

IMPACT OF ECONOMIC GROWTH, INFLATION AND MINIMUM WAGE ON POVERTY IN JAVA

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ABSTRACT

This research analysis the impact of economic variable, which includes growth, inflation and minimum wage, on poverty rate in Java. Research coverage is poverty in Java because most of the poor live in this island. The secondary data that published by Indonesian Statistic is used in this research. This research used dynamic panel data regression based on Error Correction Model (ECM). The results show that the economic growth has negative impact on poverty rate in java, while the inflation has positive impact on poverty rate in Java. A higher economic growth is correspond to a lower poverty rate, while a higher inflation is correspond to a higher poverty rate. Furthermore, minimum wage has no impact on poverty rate in Java.

Keywords: *poverty; growth; inflation; minimum wage; Java.*

Introduction

The new primary purpose of the economic development is no longer creating the GNP growth rate as high as possible, but it focus to the elimination or reduction of poverty, income inequality, and unemployment in the context of the growing economy. In accordance with this view, the development of a country virtually no successful if it does not reduce poverty, reduce inequality income as well as provide enough jobs for its population. Nevertheless, some studies emphasized on the importance of economic growth as means for poverty reduction (Suryahadi *et al*, 2012). The link between growth and poverty is indeed particularly important from a dynamic perspective. The recent literature has indeed argued that too much poverty may be detrimental to the growth prospects of an economy. There might even exist poverty and inequality traps: an economy with a high level of poverty may fail to grow, or may grow very slowly.

The impact of growth on poverty is heterogeneous for two main reasons. First, it depends on the existing level of inequality. For a given rate of growth, the distribution-corrected rate of growth is then larger in more equal societies than in less equal ones (Ravallion, 2004). Second, the impact of growth depends on its type that is experienced. The growth differentiation across areas and sectors is bound to

affect inequality, and thus poverty, in addition to the poverty impact that is expected to be generated by average growth (Duclos *et al*, 2010).

To achieve sustainable growth and poverty reduction, interaction among the following three channels is critically important: (i) *Direct channel*, which impacts the poor directly (such as programs for basic health, sanitation, and education); (ii) *Market channel (or trickle down)*, where growth helps the poor via economic linkages (such as inter-sectoral and inter-regional labor migration, increasing demand, reinvestment through formal, informal and internal finance); and (iii) *Policy channel*, which supplements market channel (such as subsidies, fiscal transfer, and public investment).

Higher rates of growth usually result in more rapid poverty reduction. This condition is called as pro poor growth. Addressing whether growth is pro-poor first requires clarifying the concept of pro poorness, which is usually related to the idea that the poor get more from growth than some predefined benchmark. This idea has generated considerable debate in the scientific and policy community (Duclos, *et al*, 2010). Growth is defined as pro-poor if it reduces absolute poverty. In the relative approach, growth is pro-poor if it reduces inequality and relative poverty, meaning that growth must benefit the poor proportionately more than the non-poor. Although the most frequently advocated manner to achieve absolute poverty reduction is through economic growth, whether growth can be deemed to be pro-poor thus depend on the impact of growth on inequality and on how much this impact on inequality feeds into poverty (Dollar and Kraay, 2002).

Beside growth, there are some factor which affects poverty such as inflation and wage rate. Inflation affects poverty mainly through its impact on real wages because nominal wages fail to increase as fast as prices in episodes of rising inflation rates. A higher inflation indicate a lower purchasing power. Inflation reduce the number of goods and services can be purchased so that the society consumption also decrease. A decreasing of society consumption indicate a lower society welfare and an increase the number of people living below the poverty.

Meanwhile, wage rate also affects purchasing power of worker. An increase in wage rate affects an increase of society's income so that the government set a minimum wage policy to solve the low wage market problems. A minimum wage prevents unfair competition in the negotiation between employer and worker. Earnings of anyone working full-time should be sufficient to cover at least the means-tested social minimum. Minimum wage policy is a means to prevent poverty among the poor worker (Muller and Sainer, 2008). If the survival needs be are met, then the worker's welfare will increases and they will free from poverty trap.

Indonesia has implemented three strategies of economic development that is pro-growth, pro-jobs, and pro-poor strategies. Acceleration of economic growth that will create employment opportunities and bring high Indonesian households out of poverty. Furthermore, this study examines the impact of growth, inflation and minimum wage on poverty in Java. This is because most of the poor live in Java.

Theoretical Bases

Economic Growth, Inflation and Minimum Wage

One of the goals to be achieved in economic development is the reduction of poverty. Economic growth is used as a catalyst to reduce poverty. Higher economic growth will be followed by higher people's income so that the number of people living below the poverty is reduced. In order that economic growth play a vital role in poverty reduction, it is necessary to improve income distribution. Economists view that the relationship between growth, inequality and poverty is a very complex (Kakwani *et al*, 2004).

There are several factor which affects poverty such as inflation and wage rate. Inflation reduce real income especially for the fixed income group. During inflation, those in the fixed income group lose because prices of some goods and services rise faster than nominal wage. The poor classes suffer because their wages are fixed but the prices of commodities continue to rise (Oye, 2012).

In order to prevent poor families from poverty trap, the government set a minimum wage which higher than market wage. Minimum wages affect the income distribution and may thus serve as a policy instrument to reduce poverty (Muller and Stainer, 2008). Minimum wage tend to boost the incomes of poor families that remain below poverty line. On the other hand, there is a negative effects of minimum wages is suffered by people who have a high vulnerability to changes in labor market conditions, such as working women, young workers, and less educated worker (SMERU, 2001).

Poverty alleviation does not be separated with economic empowerment. Economic empowerment is a means for poor women and men to participate in, contribute to and benefit from growth processes on terms which recognize the value of their contributions, respect their dignity and make it possible for them to negotiate a fairer distribution of the benefits of growth. Economic empowerment means people thinking beyond immediate survival needs and thus able to recognize and exercise agency and choice (Eyben *et al*, 2008).

The Previous Studies Results

Resnick and Birner (2006) analysis a range of quantitative cross-country studies that include measures of governance as independent variables and focuses on the dependent variable in at least two of the three dimensions of pro-poor growth: poverty, inequality, and growth. The results shows that governance indicators which capture a sound decision-making environment for investment and policy implementation, such as political stability and rule of law, are associated with growth but provide mixed results in regard to poverty reduction. On the other hand, governance indicators that refer to transparent political systems, such as civil liberties and political freedom, tend to be conducive for poverty reduction, but the evidence is rather mixed, and the relationship of these variables with growth remains unclear.

Fujii (2011) simulate the impact of actual food price increase between June 2006 and June 2008 on poverty across different areas and whether the household's main income source is agricultural activities. He explicitly treat heterogeneity in food price changes and the patterns of consumption and production by merging a expenditure survey dataset and a price dataset at the provincial level or lower. While the increase of head count index is larger for non-agricultural households than agricultural households, the opposite is true for the poverty gap and poverty severity measures, because poor agricultural households are particularly vulnerable to food inflation.

Meanwhile, Farwati (2012) test whether economic growth in Indonesia is categorized as pro-poor growth. This study uses regression analysis based on provincial data from 2004 until 2010. The results showed that economic growth plays a role in poverty reduction efforts. The effect of government spending on poverty levels vary for different types of expenditure. Public expenditure on education and health has a significant impact on poverty reduction through a reduction of income inequality.

Suryahadi *et al* (2012) assess the relationship between economic growth and poverty reduction in Indonesia before and after the Asian financial crisis. The results show that Indonesia has a significantly slower poverty reduction during post Asian financial crisis compared to the pre Asian financial crisis era. During post Asian financial crisis, industrial sector growth has become irrelevant for poverty reduction even though this sector makes up the second largest share of GDP. Meanwhile, the importance of agricultural sector growth for poverty reduction is confined only to rural areas.

Furthermore, this research want to know whether the economic growth and minimum wage have negative impact on poverty, meanwhile the inflation have positive impact on poverty in Java. A higher economic growth and minimum wage is followed by a lower poverty, and as higher inflation is followed by a higher poverty.

Methodology

The secondary data which published by Indonesian Statistic was used in this research. The research variables are percentage of poverty, economic growth, inflation and provincial minimum wage in Banten, Jakarta, West Java, Central Java, Yogyakarta Special Region, and East Java. Data from 2003 to 2011 was used in this research. The end point in 2011 due to the data in 2011 is the latest publication of Indonesian Statistic.

This research cover data of poverty, economic growth, inflation and minimum wage in six province in Java during 2003-2011. Thus, the research data is panel data which is combination of cross section and time series data. The panel data has several advantages compared to cross section and time series data (Baltagi, 2003). The advantage of panel data are : 1). panel data can control individual heterogeneity, 2). panel data give more information, variability, degree of freedom

and reduce the collinearity between variables, 3). panel data is better to observe the dynamic of adjustment than cross section and time series data.

The research model is translated in the regression equation based on dynamic error correction model (*ECM*). The model regress percentage of poverty on economic growth, inflation and minimum wage.

$$dPOVR_{it} = \alpha_i + \sum_{j=1}^k \omega_{ij} POVR_{it-j} + \sum_{j=0}^k \beta_{ij} dGROW_{it-j} + \sum_{j=1}^k \gamma_{ij} d_2 INF_{it-j} + \sum_{j=1}^k \delta_{ij} dLMINW_{3it-j} + \lambda ECT_{t-1}$$

The expected sign of coefficients: $\beta < 0$; $\gamma > 0$; $\delta < 0$; $0 < \lambda < 1$.

Respectively *POVR* is percentage of poverty, *GROW* is economic growth, *INF* is inflation and *LMINW* is minimum wage (in natural-log). Furthermore, we perform reduction starting from the longest lag until shortest lag in order to obtain simple estimated model. By estimating the *ECM* equation with appropriate lag, it can be determined the short term estimated coefficient as well as the speed of adjustment (λ) with a negative coefficient. The magnitude of speed of adjustment indicates the extent of poverty toward its long-term equilibrium.

Empirical Results

An importance concept in econometric is stationarity data. The stationer data has a tendency toward its average value. However, the non-stationer data has no tendency toward its average value. If two or more variables are not stationary, then regression analysis using this data produce a spurious result.

To determine whether the observed variables are not stationary or stationary, we use unit roots test. The unit roots test based on Im, Pesaran and Shin (*IPS*) model is used in this research. This test is performed based on average *ADF* statistics that calculated for each group in the panel data, known as \bar{t} -test. The unit roots test based on Im *et.al* model has better small sample properties than that based on model of Levin and Lin when N exceeds T .

The results of unit roots test show that variables in the model are not stationary at level, except inflation. So that the unit roots test is extended by a degree of integration test to determine when these variables are stationary. The results of degree of integration test show that all variables are stationary in the first degree of integration (Table 1).

Table 1**The Results of Unit Roots and Degree of Integration Test**

Variable	Level		First Difference	
	t-statistic	Critical Value	t-statistic	Critical Value
<i>POVR</i>	0.644	-1.645	-6.001 *)	-1.645
<i>GROW</i>	-0.354	-1.645	-2.235 *)	-1.645
<i>INF</i>	-2.303*)	-1.645		
<i>LMINW</i>	5.130	-1.645	-1.832 *)	-1.645

*) significant at $\alpha=5\%$

The next stage after the unit roots and degree of integration test is the cointegration test. This test is used to determine whether a set of variables are cointegrated or are not cointegrated. This approach is related to the possibility of long term equilibrium relationship among variables such as desired in economic theory. In this study, the cointegration test refers to the Kao model.

Kao co-integration test results shows the value of t statistic of -3.875, meanwhile its critical value of -1.645. Thus, this result indicates a rejection to null hypothesis which states no co-integration among variables in the model. The variables in model have long term equilibrium relationship so that the residual of regression is stationary.

Furthermore, to avoid incorrect model specification due to too short lag and reduction degree of freedom as consequence of too long lag, then it is necessary to determine the optimal lag length. Determination of lag length is based on Akaike Information Criterion (*AIC*). This criterion is superior to other criterion (Liew, 2004). The lowest value of Akaike Information Criterion indicates that optimum lag, is occurs at a lag of 1 year (Table 2).

The Error correction model (*ECM*) has a fixed equilibrium among economic variables in long term. The short term in-equilibrium which occurs in the short term, will be corrected in the next period. An error correction mechanism harmonize the short term and long term behavior. This mechanism avoid the spurious regression problem by using difference variables without losing long term information.

Table 2
The Results of Lag Length Determination

No.	Lag Length	The Value of Akaike Information Criterion
1	1 1	2.525)*
2	1 2	2.739
3	2 2	2.849

*) optimal length lag

To choose the better model regression whether *fixed effects* or *random effects* is necessary to do Hausman test. The Hausman test result shows that the value of X^2 statistic of 13.866, while its critical value of 11,071. Thus, the X^2 statistic exceeded its critical value so that the better model is fixed effects.

In order to get the parsimony model, the next step is the reduction of the insignificant parameters by applying redundant coefficient test. This result is used as the basis for analysis. The magnitude of R^2 is relatively high, this is because the regression model is performed by first difference variables, not variables in the its level. The value for R^2 (goodness of fit) of 34.65 indicating 34.65 percent of poverty variation is explained by the explanatory variables. The significant error correction term ($ECT_{i,t-1}$) shows that this model has a long run equilibrium and a correction processing toward its equilibrium. Thus, in-equilibrium of 0,153 percent between actual poverty and desired poverty will be eliminated in one year.

The result shows that the poverty in one year ago is not significant. There is an indication that current year poverty is not caused by the poverty that occurred in one year ago. The poor household in last year, can turn out into a non-poor household in current year, and vice versa.

Table 3
The Estimation Results

No.	Variable	Coefficient	t statistic	critical value
1	$CONSTANTA_{i,t}$	-1.102	-3.445 *	-1.645
2	$DPOVR_{i,t-1}$	-0.201	-1.202	-1.645
3	$DGROW_{i,t-1}$	-0.404	-1.801 *	-1.645
4	$DINF_{i,t-1}$	0.081	2.327 *	1.645
5	$DLMINW_{i,t-1}$	0.007	1.593	1.645
6	$ECT_{i,t-1}$	-0.153	-1.833 *	-1.645

Dependent variable : $DPOV_{i,t}$

R^2 : 0.3465

Based on the result, there is a negative influence of economic growth on poverty. One percent increase in economic growth correspond to an decrease in the poverty rate of 0.404 percent, *ceteris paribus*. The economic growth is representation of an increase in gross domestic product (*GDP*). The economy produce more goods and services. More and more goods and services produced, more and more resources required, including human resources. A group of society that initially unemployed or underemployed are now fully involved in the production process. They get a fringe benefit from the production process so their income increase and in turn they can turn out from the poor trap.

This results support Farwati's finding (2012) which states that economic growth plays an important role in poverty reduction. The economic growth shows an increase in the goods and services that in turn distributed to all parties which involved in the production process. In general, the public ownership of the goods and services will increase so that they are no longer grouped in a poor household.

Furthermore, the inflation has a positive influence on poverty. A higher inflation is followed by a higher poverty rate. One percent increase in inflation correspond to an increase in poverty rate of 0.081 percent, *ceteris paribus*. The inflation indicate a decline in real income so that society's purchasing power is also reduced. Goods and services consumed by the society are reduced, so that the society's consumption will be decrease. A decrease in this consumption shows a decline of society's welfare. Thus an increase in inflation causes more society group fall into the poor so that the poverty rate increase. This results support the findings of Fujii (2011) which states that food inflation in particular have a negative impact on the poor farm households. The poor are particularly vulnerable to the food inflation.

The increase in provincial minimum wage has no impact on the poverty in Java. This is presumably due to the negative impact of higher minimum wage on employment. An increase in the minimum wage correspond to an increase labor's income. But on the other hand, an increase in the minimum wage causes the production technology become more capital intensive so that a part of workers forced out of the formal sector to the informal sector which gives a lower wage, while most other workers involuntarily unemployed. Thus the positive impact of an increases in minimum wage on labor's income will be offset by its negative impact on the group of workers that were forced out of the formal sector .

The result are consistent with finding of *SMERU* (2001) which states that the negative impact of the minimum wage strongly felt by those who have a high vulnerability to changes in labor market conditions, such as women workers , young workers, and less educated workers. Keep in mind that they are the majority of workers in Indonesia, both in the formal or informal sector. Implications of an increase in minimum wage is offset by a decrease in employment of women and young age as well as poorly educated work force .

Conclusion and Recommendation

The following conclusions have been drawn from this study.

1. Economic growth has negative impact on poverty rate in java. A higher economic growth is correspond to a lower poverty rate.
2. Inflation has positive impact on poverty rate in Java. An increase in inflation causes a part of society fall to poor so that the poverty rate increase.
3. An increase in minimum wage is not affects to poverty rate in Java. Higher minimum wage is not associated with a decrease in poverty rate.

In the light of the results of this study, the following recommendations are suggested to reduce poverty.

1. Pro poor growth would be a key objective of the planning strategy. Entire reliance should not be placed on trickle down effect of economic growth because by itself this process is quite slow in reducing poverty unless deliberate policies are adopted which directly affect the poor.
2. Government would take safety net to anticipated negative impact of an increase in provincial minimum wage. This policy stress on the maintaining employment to support poverty reduction effort.

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