

Research Article

Does Economic Growth Matter For Poverty Reduction In Indonesia?

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Abstract: This study empirically explores the effects of economic growth and unemployment on the poverty reduction in Indonesia over the period 1990-2017. It also attempts to examine the multivariate dynamic causal relationship between poverty, unemployment, and economic growth using the vector error correction model. The study finds that economic growth and unemployment negatively affected the poverty level in the long-run. Additionally, the bidirectional Granger causal relationship between poverty and economic growth and a unidirectional causal effect running from unemployment to poverty were recorded. Our findings indicate the importance of poverty reduction program to be done through the promotion of inclusive economic development. As a multi-complex problem, any poverty reduction agenda in the country should be designed in a holistic way focusing on the promotion of inclusive development so that all segments of the population would enjoy the benefits of economic growth. Developmental programs that offer more job opportunities such as the establishment and enhancement of the micro-small and medium-enterprises should be the main focus of the economic development agenda nationwide.

Keywords: Poverty reduction; employment; economic growth; pro-poor development.

INTRODUCTION

Over the last few decades, poverty has been a major economic problem worldwide, including Indonesia. The poverty problem is complex and multidimensional as it relates to social, economic, cultural, and structural dimensions. The Central Statistics Agency of Indonesia (2015) reported that the poverty rate in Indonesia was 10.96% in 2014. Although the poverty rate in the country has been declining by 1.27%–1.78% from 2004 to 2009; but its reduction level has slowed down by 0.4%–0.8% afterward. In general, this indicates that the government has failed to reduce poverty to 7.55% nationwide in 2017 as set by the Ministry of National Development Planning/National Development Planning Agency of the Republic of Indonesia (Dewi *et al.*, 2018).

Poverty is a crucial problem in the economy as it relates to the fulfilment of basic necessity so that people can live properly, healthy, and sustainably. Identifying both causes and consequences of poverty is an important initial step for poverty reduction. Poverty causes an increase in unemployment overwhelming and, in turns, slows down the economic growth. On contrary, poverty is also contributed by the low level of

wages and declining the level of economic growth. This indicates that the existence of dynamic causalities between poverty and unemployment and poverty and economic growth. Thus, as a multi-complex economic problem, comprehensive research on the poverty should consider a dynamic relation between poverty and its determinants (Majid *et al.*, 2017) so as it provides holistic policy recommendation for poverty eradication.

There have many previous studies investigated the causes of poverty and its consequences. For example, Ravallion and Datt (1996) and Ravallion and Chen (2007) found that growth in the traditional sector of the economy, the agricultural sector has contributed more to poverty problem and offer more job opportunities as compared to the manufacturing sector in India and China, respectively. Menezes-Filho and Vasconcellos (2007) found an important role of the education sector in poverty reduction program in Brazil. The study by Aryeetey and McKay (2007) revealed that regional poverty differences have been contributed by the sectoral composition of economic growth in Ghana. Bello and Roslan (2010) revealed that an increase in per capita income caused an increase in the poverty level in Africa, showing the failure of economic development to

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promote the welfare of society. Ajibefun and Daramola (2003) reported that the low level of business enterprises efficiencies has caused the lower level of workers absorption into the workplace, which in turns, has contributed an increase in poverty level among citizen in Nigeria. Muhammad *et al.* (2011) examined the contribution of employment on the national economy and found that unemployment has adversely affected the economic growth in Africa.

Studies on the relationship between economic growth, unemployment, and poverty have also investigated in the Indonesian context. Jonnadi *et al.* (2012) found that an increase in economic growth promoted the poverty reduction, and consequently, as found by Harlik *et al.* (2007), it would reduce the unemployment rate. Investment is found to have a direct effect on poverty, while economic growth has no direct influence on poverty. Finally, Martha and Aprilianti (2009), Widodo *et al.* (2011), Permana and Arianti (2012), Wahyudi and Rejekingsih (2013), Budhi and Kembar (2013), and Majid (2011, 2013, 2014) found that many other determinants of poverty, unemployment and national economic growth in Indonesia, including population growth, investment, education, health, and so on.

Much has been written about the issue of poverty in Indonesia, but only a few studies have investigated the causal relationship between poverty, unemployment, and economic growth in Indonesia. This study is hoped to contribute towards enriching existing empirical findings on the dynamic causal relationship between poverty, unemployment, and economic growth in the most World's Muslim populous country, Indonesia using the Granger multivariate analysis. The findings of this study are also hoped to shed some lights for the policy makers in designing policy for combating poverty in the world's developing country at large, and Indonesia in particular.

The rest of the study is structured in the following sequences. Section 2 reviews theories and selected literature on poverty, unemployment, and economic growth, while Section 3 provides an empirical framework as the basis for further study analysis. Section 4 discusses the findings and their implication, and finally, Section 5 concludes the study.

THEORETICAL FRAMEWORK

Poverty, economic growth, and unemployment

Poverty is a condition where an individual inability to meet basic needs such as food, clothing, education, Health, and shelter. Poverty caused by a scarcity of economic resources to meet basic needs and the complexity of access to education and employment.

In the view of Mudrajad (1997), poverty occurs due to an inequality in the ownership of resources which can lead to deviant income distribution.

A poor has limited resources and minimum quality. It also can occur due to inequality in the quality of human resources. If the quality of one's resources is low, its level of productivity is also low, which in turn receive low wages. The low level of quality of human resources is directly related to the low level of education. This is as explained by the theory of poverty vicious circles or a vicious circle of poverty. The poverty circle is a series of forces that influence the circumstances and they are connected in a dynamic causal relation manner in which a country will continue to become poor and thus it difficult to run away from property trap and it adversely causes the economic growth.

Meanwhile, economic growth is an economic activity that changes over a period of time, or activity in development, which can measure the rate of development of economic activity in an economic system. Economic growth can also be seen to measure the rate of economic growth from year to year. Budiono (1981) defines economic growth as the process of increasing per capita output in the long run.

Based on the above definitions, there are at least three dimensions of economic growth, namely: (i) Economic growth is a process of economic development or change over time, where it can be either progressive or regressive. (ii) Economic growth is an effort to increase output, but accompanied by a high population of additional total output, the economy is said to be in a fixed state or there is no economic growth; and (iii) Economic growth can be seen in the long term in analyzing the rise or fall of the state of the economy of a country. Since economic growth is closely related to changes in the factors that influence it, thus an economy can be said to experience growth if the level of activity or economic activity is higher than the previous period.

Finally, unemployment is a condition showing if someone does not have a job, but they are actively trying in the last four weeks to find it (Kaufman and Hotcks, 1999). In other words, unemployment is a situation where someone belonging to the workforce wants to get a job, but they have not been able to get the job (Sukirno, 1994). Unemployment can occur due to imbalances in the labour market. This indicates that the number of workers offered exceeds the number of workers requested.

Selected studies on poverty determinants and its consequences

Previous studies on the causes of poverty and its consequences have been focused more on the developing and under-developed countries as these countries suffered most of the poverty problem. The level of poverty across the region is dissimilar due to differences in the sectoral composition of economic growth nationwide (Aryeetey and McKay, 2007). The existing of poverty shows the failure of the economic

development agenda. For example, Bello and Roslan (2010) revealed that an increase in economic growth failed to reduce poverty level in Africa, showing that economic development did not promote the welfare of society.

In view of causes of poverty, Ravallion and Datt (1996) and Ravallion and Chen (2007) have studied the issue of poverty in India and China and found that the traditional agricultural sector of the economy has offered more job opportunities and reduced poverty as compared to the manufacturing sector in India and China. Menezes-Filho and Vasconcellos (2007) found an important role of the education sector in poverty reduction program in Brazil. Ajibefun and Daramola (2003) documented that the low level of efficiency of business enterprises has caused the lower level of workers absorption into the workplace, which in turns, has contributed an increase in poverty level among citizen in Nigeria. The higher level unemployment rate has adversely affected the poverty reduction and economic growth in Africa (Muhammad *et al.*, 2011).

In the context of Indonesia, there have been many studies investigated the determinants and nature of poverty related to its reduction, unemployment, and national economic growth. For example, Jonnadi *et al.* (2012) found that a higher level of economic growth has caused poverty reduction, and consequently, as found by Harlik *et al.* (2007), it has reduced unemployment rate. Investment has a direct effect on poverty, while economic growth has no direct influence on it. Poverty in Indonesia has also caused by many other factors, including population growth, investment, education, health, market structure, and government regulation (Martha and Aprilianti, 2009; Widodo *et al.*, 2011; Permana and Arianti, 2012; Wahyudi and Rejeksingih, 2013; and Budhi and Kembar, 2013).

The latest studies on poverty in Indonesia have been investigated by Majid *et al.* (2017) and Dewi *et al.* (2018). These studies empirically explored the inter-linkages between financial sector development, economic growth, and poverty reduction in Indonesia using the Autoregressive Distributed Lag cointegration approach over the period 1980 -2015. The study found that there was a bi-directional causal (Majid *et al.*, 2017) and long-run relationships (Dewi *et al.*, 2018) existed between the financial development, economic growth, and poverty reduction in Indonesia. These findings suggested that in efforts to reduce poverty, the government should focus on channelling of funds from the financial sector into a specific segment of the population to ensure fair accessibility of credit, especially to the low-income group in Indonesia.

EMPIRICAL FRAMEWORK

Model of analysis

This study adopts the Granger causality of Vector Autoregressive (VAR) approach to investigate the dynamic causal relationships between poverty, economic growth, and employment. This model assumes all variables as endogenous variables. However, prior to the analysis, the unit root test for data stationarity is conducted to analyze and prove whether each variable has a normal or stationary pattern. The estimation of the time series econometric model will produce meaningless conclusions when the data used contains root units (not stationary). A non-stationary condition produces a spurious regression condition that is characterized by a high coefficient of determination (R^2) and insignificant t-statistics, but the interpretation of this series relationship will be economically misleading. As a result, it will give misleading directions in the conclusions and policy implications (Harris *et al.*, 2003). Thus, for this purpose, the following unit root test of Phillips-Perron (PP) is used:

$$\Delta Y_t = \eta_0 + \eta_1 t + \delta Y_{t-1} + v_1 \dots \dots \dots (3.1)$$

Where, the null-hypothesis, $H_0: \delta = 0$ (there is a non-stationary data) is tested against the alternative hypothesis, $H_a: \delta < 0$ (there is stationary data). Rejecting H_0 indicates that the data is free from the non-stationary problem, as required condition for all time series econometric analysis. Furthermore, as the VAR model is required to include the lag of its variables, thus in the next step, the lag-lengths of variables is determined using the Akaike Information Criteria (AIC). Lag serves to explain how long the influence of a variable on other variables. For example, the lag-lengths of 4 indicate that the past 4 periods of exogenous variables determine the contemporaneous endogenous variables in the model.

Multivariate Granger causality with the VAR framework

To conduct the multivariate Granger causality test within the VAR framework, all the data should share a long run relationship (cointegration). Thus, prior to the analysis, the study conducts first the cointegration test.

The cointegration test describes a long-term relationship between variables that although individuals are not stationary, the combination between these variables can be stationary (Gujarati, 2009). Cointegration test is used to determine whether poverty, unemployment, and economic growth have a long-term equilibrium relationship.

The dynamic multivariate causal relationship among poverty, unemployment, and economic growth is tested using the Vector Error Correction Model (VECM). The VECM is a derivative method of the VAR. For the VECM, all variables should be stationary at the same order of integration. The following VECM

equation is used to explore the multivariate causality among poverty, unemployment, and economic growth:

$$\Delta Z_t = \alpha + \phi_1 \Delta Z_{t-1} + \dots + \phi_k \Delta Z_{t-k} + \Gamma Z_{t-k} + \epsilon_t \dots \dots \dots (3.2)$$

where $\Delta Z_t = (EG, POV, UE)$ is a variable vector $n \times 1$. α is a constant vector $n \times 1$, ϕ is the $n \times n$ matrix (short-term dynamic coefficient), $\Gamma = (\alpha\beta')$ is an α column vector $n \times 1$, which represents the speed of adjusting short-term imbalances and β' is a $1 \times n$ cointegration row vector (cointegration vector matrix), which shows the long-term coefficient matrix where Y_t leads to long-term equilibrium. Finally, ϵ_t is a vector $n \times 1$ white noise error term and k order autoregression. EG, POV, and UE indicate the economic growth, poverty rate, and unemployment rate.

Data

This study uses time series data of poverty rate, unemployment rate, and economic growth of Indonesia over the period 1990-2017. Economic growth is calculated as the annual changes in gross domestic product, while the poverty rate is measured by the annual percentage of the poor in the country and unemployment is unemployment rate is the percentage of people who are unemployed. All these secondary data are gathered from the Central Bank of Indonesia, Bank Indonesia, the Central Statistics Agency of the Republic of Indonesia, and the World Bank.

FINDINGS AND DISCUSSION

Table-2. Phillips-Perron stationary tests

Variable	Level	First-difference	Remark
POV	-1.673	-2.792***	Stationary
EG	-3.483	-10.992***	Stationary
UE	-0.664	-5.199***	Stationary

Note: *** shows of the $p > 0.05$.

Table-2 reports the findings from the Phillips-Perron stationary tests. All variables are found to be non-stationarity at the level, but they become stationary at the first difference at least at Table 2 shows that data on poverty, economic growth, and unemployment are not stationary at the level of 5% significance. Based on these findings, the next test of cointegration could be

This study aims to examine the long-run equilibrium and dynamic causal relationships among poverty, unemployment, and economic growth in Indonesia based on the cointegration and multivariate Granger causality tests within the Vector Error Correction Model (VECM) framework. Prior to the analysis, the stationarity, cointegration, and lag-lengths analyses are conducted. However, before the findings are presented, the study presents first the descriptive statistics of the variables in Table 1.

Table -1. Descriptive statistics

Statistics	POV	EG	UE
Mean	15.590	5.120	6.401
Maximum	24.233	9.000	10.752
Minimum	10.124	-13.101	2.553
Standard deviation	3.625	3.952	2.433
Skewness	0.567	-3.620	0.096

As observed from Table 1, the averages of the rates of poverty, unemployment, and economic growth were 15.59%, 6.40%, 5.12%, respectively. The poverty rate in Indonesia over the 1990-2017 period was ranging between 10.12% - 24.23%, while the economic growth and unemployment rate were between -13.10% - 9.00% and 2.55% - 10.75%, respectively. The highest levels of poverty and unemployment and the lowest level of economic growth were recorded during the 1997 east-Asian financial crisis hit adversely the country.

conducted as the variables have the level of the order of integration, I (1).

In the next step, the study tested the long run equilibrium (cointegration) among the variables. Based on the lag-lengths criteria of the Akaike (1969) Information Criteria (AIC), the lag-length of 4 is incorporated in the model. The finding of the Johansen-Juselius cointegration test is reported in Table3.

Table- 3. Findings of cointegration tests

Hypothesized No. of CE(s)	Eigen-value	Trace Statistic	0.05 Critical Value	Prob.
None	0.897***	72.652***	29.797	0.000
At most 1	0.589***	20.477***	15.495	0.008
At most 2	0.000	0.007	3.841	0.934

Note: ** indicates $p < 0.01$.

As illustrated in Table 3, the study found that poverty, unemployment, and economic growth share the long run equilibrium at the 5% level of significance.

This finding implies that the poverty, unemployment, and economic growth move towards a similar direction in the long-run, thus any deviation in one variable could be predicted by other variables in the model. Since our

study found the cointegration among the variables, thus the next analysis of multivariate Granger causal relationships among poverty, unemployment, and economic growth can be further examined.

Table 4 provides the long run effects of the unemployment rate and economic growth on poverty level in Indonesia. Referring to Table 4, the study found that both economic growth and unemployment rate negatively affected the poverty level at the 5% significance level, indicating that the higher the level of economic growth and the unemployment rate in the country, the higher the level of poverty reduction. However, economic growth is found to be a dominant factor in reducing the poverty rate in the country. This further implies that any efforts to reduce poverty, it should be done through the promotion of inclusive economic development.

Table- 4. Long run relationship

Variable	Estimated coefficient	t-statistics
EG	-10.566	-8.525***
UE	-3.871	-5.94***

Note: *** indicates $p < 0.01$.

The finding of negative unemployment-poverty relation shows the trade-off between the two. Those who are poor and unemployed, the unemployed people have a higher chance to be the poor, then the poor to be unemployed. When someone is said to be unemployed, he/she is not necessarily to fall into poverty because of an income that previously had to be consumed daily, the finding similar to those of Permana and Arianti (2013) and Wahyu and Rejekingsih (2013).

Finally, Table 5 reports the multivariate Granger causal relationships among the rates of poverty, unemployment, and economic growth in Indonesia using the framework of the VECM. Table 4.5 shows the multivariate Granger causal relationships between poverty, unemployment, and economic growth. It shows the reciprocal relationship from a variable to another variable within the multivariate framework. Poverty is found to be affected by economic growth and unemployment, but poverty only affects the economic growth and independent of unemployment. Additionally, the economic growth is Granger caused by poverty and unemployment, and it at the same time Granger causes both poverty and unemployment rates, indicates the bidirectional between economic growth, poverty, unemployment. Finally, the study found that unemployment is only Granger-caused by economic growth, while the unemployment Granger caused both poverty and economic growth.

Table- 5. Multivariate Granger causality

Dependent	Independent Variable		
	D(POV)	D(EG)	D(UE)
D(POV)	-	31.921*** (0.000)	7.940* (0.093)
D(EG)	64.85*** (0.000)	-	27.302 (0.000)**
D(UE)	7.510 (0.111)	11.772** (0.019)	-

Note: ***, **, and * indicate $p < 0.01$, $p < 0.05$, $p < 0.10$, respectively.

The figures in bracket show the F-statistics based on Wald-test.

D indicates the first difference of the data.

Our findings further indicate a unidirectional causal relationship running from unemployment to poverty in Indonesia. Unemployed people tend to live in poor condition, but poor people are not affected by their unemployed situation. This finding supports our earlier finding, where when people are said to be unemployed, they are not necessarily to be poor. The unemployed might have enough income or accumulated assets which are earned and saved from the earlier period when they are used to work (Permana and Arianti, 2013; and Wahyu and Rejekingsih, 2013). Alternatively, their assets could be inherited from their families who have demised.

Our findings further indicate that poverty is a multi-complex problem which is caused by both economic growth and unemployment and it in turns also caused the economic growth to decline. Thus, it is important for policy makers to design a comprehensive policy for promoting inclusive development so that all segments of the population would enjoy the benefits of economic growth. It is also strongly advised that the economic development should be given a priority for programs that directly empower the poor segment of the population (Syamni and Majid, 2016; and Majid *et al.*, 2018). Developmental programs that offer more job opportunities for the poor such as the establishment and enhancement of existing micro-small- and medium-enterprises should be the main focus of economic development agenda nationwide in Indonesia (Hasan *et al.*, 2018; and Juwita *et al.*, 2018). The pro-poor growth economy should be the priority of government in combating poverty (Menezes-Filho and Vasconcellos (2007) at the national, regional and provincial level in Indonesia.

CONCLUSION

Using the vector error correction model, the study empirically explored the effect of economic growth and unemployment on poverty over the period from 1990 to 2017 in Indonesia. It also attempted to investigate the dynamic causal relationship between economic growth, unemployment, and poverty within the multivariate framework. The study revealed that economic growth and unemployment have a negative and significant effect on poverty in the long run. The

study also documented a bidirectional causal relationship between poverty and economic growth and a unidirectional relationship running from unemployment to poverty. However, economic growth is found to be a dominant factor in reducing the poverty rate in the country, implying the importance of poverty reduction is done through the promotion of inclusive economic development.

Our findings further indicated that poverty is a multi-complex problem which is caused by both a decline in economic growth and an increase in unemployment. Thus, it is extremely imperative for the policy makers to design a comprehensive policy for promoting inclusive development so that all segments of the population would enjoy the benefits of economic growth. Developmental programs that offer more job opportunities such as the establishment and enhancement of the micro-small and medium-enterprises should be a main focus of the economic development agenda nationwide in Indonesia.

Further studies on the issue of poverty eradication would provide reliable comprehensive empirical findings by considering more variables into the model of estimation. These factors could cover both internal and external factors affecting poverty as well as its consequences. Investigating the causes of poverty and its impact on the economic welfare at the household level would also enrich the existing literature. Finally, comparing the poverty across the regions or provinces would also enhance the existing empirical findings on the investigated issues.

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