



Analysis Of Indonesia'S Pro Poor Growth Index And Poverty Equivalent Growth Rate 2017-2022

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ABSTRACT

Poverty is a problem in Indonesia, so it is important to know things that can help reduce poverty. This study aims to analyze whether Indonesia is included in the pro-poor, trickle-down, or anti-pro-poor growth. The population of this study is all provinces in Indonesia in 2017-2022. Data collection techniques used are documentation and observation, in addition to the use of secondary data to answer research questions. The analytical tool used in this study is a statistical analysis using the Pro-Poor Growth Index (PPGI) and Poverty Equivalent Growth Rate (PEGR) methods. The results of this study indicate that Indonesia is classified as pro-poor growth where the benefits of growth are greater for the poor than non-poor people so that growth can help reduce poverty in Indonesia. So it can be concluded that increasing growth is good for reducing poverty that occurs in Indonesia.

INTRODUCTION

Poverty has always been a hot topic and is a problem that exists and always arises in almost all parts of the world. Poverty can also be seen as the inability of individuals or households from an economic standpoint to be able to meet basic food and non-food needs. The World Bank (2000) defines poverty as a deficiency in welfare. This can be seen from the ability of households or individuals to be able to meet sufficient resource needs. The Central Bureau of Statistics (2020) states that the poor are people who are classified as below the poverty line where the population has an average monthly per capita expenditure which is below the average. Indonesia is a country that is still trying to reduce poverty.

The importance of reducing poverty is also still a focus today. This is reflected in the National Long-Term Development Plan (RPJPN) 2005-2025. In addition, the National Medium Term Development Plan (RPJMN) IV for 2020-2024 which is part of the 2005-2025 RPJPN divides several agendas to achieve the RPJPN. Three of the seven RPJMN agendas which are also part of the RPJPN agenda are strengthening economic defense through quality growth, developing 5 regions to reduce inequality or inequality, and increasing human resources with better quality and competitiveness. This agenda can help in terms of poverty reduction, as we know that good growth can help in terms of poverty reduction (Dollar and Kraay, 2002)

Ravallion (1997) states that growth will have benefits in reducing poverty. Dollar and Kraay (2002) also try to see the relationship between growth and poverty by using various tests. The results show that growth is good for the poor. This research is also supported by research conducted by Son and Kakwani (2008) which states that poverty reduction will be fast if it is balanced with maximum growth. Quality economic growth is important and a major concern to be able to help improve people's welfare in a country, especially for developing countries. Indonesia is one of the developing countries that continues to strive to increase its economic growth to improve the quality of the country and people's welfare. Indicators that tend to be used to measure the level of growth in a

country are Gross Domestic Product (GDP) and Gross Regional Domestic Product (GDP) to be able to see growth at the regional level.

Good growth can help people to live in prosperity. However, the importance of inter-provincial disparities in Indonesia is also important in reducing poverty. Inequality is something that we cannot separate from the problem of poverty. Inequality that occurs in the distribution of income is a big enough problem for developing countries like Indonesia. This inequality that occurs in the distribution of income between high-income (non-poor) and low-income (poor) groups of people is what causes big problems for developing countries in achieving a level of prosperity. These differences can also lead to the emergence of inequalities between regions so the importance of an effort in economic development is to be able to create high growth and can eliminate or reduce inequality in Indonesia.

Ravallion (1997) and Bourguignon (2003) emphasized that high initial inequality is one of the obstacles to quality economic growth to reduce poverty. Research conducted by Ravallion (1997) emphasized that growth will have benefits in reducing poverty which is relatively less if the level of inequality is higher in a country. However, another finding made by Squire (1999) confirms that growth and inequality are different in terms of the variables that affect them. For example, in research conducted by Squire (1999) states that globalization opens access for a country to be able to compete with other countries, which directly with globalization can have a positive impact on a country's growth, but in the case of inequality, globalization allows an increase in poverty and inequality. This is why it is important to measure the further relationship between growth and inequality.

Both poverty and inequality are important factors in determining whether a particular country or region is classified as pro-poor growth, trickle-down, or anti-poor growth. Pro-poor growth is a condition that explains that growth has greater benefits for the poor than non-poor people, another condition called trickle-down is a condition where high growth will only side with the non-poor and the poor receive little benefit from quality growth, poverty reduction still occurs. Meanwhile, anti-pro-poor growth is a condition in which growth does not benefit the poor. This is what causes the importance of growth and good distribution of income so that poverty decreases. So, from the background above, researchers are interested in researching and analyzing whether growth is classified as pro-poor, anti-pro-poor, or trickle-down (De Silva and Sumarto, 2014)

LITERATURE REVIEW

Poverty has always been a hot topic for many countries. Developed countries as well as developing countries will always try to reduce the level of poverty in their country. Increased poverty tends to hinder a country's growth. This is supported by a study conducted by Dollar and Kraay (2002) which tries to see whether growth is good for the poor. Tests are carried out using Ordinary Least Square (OLS) and Instrumental Variable (IV) to check robustness. The results suggest that growth benefits the poor. The results explain that there are factors that can affect growth rates such as open trade and economic stability that can provide benefits in increasing growth which in turn is good for the poor. This is also supported by Nanak Kakwani and Hyun H. Son (2004) by looking at the relationship between economic growth, inequality, and poverty in various countries. The research results show that poverty reduction will be fast if it is balanced with maximum growth.

Inequality is also important in poverty reduction, not just growth. Some researchers explain that inequality can hinder poverty reduction. Ravallion (1997) states that growth will have relatively fewer poverty reduction benefits if the level of inequality is higher in a country. Other research was also conducted by Squire (1999) who tested whether growth and inequality have a simultaneous relationship between the process and its variables. The study found analytical evidence that together related to inequality and growth produces policy-relevant information that analysis cannot obtain from each independently. The analysis also shows that growth is far more sensitive than inequality to policy interventions.

Inequality is also considered important by Bourguignon (2003) who states that high initial inequality is one of the obstacles for economic growth to be able to reduce poverty. This is by Eastwood and Lipton (2000) which explains that countries with high inequality are relatively anti-poverty, high inequality will be associated with a low poverty elasticity of growth. For poor countries in particular, pro-poor growth is best stimulated by policies that encourage progress in agriculture and redistribution of land.

Fosu (2017) also tries to explain global comparative evidence regarding the transformation of economic growth into poverty reduction for developing countries and places deep emphasis on the role of income inequality. The results of the study explain that regions that experience higher GDP growth will also show a higher poverty reduction. Countries with lower inequality and high incomes show a greater ability to change growth rates which translates directly into poverty reduction.

In addition, growth, inequality, and poverty are three important components to be able to measure the extent to which growth plays an important role for the poor. Research conducted by Sumarto and de Silva (2014) explains that Indonesia in 2000-2012 was classified as trickle-down, which is a condition where the poor receive fewer benefits from growth. Another study was also conducted by Akita and Miyata (2020) which stated that Indonesia

provided large poverty reduction benefits, but it decreased again when the effects of inequality were considered in the model. However, in general, the results explain that growth has benefits in reducing poverty in Indonesia.

RESEARCH METHOD

This research uses a population which can also be interpreted as all the elements that are of concern in a study. The population used in this research is 34 provinces in Indonesia using all panel data on poverty, growth and inequality between provinces in Indonesia during the last year 2017-2022. This research uses secondary data which comes entirely from the Central Statistics Agency. In general, growth data uses Gross Regional Domestic Product data, poverty uses the number of poor people in each province, and inequality uses Gini ratio data which is also obtained for each province in Indonesia. The data analysis techniques are as follows:

1. Pro-Poor Growth Index (PPGI)

The pro-poor growth index is one measure that can be used to see the extent to which growth is pro-poor. This measurement comes from Kakwani *et al.*, (2000) which explains that changes in poverty between two periods ($P_{21}=P_2-P_1$) can be described or caused by Growth Effects (GE) and Inequality Effects (IE). So it can be seen that $P_{21}=GE+IE$, where the total change in poverty is given or caused by growth effects and inequality effects. the growth effect is defined as the effect of changes in average income on poverty when inequality does not change, while the effect of inequality is the change in inequality on poverty when average growth does not change.

In this case, Kakwani, Prakash, and Son, (2000) explain if the average income of the two periods (g_{21}) and total poverty elasticities (η) given $\eta = \frac{P_{21}}{g_{21}}$, then this is defined as the change in poverty when average income changes by one percent. We can also calculate the growth elasticity of poverty by $\eta_g = \frac{GE}{g_{21}}$, which means the proportional change in poverty when average income changes by one percent and inequality remains constant. The elasticity of inequality can be measured by $\eta_i = \frac{IE}{g_{21}}$, which means the proportional change in poverty when inequality changes by one percent and the average growth is constant. To be able to describe the proportional change of poverty into inequality effects and poverty effects, it is important to know the size of poverty which is determined by the poverty line (z), the average income in society (μ), and the Lorenz curve as a measure of inequality ($L(p)$) so that the proportional change in poverty can be described as follows:

$$P = P\{z, \mu, L(p)\} \quad (1)$$

The research assumes that the poverty line (z) does not change so as to be able to find out the total proportional change in poverty between the two periods as follows:

$$P_{21} = P_2 - P_1 = \ln P\{z, \mu_2, L_2(p)\} - \ln P\{z, \mu_1, L_2(p)\} \quad (2)$$

The growth effect which is the change in poverty as a result of the change in average income when inequality remains constant is formulated as follows:

$$GE = 0,5 [\ln P\{z, \mu_2, L_1(p)\} - \ln P\{z, \mu_1, L_1(p)\}] + [\ln P\{z, \mu_2, L_2(p)\} - \ln P\{z, \mu_1, L_2(p)\}] \quad (3)$$

And the effect of inequality which is the change in poverty as a result of changes in inequality with a constant average income is formulated as follows:

$$IE = 0,5 [\ln P\{z, \mu_1, L_2(p)\} - \ln P\{z, \mu_1, L_1(p)\}] + [\ln P\{z, \mu_2, L_2(p)\} - \ln P\{z, \mu_1, L_1(p)\}] \quad (4)$$

So it can be known that

$$P_{21} = GE + IE \quad (5)$$

Basin, (2006) describes in detail the methods that can be used to calculate the pro-poor growth index. The model specifications as follows:

$$Lngini_{it} = \alpha_{it} + \beta Lnpdrb_{it} + \varepsilon_{it} \quad (6)$$

Where the β parameter directly describes the elasticity of inequality on economic growth, so that you can know the amount of elasticity you have. The specifications for the next model are as follows:

$$LnPov_{it} = \alpha_{it} + \eta_g Lnpdrb_{it} + \delta Lngini_{it} + \varepsilon_{it} \quad (7)$$

Where:

- LnPov = poverty rate (P0, P1, or P2)
- Lngini = inequality
- Lnpdrb = economic growth
- η_g = elasticity (gross) of poverty on economic growth
- δ = poverty elasticity of inequality

So to be able to measure the total elasticity of poverty (net) on economic growth (η) the following calculation is used:

$$\eta = \eta_g + (\beta\delta) \tag{8}$$

The total impact of poverty elasticity (net) on economic growth can also use direct regression with the following model specifications:

$$LnPov_{it} = \alpha_{it} + \eta Lnprdrb_{it} + \varepsilon_{it} \tag{9}$$

So to be able to calculate the Pro Poor Growth Index (PPGI) Kakwani *et al.*, (2000) use the following calculation:

$$PPGI = \frac{\eta}{\eta_g} \tag{10}$$

That is the total poverty elasticity divided by the growth elasticity of poverty. Three conclusions can be drawn from the PPGI value, including:

1. If $PPGI > 1$, it can be seen that there is pro-poor growth where the benefits of growth are greater for the poor, when compared to non-poor people.
2. If $PPGI \geq 0$ and $PPGI \leq 1$, this means that poverty has decreased even though there has been an increase in inequality as a result of average growth. This is called trickle down which means that the poor benefit from growth, but the benefits received are less than those of the non-poor.
3. If $PPGI < 0$, it can be seen that there is anti-pro-poor growth where the benefits of growth are not felt by the poor.

2. Poverty Equivalent Growth Rate (PEGR)

Nanak Kakwani , Hyun H . Son, (2004) explain that the Poverty Equivalent Growth Rate (PEGR) can be interpreted as a growth rate that has the same effect on poverty as the actual growth rate, as long as the growth process that occurs is not accompanied by changes in inequality. In other words, it is the rate of growth if everyone in society receives a proportional growth benefit. If we know that μ_1 and μ_2 are the average population income in periods 1 and 2, then population income growth (g) can be formulated as follows:

$$g = \ln(\mu_2) - \ln(\mu_1) \tag{11}$$

PEGR can be obtained by multiplying the PPGI and the growth rate in average income (g).

$$PEGR = g^* = PPGI \times g \tag{12}$$

Information:

g^* = poverty equivalent growth rate

g = average earnings growth

The PEGR values can be grouped as follows:

1. $g^* = g$ means that growth is neutral, where all people receive the same benefits from growth.
2. $g^* > g$ means that it is pro-poor growth, where growth has greater benefits for the poor.
3. $0 < g^* < g$ means that growth is not yet pro-poor growth, in which the non-poor population receives greater benefits from growth but poverty reduction still occurs.
4. $g^* < 0$ means that growth is anti-pro-poor growth, in which the poor do not receive any benefits from growth so poverty will increase.

RESULTS AND DISCUSSION

This study uses a panel data set that uses 2017-2022 as the research year for all provinces in Indonesia. This research focuses on the role of growth in poverty in Indonesia, which is seen from the ability of growth to encourage poverty reduction in Indonesia. To be able to see this role, the data used reflects growth and poverty.

The descriptive statistics are presented in Table 1 below:

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev	Min	Max
nr	204	2019,5	1,71	2007	2022
id	204	17,5	9,83	1	34
Lnprdrb	204	10,49	0,54	9,38	12,12
Poverty	204	10,55	5,46	3,42	27,76
Inequality	204	0,35	0,04	0,26	0,46

Source: Stata, data processed (2023)

Table 1 shows the data used at the provincial level in Indonesia using panel data from 2007-2022 with a total of 204 observations using all provinces in Indonesia. Based on the poverty measurement, the authors use three poverty measures, including the headcount index (P0), which is representative of the percentage of poor people

with an average value of 10.55. Another variable is GRDP at constant 2010 prices with a logarithmic average of 10.49. The Gini ratio, which is a measure of inequality between provinces used in the study, explains that the average inequality in provinces in Indonesia is 0.35, where the highest inequality is 0.46 and the lowest inequality is 0.26 for the Bangka Belitung Islands Province in 2018.

1. Analysis of the Pro-Poor Growth Index

Indonesia's growth from year to year tends to increase. In 2020 growth experienced a decline due to the COVID-19 pandemic which caused Indonesia's economic movement to weaken, however in 2021 and 2022 Indonesia experienced another increase as a form of recovery from the Covid-19 pandemic in 2020. Covid-19 which occurred in Indonesia caused growth to decline due to various factors. The entire government budget is used to overcome the pandemic so there is less focus on improving the quality of both human resources and natural resources which we know is one of the factors that can increase growth in a country through improving quality in a country, apart from that is the pandemic Covid-19 caused a lack of production of goods and services, which is one of the indicators for measuring growth, this was due to limited household activity and labor, causing economic movements to also slow down. This can be seen in the growth data presented in Figure 1 below:

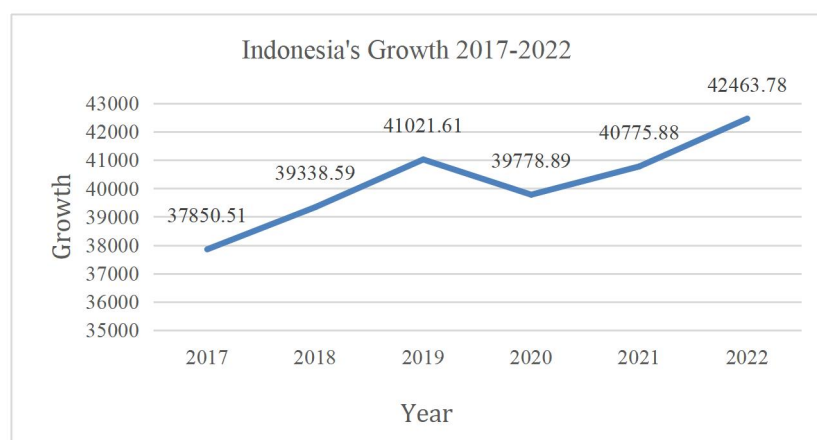


Figure 1. Growth Development

Results from the analysis of the Pro-Poor Growth Index (PPGI) introduced by Kakwani et al, (2000) are used to better explain whether Indonesia's growth is classified as pro-poor, anti-poverty, or classified as trickle-down. The research results found are explained in Table 2 below:

Table 2. Results of Data Processing

	Equation 6	Equation 7	Equation 9
lnpdrb	-0.061*** (0.018)	-1.275 (1.016)	-1.990** (0.959)
Inequality		11.725*** (4.050)	
Constant	0.991*** (0.194)	19.827* (11.505)	31.442*** (10.061)
Observations	204	204	204
R ²	0.134	0.161	0.088
Adj. R-sq	0.130	0.152	0.083

Note: All regressions without control variables. Autocorrelation is overcome by first-order autoregression. (*) (**) (***) describes the significance level of (10) (5) (1) percent.

Source: Stata, data processed (2023)

Based on the results presented in table 2 above, it is known that each result is based on existing equations. Equation 6 explains how much influence growth has on inequality between provinces in Indonesia. The results explain that there is a negative and significant influence of growth on inequality, where every one unit increase in growth will cause a decrease in inequality of 0.061 with the ceteris paribus assumption.

Equation 7 explains how much growth and inequality influence poverty between provinces in Indonesia. The results explain that there is a negative influence between growth and poverty, where an increase in growth of 1 unit will cause a decrease in poverty of 1.275 with the ceteris paribus assumption. A similar thing is produced in

equation 9 which has a negative and significant relationship. Another result in equation 7 is the relationship between inequality and poverty which has a positive and significant relationship, which means that a one unit increase in inequality will cause an increase in poverty of 11.725 with the ceteris paribus assumption. The overall results of the regression analysis above will help in determining whether Indonesia's growth conditions have the quality of reducing poverty.

Based on the results of the above research, it can be seen that the poverty elasticity value is as follows:

Table 3. Results of the Analysis of the Pro-Poor Growth Index

Research variable	η_g	β	δ	Total poverty elasticity (η)	<i>Pro-poor growth Index</i>	Description
Kemiskinan	-1.275	-0.061***	11.725***	-1,990**	1,561	<i>Pro-Poor Growth</i>

Note: All regressions without control variables. Autocorrelation is overcome by first-order autoregression. (*) (**) (***) describes the significance level of (10) (5) (1) percent.

Source: Stata, data processed (2023)

The results of the study explain that the determination of total poverty elasticity using both equations 8 and 9 has similar results, namely -1.990 with a significance level of 5 percent. So from the calculation results it can be seen that the PPGI value is 1.561 which means that Indonesia is classified as pro-poor growth where the benefits of growth are greater for the poor than for non-poor people so that growth can help reduce poverty in Indonesia. Similar research was also conducted by Akita and Miyata (2020) who explained that Indonesia is a country that has pro-growth towards the poor in Indonesia. The same thing is also supported by research conducted by Pukuh and Fadlun Widyasthika (2017) which also explains that in 2012-2014 Indonesia had growth that was pro-poor.

1. Analysis of the Poverty Equivalent Growth Rate

Another analysis that is also used to answer research questions is the poverty equivalent growth rate which was also reintroduced by (Nanak Kakwani, and Hyun H. Son, 2004). Table 4 explains the PEGR results as follows:

Table 4. Results of Poverty Equivalent Growth Rate Analysis

Variable	<i>Pro-poor growth Index</i>	Actual Growth (g)	PEGR (g*)	Description
Poverty	1,561	0,042	0,065	<i>Pro-Poor Growth</i>

Source: Data Processed, 2023

Table 4 describes something similar to the PPGI approach. The results also explain that Indonesia is classified as Pro-Poor Growth. From the research results, we can also see that consistent results are using both the PPGI and PEGR approaches in determining the benefits of growth against poverty. The results of the research are in line with research also conducted by Akita and Miyata (2020). The results of this research emphasize the importance of reducing poverty and inequality between provinces in Indonesia as a form of support for economic development. Poverty, growth, and inequality are related to each other. Where growth will be beneficial for the poor if regional inequality is lower. The importance of growth for poverty is nothing new, several studies have shown this. Bourguignon (2003) explains the importance of inequality and growth as development strategies that support poverty reduction. Bourguignon (2003) calls this the triangle of poverty, growth, and inequality.

CONCLUSION AND RECOMMENDATION

Conclusions

Based on the results of the analysis and discussion previously described, it can be concluded that Indonesia is classified as pro-poor growth using both the Pro-Poor Growth Index (PPGI) and Poverty Equivalent Growth Rate (PEGR) approaches. This is in line with research conducted by Akita and Miyata (2020). Where the growth benefits received by the poor are greater than those of the non-poor. So that this can help in terms of reducing poverty in Indonesia. From the results of this study we can also underline the importance of increasing growth which will be in harmony with reducing poverty in Indonesia, the many aspects that can be used in increasing growth in each province depend on the potential of the region and the Human Resources (HR) owned by the respective regions. respectively.

The research results can also be used as a reference in determining future policy directions that are directly related to regional growth recovery. Another phenomenon that we can see is that Indonesia's growth which experienced negative growth in 2021 could be an important reason for the following year to increase, the decline in

growth was caused by the entry of the Covid pandemic in that year so the economy focused only on one point. If it is linked to this research, sustainable growth will be able to unravel the poor in Indonesia because the benefits of growth are felt directly by the poor.

The research results have explained several things that can help in strengthening implementation in the field. As explained in the research results, Indonesia is classified as pro-poor growth, where the benefits received by poor people are greater than those from non-poor people. So in this case we can understand the importance of programs that can help maintain growth that is pro-poor. Another thing that is also important to emphasize is related to equitable growth for each province in Indonesia, so that later it can help in terms of evenly reducing poverty in Indonesia.

Growth, in this case measured using GRDP, will have a good impact on poverty reduction, but on the other hand, inequality measured using the Gini will have a bad impact on poverty. So it is important to increase growth for each province in Indonesia, but still maintain even inequality between provinces in Indonesia. It is hoped that a reduction in inequality between each province in Indonesia will result in higher quality growth.

Recommendation

Based on the results of the writing that has been presented, the recommendations that can be given in relation to the title are as follows:

Equal distribution of income between provinces requires various collaborations between various policy stakeholders at both the central and regional levels. Apart from practical implications, there are theoretical implications that can be known in this research. This research is expected to be able to provide an overview of convergent growth for each province in Indonesia so that we can find out in more detail which provinces will be able to quickly encourage quality growth and reduce poverty in Indonesia significantly.

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