



Original Article

How Population, Economic, Inequality and Unemployment Contribute Affect Indonesian Poverty

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Abstract: In the globalization era, poverty is one of the world's fundamental problems, especially in developing countries. With living standards often poor in developing countries, poverty will only get worse in the future. Thus, the current study investigates the relationship between poverty with population growth, economic growth, income inequality, and the unemployment rate in Indonesia. The data used is data from 33 provinces compiled by the Indonesian Central Bureau of Statistics. The results showed that population growth positively affected poverty severity. The economic growth variable has a positive effect on the poverty rate. Income inequality has a positive effect on the poverty gap and poverty severity. Also, the unemployment rate variable positively affects the poverty rate, poverty gap, and poverty severity. Based on these findings, it is suggested that the government maintain stable population growth, create an economy that all groups can enjoy, equitable distribution of infrastructure, social and economic development, and provide more employment opportunities. In addition, a poverty alleviation policy is needed that is sustainable from time to time.

Keywords: poverty headcount; poverty gap; poverty severity; macroeconomic variables.



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1. Introduction

Poverty is one of the fundamental problems in the world, especially in the case of developing countries. Because the living level in developing countries is typically very poor, poverty will only worsen in the future. According to Yolanda (2017), poverty is a state of community inability to fulfill basic needs such as food, clothing, shelter, education, and health. At the General Assembly of the United Nations (UN) in New York in September 2015, a Declaration on the 2030 Agenda for the Sustainable Development Goals (SDGs) was agreed upon, which made poverty alleviation a priority goal. According to Leal Filho et al. (2021), the world's population living below the poverty line is 10% of the world's population. Poverty limits people's ability to meet their food, clothing, shelter, and health needs. Lucas et al. (2016) state that poverty is a multi-dimensional and complex phenomenon that can be interpreted from various perspectives; poverty impacts the loss of minimum resources to starvation. Farbmacher et al. (2021) and Callander et al. (2011), poverty is closely related to unhelpful behavior; for example, the poor tend not to take advantage of preventive health services, gamble, smoke, and tend to have high-interest debt. Government intervention and assistance are needed to alleviate

poverty. However, in Ravallion (1990), direct government intervention depletes available resources for economic development, indirectly hindering future poverty alleviation programs.

Three indicators are generally achieved in assessing poverty: First, the Poverty Headcount Index (P0) is the percentage of the population categorized as poor in a region or a country. Second, the Poverty Gap Index (P1) describes how far the expenditure of people categorized as poor is to the poverty line. This index can also show how much increase in average income is needed to escape poverty. The third is the severity of poverty, the Poverty Severity Index (P2), which is an index that describes how big the income inequality is between the poorest groups of people and the average income of the poor. The greater the poverty severity value, the more a region or country requires a more significant and well-targeted allocation of funds to alleviate poverty in that region (Foster et al., 2010). As a developing country, poverty is certainly a crucial problem for Indonesia. Indonesia's poverty rate can be reduced gradually. Development of the Percentage of the Poor in Indonesia from 2006 to 2021, the poor were 13.6 percent in 2006 and 9.71 percent in 2021. The record for the lowest poverty percentage is in 2019, amounting to 9.4 percent. In the Medium-Term Development Plan (RPJMN) for 2020 to 2024, the government targets the poverty rate to be 6.0-7.0 percent.

Table 1. Poverty Rate In Indonesia

Year	P0	P1	P2
2006	12,52	2,82	0,81
2007	16.58	2.99	0.84
2008	15.42	2.77	0.76
2009	14.15	2.5	0.68
2010	13.33	2.21	0.58
2011	12.49	2.08	0.55
2012	11.66	1.9	0.48
2013	11.47	1.89	0.48
2014	10.96	1.75	0.44
2015	11.13	1.84	0.51
2016	10.7	1.74	0.44
2017	10.12	1.79	0.46
2018	9.66	1.63	0.41
2019	9.22	1.5	0.36
2020	10.19	1.63	0.47
2021	9.71	1.67	0.42

Source: Central Bureau of Statistics, Indonesia

Note: Headcount Index (P0), Poverty Gap Index (P1), and Poverty Severity index (P2)

Poverty is a complex problem, and many factors can cause and explain it. Donaldson (2008) said that finding solutions to poverty is very difficult because it deals with complex social problems and the laws and regulations supporting them. Theoretically, an economy is developing if economic growth can reduce poverty levels. Mulok et al. (2012) and Saboor et al. (2004) stated that economic growth could increase real income and employment opportunities, reducing poverty. This condition is needed to get people out of poverty permanently. Increased income due to economic growth will also affect the quality of human development. According to Naylor (1997), increasing unemployment in developing countries has profound implications for increasing poverty levels, hunger, and food security, especially in rural areas that lack infrastructure and resources. (Hassan et al., 2016) wrote that unemployment and poverty are two things that are closely related in the current economy. Unemployment lowers the aggregate level of income and exacerbates the difficult economic situation. For maximizing the poverty alleviation programs, conditions for equal income distribution must be realized. Raza Cheema & H. Sial, (2012) wrote that if economic growth increases inequality, the poverty rate will increase due to the adverse effects of this inequality. Reinforced by Dhrifi (2013), when income inequality is high, the effect of economic growth on poverty will decrease. High inequality can be a trigger for social and political instability, which leads to sluggish investment, which ultimately hinders sustainable development.

2. Literature Review

Poverty is closely related to and inherent in conditions of deprivation, be it a lack of food, clothing, health, education, social security, and a sense of security that will determine the overall quality of human life. Haughton & Khandker (2009) defined poverty as "less prosperous." It is called that because the poor do not have control over

consumer goods such as food, clothing, shelter, education, and other needs. Being poor means losing access to goods, services, and pleasures everyone may need to realize. Ravallion (2020) said that poverty arises when a person or group cannot achieve a minimum level of economic well-being that is considered reasonable on an absolute scale and in certain societal perceptions.

In his essay entitled "Principle of Population," Malthus said, "naturally human food sources grow in slow arithmetic times, while humans increase in fast geometric ratios." This theory is based on two assumptions: output, which decreases with increasing labor, and population growth rates above the minimum growth rate of means of life (Chowdhury & Hossain, 2019). Reproduction results from deliberate human action, so an irresponsible increase in family size can result in decreased income and poverty (Rutherford, 2007). The effects caused by uncontrolled population growth are quite diverse but can be summed up in one main idea: "limited amount of resources. Anah (2009) explained that the rapid population growth in the third world exacerbates the problem of providing food, employment, shelter, and education and alleviates absolute poverty.

Furthermore, population growth reduces the relative return value of labor to capital and other factors of production, suppresses wage levels, and exacerbates income inequality. Solow said that the economy must be in a steady state. Faster population growth will reduce the population's consumption standard (McNicoll, 1997). According to Todaro & Smith (2012), the world's population increases by more than 75 million people yearly, and almost 97% comes from developing countries. Kuznets stated that economic growth is a long-term increase by a country in providing the economic needs of its population. Two parameters are used to see economic growth, namely: an increase in average household expenditure (household survey) and an increase in GDP per capita (state finance) (Richard, 2003). The response of poverty to economic growth in each country is different. However, on average, most studies have successfully explained the relationship between economic growth and poverty reduction. There is a positive relationship between economic growth and poverty alleviation, where positive economic growth ultimately increases the per capita income of the poor (Dollar & Kraay, 2004). Conversely, negative economic growth will trigger a decrease in per capita income, contributing to an increase in the poverty rate (Nallari & Griffith, 2011).

The relationship between income inequality and poverty is closely related to Kuznets' hypothesis. This hypothesis claims that in countries at the start of economic development, income distribution tends to worsen until these countries reach middle status. Then gradually decreases along with the development of the country's economy; this hypothesis implies that if economic growth results in inequality, then the impact of economic growth on the poor will be weak. So it can be concluded that developing countries need longer to reduce their poverty level than developed countries (Richard, 2003).

Inequality in income has long been a problem in the world in terms of ethical evaluation and statistical approaches. The emergence of progressive tax policies has made countries include income redistribution as the main point in formulating fiscal policies. Economic growth and income redistribution must go hand in hand and balance in reducing poverty levels. The reason is that income redistribution policies (in this case, progressive taxes) can hinder economic growth. After all, groups of wealthy individuals will reduce the labor supply in response to too high taxes (Bergstrom, 2022). Reducing the unemployment rate has been heralded both nationally and internationally as a way to elevate the standard of living of disadvantaged people. Regardless of its ability, the workforce's role positively impacts the quality of life of disadvantaged communities (Callander et al., 2011). Abdurachman et al. (2021) stated that unemployment is an indicator of a country's progress; the lower the unemployment rate, the government is considered successful in managing the lives of its people; conversely, the higher the unemployment rate, the government is considered to have failed in fulfilling people's rights. Furthermore, unemployment directly challenges the country's social and economic stability, hindering its social and economic development.

3. Materials and Methods

3.1. Materials

The research conducted is quantitative descriptive research. The data used in this research is secondary data published by the Indonesian Central Bureau of Statistics and the World Bank. The data used are Poverty data (P0, P1, and P2), population growth rates, economic growth data, income distribution (Gini Ratio), and the unemployment rate in the Province of Indonesia over the year in percent units.

3.2. Methods

The model used in this study is Generalized Least Square (GLS), which is as follows:

$$\text{Model 1: } P_0 = \beta_0 + \beta_1 \text{Pop} + \beta_2 \text{Gro} + \beta_3 \text{Gin} + \beta_4 \text{Une}, \quad (1)$$

$$\text{Model 2: } P_1 = \beta_0 + \beta_1 \text{Pop} + \beta_2 \text{Gro} + \beta_3 \text{Gin} + \beta_4 \text{Une}, \quad (2)$$

$$\text{Model 3: } P_2 = \beta_0 + \beta_1 \text{Pop} + \beta_2 \text{Gro} + \beta_3 \text{Gin} + \beta_4 \text{Une}, \tag{3}$$

P0 is the Poverty Headcount Index, P1 is the Poverty Gap Index, P2 is the Poverty Severity Index, Pop is population growth, Gro is economic growth, Gin is inequality, and One is the unemployment rate. The GLS procedure is assumed to restrain time-series autocorrelation and cross-section correlation among observations. The GLS method is an estimator to satisfy the best linear unbiased estimation (BLUE). It aims to solve homoscedasticity and autocorrelation assumptions.

4. Results

Descriptive data from each variable Poverty Headcount Index (P0), Poverty Gap Index (P1), Poverty Severity Index (P2), Population Growth (Pop), Economic Growth (Gro), Income Inequality (Gin), and Unemployment Rate (Une) as shown in Table 2:

Table 2. Descriptive Statistics of Studied Variables

Indicator(s)	P ₀	P ₁	P ₂	POP	GRO	GIN	UNE
Mean	13.03612	2.364754	0.671307	1.790991	5.148864	35.55852	6.186913
Median	11.45000	1.880000	0.465000	1.660000	5.505000	35.50000	5.640000
Maximum	41.52000	12.97000	5.660000	5.460000	28.47000	50.60000	18.91000
Minimum	3.420000	0.270000	0.040000	0.193000	-17.14	23.60000	1.400000
Skewness	1.193215	2.164123	3.087364	1.49828	-0.31144	0.242968	1.075495
Kurtosis	4.433459	9.278124	16.02468	6.476109	14.68123	3.163558	4.38004
Jarque-Bera	170.4968	1279.268	4570.932	463.3795	3010.461	5.783466	143.6879
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.055480	0.000000
Sum	6883.07	1248.59	354.45	945.643	2718.6	18774.9	3266.69
Sum Sq. Dev.	28460.49	1821.877	246.3338	350.5975	6553.948	8859.522	3709.611
Observations	528	528	528	528	528	528	528

Source: Central Bureau of Statistics

Three models were studied to test the best model. The Chow test assessed the best model among the Common Effect Model (CEM) or Fixed Effect Model (FEM). If the P-value, alpha <0.05, the best model is FEM. Then the Hausman test assessed the best model between the Random Effect Model (REM) and FEM. If the P-value < 0.05, the best model is FEM; the best model test results can be seen in the following Table 3 below:

Table 3. Selection of the Best Model

	Probability		Selected Model
	Chow Test	Hausman Test	
Model 1	0.0000	0.0010	FEM
Model 2	0.0000	0.0013	FEM
Model 3	0.0000	0.0015	FEM

Table 4. Results of the EGLS Panel Estimation

Variable	P0		P1		P2	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
Constant	7.553.892	0.0000	1.994.781	0.0005	0.485847	0.0240
POP	0.214456	0.3673	0.119301	0.1581	0.072187	0.0234
GRO	0.112031	0.0005	0.010867	0.3418	-0.00254	0.5542
GIN	0.071640	0.0758	0.038110	0.0079	0.011750	0.0293
UNE	1.142.531	0.0000	0.235278	0.0000	0.078739	0.0000
R-Squared	0.908186		0.819153		0.810854	
Adj R-Squared	0.901454		0.805893		0.796986	

Table 4 displays the result of econometric estimation using the GLS method. The result indicates that population growth significantly positively affects the poverty severity index (P2) by 0,072 percent. Economic growth significantly

positively affects the poverty headcount index (P0) by 0,11 percent. Income Inequality significantly affects the poverty gap index (P1) by 0,04 percent, and the poverty severity index (P2) by 0,01 percent. The unemployment rate has a significant positive effect on poverty headcount index (P0) by 1,14 percent, poverty gap index (P1) by 0,23 percent and the poverty severity index (P2) by 0,81 percent.

5. Discussion

Annually, more than 75 million people are added to the aggregate world population, and 97 percent of that contributes to developing countries (Todaro & Smith, 2012). Population growth affects many phenomena, including the age structure of the national population, international migration, economic inequality, and the size of the national labor market. Uncontrolled population growth, especially in developing countries such as Indonesia, can burden the country's economy and exacerbate poverty (Pernia, 2011). Controlling one child's number can prevent a family from falling into poverty by three to four percent (Klasen, 2004). Theoretically, poverty can be reduced by improving economic performance, especially in the modern era; economic growth is the main objective of stabilization policies worldwide (Meo et al., 2018). Economic growth has been a benchmark in poverty alleviation programs, especially in Southeast Asian countries after the 1998 economic crisis (Warr, 2000). However, good economic growth in reducing poverty levels is economic growth that is evenly distributed and can be felt by all groups of people (Ncube et al., 2014).

According to Kuznets theory that the poor do not always automatically enjoy the benefits of economic growth, in the early stages of economic development, inequality will grow, and this situation will increase poverty until it reaches a condition when income distribution is more equitable, inequality will decrease, and the number of people affected by economic growth will increase (Škare & Družeta, 2016). There is one view which considers that long-run positive economic growth is a necessary condition for huge-scale poverty alleviation. It is because no country has prospered just by being successful with equal income distribution in society (Warr, 2006). In developing countries, inequality in income distribution is needed to spur poverty reduction as long as this inequality can be controlled (Son & Kakwani, 2004). At the same time, previous studies of inequality could go hand in hand where when the level of inequality is large enough, the poverty rate is close to zero percent (Salverda et al., 2022). Finally, a high unemployment rate worsens economic performance and reduces people's purchasing power, especially in developing countries. Ultimately that situation will eat up the funding bases of the state welfare program and exacerbate poverty (Hassan et al., 2016). Poverty can be mitigated by opening new jobs (Islam, 2004; Mohammad & David, 2019). High unemployment rates result in poverty, and the unavailability of jobs makes it difficult for the poor to escape poverty (Akinmulegun, 2014).

6. Conclusion

This study concludes that population growth affects increasing poverty and its derivative effects. The government controls population growth by conducting counseling and implementing programs to promote population growth, namely the Family Planning program. Economic growth increases poverty and the impact of inequality arising from this growth. Economic growth can be said to be good in reducing poverty if economic growth can be felt by all levels of society, including the poor. To achieve equitable economic growth, the government must be able to make economic policies that are right on target and carried out consistently in improving the real and industrial sectors' performance and income distribution. There is also a need for equitable economic, infrastructural, and social development. Moreover, high unemployment rates also increase poverty. The role of the government is needed to overcome the problem of high unemployment rates. In the short term, the government can implement labor-intensive programs such as building public facilities that absorb labor. In the long term, the government is needed to promote domestic and foreign development investment and support the growth of the informal sector industry (home industry) and entrepreneurial practices so that it is expected to provide more jobs. In closing, the government needs to develop a sustainable poverty alleviation program, not just as a project or a political program. The government can conduct assessments in formulating and categorizing the dimensions and causes of poverty, analyzing resource needs and potentials that can be developed, and formulating programs that suit the needs of the poor and the parties involved in them.

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