luiz, J. (2005). An Analysis of Economic Infrastructure Investment in South Africa. *South African Journal Of Economics*, 73(2): 211-228.
- Ramdani, M. (2015). Determinants of Poverty in Indonesia at 1982-2012. *Economics Development Analysis Journal*, 4(1): 58-64.
- Reungsri T. 2010. The Impact of Public Infrastructure Investment on Economic Growth In Thailand. Disertasi, Victoria: School of Economics and Finance Faculty of Business and Law, Victoria University.
- Sachs, Jeffrey D. (2005). *The end of poverty: Economic Possibilities for our Time*. Penguin Books, New York. <http://www.earth.columbia.edu/pages/endofpoverty/index>
- Siregar, H., & Wahyuni, D. (2007). The Impact of Economic Growth on Decreasing the Number of Poor Populations. https://doi.org/http://pse.litbang.deptan.go.id/ind/pdffiles/PROS_2008_MAK3
- Sitepu, R. K., & Sinaga, B. M. (2007). The Impact Of Human Capital Investment On Economic Growth And Poverty In Indonesia: Computable General Equilibrium. *Journal on Social Economics of Agriculture*, 7(2):1-15.
- Seetanah, B., Ramessur, S., Rojid, S. (2009). Does Infrastructure Alleviates Poverty In Developing Countries?. *International Journal Of Applied Econometrics And Quantitative Studies*, 6(2): 18-36.
- Suliswanto, M. S. W. (2010). Effect of the Gross Domestic Product and Human Development Index on Poverty in Indonesia. *Journal of Development Economics*, 8 (2): 358-366.
- Siregar, H. (2006). Structure improvement and economic growth: encourage investment and create jobs. *Journal of Economics, Politics and Finance*, INDEF: Jakarta.
- Susanto, E., Rochaida, E., & Ulfah, Y. (2018). The Effects of Inflation and Education on Unemployment and Poverty. *INOVASI*, 3(1): 19-27.
- Todaro. M.P dan Smith.S.C, (2011). *Economic Development* . Jakarta: Erlangga.
- Zhang, H. (2014). The Poverty Trap Of Education: Education-Poverty Connections in Western China. *International Journal Of Educational Development*, 38: 47-58.