

RELATIONSHIP BETWEEN ECONOMIC GROWTH, INCOME INEQUALITY AND POVERTY BY PROVINCES IN INDONESIA: PANEL DATA REGRESSION APPROACH

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Abstract:

Researchers found that the decrease in income inequality affects poverty reduction through redistribution policies. This redistribution policy has also accelerated poverty reduction. In addition, the researcher found that the element of growth led to the achievement of poverty reduction in the long term. Researchers show that economic growth has the power to determine poverty reduction. The type of data in this study uses secondary data sourced from the Central Statistics Agency (BPS), namely Gross Regional Domestic Product (GRDP) at Constant Prices (ADHK) 2010, Number of Poor Populations, and Gini Ratio by Provinces in Indonesia during the period 2015-2020. The analytical method used is panel data regression using three forms, namely: CEM (common effect model), FEM (fixed-effect model), and REM (random effect model). Based on the empirical findings using panel data regression, it can be concluded that the variables of economic growth (LOGPDRB) and income inequality (GIN) are consistent with various panel regression models as well as the common effect model (CEM), fixed effect model (FEM) and random effect. In addition, the model (REM) positively affects the number of poor people. It means that if the two variables increase, there will also be an increase or increase in the number of poor people according to the provinces in Indonesia.

Keywords: Economic Growth, Income Inequality, Panel Data Approach, Gross Regional Domestic Product.

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INTRODUCTION

Empirical studies in the field of economics that examine the relationship between the occurrence of economic growth and poverty reduction are found in the literature of Dollar and Kraay (2002), and Bourguignon (2004). According to Zhuang and Ali (2012), Ali (2007), Ali and Son (2007) argue that inclusive growth focuses on creating economic opportunities and ensuring equal access opportunities, which will play an important role, in the relationship between economic growth and poverty reduction. At least three main policy pillars must support inclusive economic growth. First, every born policy must be able to create job opportunities and productive economic opportunities. Second, policies must also ensure equal access to economic opportunities. Third, a development policy must be able to prevent poor people from falling into situations of chronic poverty and mitigate the effects of shocks caused by the crisis. Above all, we must realize that development, whatever its form, is always in the context of the distribution and allocation of power over the results. Therefore, the state must continue to be reminded that development is not just a vehicle for power transactions by elites and owners of capital. The state must play a role in protecting, supervising, and preventing the occurrence of economic behavior that is detrimental to some groups of people. Therefore, economic growth is considered the most influential instrument for reducing poverty.

The Indonesian economy is currently facing major challenges. This challenge is related to efforts to change the pattern of economic growth, which is heavily dependent on abundant natural resources and cheap labor wages, into a pattern of economic growth that is more inclusive (inclusive growth) and environmentally friendly and sustainable (green growth). Inclusive growth is defined as growth that generates economic opportunities and ensures equitable access for all members of society to the economic opportunities created. In the context of poverty alleviation, economic growth is very important and necessary in providing a quantitative and positive initial impetus. (Vanegas, 2014; kare and Družeta, 2016). Where, currently Poverty is one of the biggest and most fundamental challenges throughout the world (Dauda, 2016). Thus, the fight against poverty is the main goal of 21st-century modern economic development (Millennium Development Goals), which all countries have declared in various parts of the world. The views mentioned above are reinforced by the findings of Dollar and Kraay (2002), stating that economic growth can reduce poverty. On the other hand, many economists (Bourguignon, 2004; Milanovic and Yitzhaki, 2002) believe that economic growth can reduce poverty, but meeting the conditions of institutional and political factors, always plays an important role in reducing poverty.

Indonesia's economic development in accordance with the mandate in the Preamble to the 1945 Constitution is to create a just and prosperous society. This is achieved through economic development policies with the main target of reducing poverty, income inequality, and the unemployment rate. Development is also directed at creating employment opportunities for residents in various regions in a sustainable manner. Economic growth is not the only main goal of development efforts, but it reaches out to socio-economic development, equitable development, and eliminates inequality.

Poverty and inequality are at the core of general economic development problems (Arsyad, 2010). Poverty alleviation and income inequality are currently the main problems in development in many countries. Inequality between regions is a common aspect including poor countries, developing countries, and even developed countries. Inequality between regions is caused because each region has differences in resources, labor, and technology (Berg & Ostry, 2017; Chen & Groenewold, 2019).

In the context of poverty in Indonesia, was based on data, the percentage of poor people in September 2020 was 10.19 percent, an increase of 0.41 percentage points from March 2020 and an increase of 0.97 percentage points to September 2019. As a result, the number of poor people in September 2020 was 27.55 million, an increase of 1.13 million in March 2020 and an increase of 2.76 million in September 2019. Conditions in Indonesia are also the proportion of poor people living in urban and rural areas. The percentage of the urban poor in March 2020 was 7.38 percent, rising to 7.88 percent in September 2020. Meanwhile, the percentage of the rural poor in March 2020 was 12.82 percent, rising to 13.20 percent in September 2020. Therefore, this condition experienced an increase. Where, the number of poor people in September 2020 in urban areas rose by 876.5 thousand people, from 11.16 million people in March 2020 to 12.04 million people in September 2020. This condition is also almost the same in rural areas, where the rural poor population increased by 249.1 thousand people, from 15.26 million people in March 2020, which increased to 15.51 million people in September 2020.

Referring to data from the Central Statistics Agency (BPS) in 2021, where the poverty line in September 2020 was recorded at Rp. 458,947/capita/month with the composition of the Food Poverty Line of Rp. Non-Food Poverty is Rp. 119,943, - (26.13 percent). In addition, based on data in September 2020, poor households in Indonesia have 4.83 household members. Thus, the average size of the Poverty Line per poor household is IDR 2,216,714,-/poor household/month.

In September 2020, the level of inequality in the expenditure of the Indonesian population as measured by the Gini Ratio was 0.385. This figure increased by 0.004 points when compared to the Gini Ratio in March 2020, which was 0.381 and an increase of 0.005 points compared to the Gini Ratio in September 2019, which was 0.380. The urban Gini Ratio in September 2020 was recorded at

0.399, up from the March 2020 Gini Ratio of 0.393 and the September 2019 Gini Ratio of 0.391. The rural Gini Ratio in September 2020 was recorded at 0.319, up from the March 2020 Gini Ratio of 0.317 and the September 2019 Gini Ratio of 0.315.

Based on the World Bank's measure of inequality, the distribution of spending in the bottom 40 percent is 17.93 percent. It means that population spending in September 2020 is in the category of low inequality. If broken down by region, the figure was recorded at 17.08 percent in urban areas, which means that it belongs to the category of low inequality. Meanwhile, for rural areas, the figure was recorded at 20.89 percent, which means that it belongs to the category of low inequality.

Meanwhile, the Indonesian economy in 2020 experienced a growth contraction of 2.07 percent (c-to-c) compared to 2019. The deepest growth contraction occurred in the Transportation and Warehousing Business Field of 15.04 percent from the production side. Meanwhile, in terms of expenditure, almost all components contracted, the Export Component of Goods and Services became the component with the deepest contraction of 7.70 percent. Meanwhile, imports of goods and services, which are a reducing factor, contracted by 14.71 percent. As a result, the Indonesian economy in the fourth quarter of 2020 compared to the fourth quarter of 2019 experienced a growth contraction of 2.19 percent (yon-y). The Transportation and Warehousing Business Field experienced the deepest growth contraction of 13.42 percent from the production side. On the other hand, the Export Component of Goods and Services experienced the deepest growth contraction of 7.21 percent from the expenditure side.

Meanwhile, imports of goods and services, which are a reducing factor, contracted by 13.52 percent. As a result, the Indonesian economy in the fourth quarter of 2020 experienced a growth contraction of 0.42 percent (q-to-q) compared to the previous quarter. In terms of production, the deepest growth contraction occurred in the Agriculture, Forestry and Fisheries Business Fields of 20.15 percent. The highest growth was achieved from the expenditure side by the Government Consumption Expenditure Component (PK-P), which grew by 27.15 percent. The spatial structure of Indonesia's economy in 2020 is dominated by the group of provinces in Java at 58.75 percent, with economic performance experiencing a growth contraction of 2.51 percent. Based on these conditions, a test was conducted by including the economic growth variable on reducing income inequality in influencing poverty reduction in Indonesia in 2010-2020.

METHODS

The type of data in this study uses secondary data sourced from the Central Statistics Agency (BPS), namely Gross Regional Domestic Product (GRDP) at Constant Prices (ADHK) 2010, Number of Poor Populations, and Gini Ratio by Provinces in Indonesia during the period 2015-2020. The analytical method used is panel data regression using three forms, namely: CEM (common effect model), FEM (fixed-effect model), and REM (random effect model) which can be written as follows.

Table 1. Panel Regression Model

Model	Refresh Panel
1. Model I	$LOGPOV_{it} = \alpha_i + \beta_1 LOGPDRB_{it} + \varepsilon_{it}$
2. Model II	$GINI_{it} = \alpha_i + \beta_1 LOGPDRB_{it} + \varepsilon_{it}$
3. Model III	$LOGPOV_{it} = \alpha_i + \beta_1 LOGPDRB_{it} + \beta_2 GINI_{it} + \varepsilon_{it}$

Note: LOGPDRB is 2010 ADHK GRDP by Province in Indonesia as a proxy for economic growth in Indonesia in 2015-2020 (Billion Rp); LOGPOV is the number of poor people by the province in Indonesia in 2015-2020 (Percent); GINI is the rate of income inequality by the province in Indonesia in 2015-2020 (Index).

RESULT AND DISCUSSION

Panel Regression Model Results Model I

Referring to the results of the panel regression model in Table 4.1 above, in the panel regression equation model A in the form of CEM (common effect model), there is a variable economic growth (LOGPDRB) which has a positive and significant effect on the variable number of poor people (LOGPOV). Where the economic growth variable (LOGPDRB) is significant at 1%, therefore, if there is an increase in economic growth (LOGPDRB), there will also be an increase in the number of poor people (LOGPROV) by provinces in Indonesia.

Table 2. Panel Regression Results Model I

Variable Independent	Dependent Variable: Number of Poor Population (LOGPOV)		
	Common Effect Model	Fixed Effect Model	Random Effect Model
LOGPDRB	0.621664***	-0.029323	-0.002546
R-squared	0.443095	0.997526	0.000046
Adjusted R-Square	0.440338	0.997029	-0.004904
F-statistic	160.7187	2004.338	0.009370

Note: ***) significant at = 1%; **) Significant at = 5%; *) Significant at = 10% LOG (logarithm).

Results of Model II Panel Regression Model

Referring to the results of the panel regression model in Table 4.2 above, in the panel regression equation model B in the form of CEM (common effect model), and Fixed Effect Model (FEM), there is a variable economic growth (LOGPDRB) which has a significant influence on income inequality variables (GINI). The variable of economic growth (LOGPDRB) is significant at 1%. Therefore, testing is carried out with the Chow Test, Hausman Test, and Lagrange Multiplier to determine the best model. Based on the results of the Chow Test and Hausman Test, it turns out that the best model is the fixed effect model (FEM), then the variable economic growth (LOGPDRB) has a positive and significant effect on income inequality (GINI) in the provinces in Indonesia, where when there is an increase in economic growth, there is also an increase in income inequality in the provinces in Indonesia.

Table 3. Results of Model II Panel Regression

Variable Independent	Dependent Variable: Income Inequality (GINI)		
	Common Effect Model	Fixed Effect Model	Random Effect Model
LOGPDRB	0.007079***	-0.018033***	-0.005290
R-squared	0.049745	0.909382	0.009611
Adjusted R-Square	0.045040	0.891151	0.004708
F-statistic	10.57443	49.88144	1.960256

Note: ***) significant at = 1%; **) Significant at = 5%; *) Significant at = 10% LOG (logarithm).

Results of Model III Panel Regression Model

Referring to the results of the panel model regression in Table 4.3 above, in the panel regression equation model C in the form of CEM (common effect model), Fixed Effect Model (FEM) and Random Effect Model (REM), there are variables of economic growth (LOGPDRB) and inequality. Income (GINI) significantly affects the variable number of poor people (LOGPOV). The growth variable (LOGPDRB) is significant at 1%, and the income inequality variable (GINI) is significant at

by 1% and by 5%. Therefore, to determine the best model, a Chow Test and Hausman Test were conducted to determine the best model.

Table 4. Results of Model III Panel Regression

Variable Independent	Dependent Variable: Number of Poor Population (LOGPOV)		
	Common Effect Model	Fixed Effect Model	Random Effect Model
LOGPDRB	0.571472***	-0.016096	0.014937
GINI	7.090580***	0.733484**	0.942785**
R-squared	0.498270	0.997583	0.009611
Adjusted R-Square	0.493278	0.997079	0.004708
F-statistic	99.80710	1980.742	1.960256

Note: ***) significant at = 1%; **) Significant at = 5%; *) Significant at = 10% LOG (logarithm).

Based on the Chow Test and Hausman Test results, it turns out that the best model is the fixed effect model (FEM). So, there is no need to continue testing the Lagrange Multiplier, so it can be concluded that the variables of economic growth (LOGPDRB) and income inequality (GINI) have a positive and significant effect on poverty, whereas if economic growth and GINI increase, there will be an increase in the number of poor people in the provinces. In Indonesia.

CONCLUSION

Based on the empirical findings using panel data regression, it can be concluded that the variables of economic growth (LOGPDRB) and income inequality (GIN) are consistent with various panel regression models as well as the common effect model (CEM), fixed effect model (FEM) and random effect. In addition, the model (REM) positively affects the number of poor people. It means that if the two variables increase, there will also be an increase or increase in the number of poor people according to the provinces in Indonesia.

This condition can be a strong indication that the economic growth that occurs in the provinces in Indonesia is not of good quality, where the increase in economic growth cannot reduce the poor. It is reinforced where the effect of economic growth on income inequality is also positive and consistent. According to the provinces in Indonesia, the increase in economic growth has not improved income inequality among the population.

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