When Growth is Inclusive in Indonesia?

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Abstract

This study aims to measure and analyze inclusive growth rate in Indonesia by using per capita expenditure data from Indonesian population. Inclusiveness of growth is observed from the Growth Incidence Curve and pro poor growth approach using Poverty Equivalent Growth Rate (PEGR) method. It also sees the effect of growth and income redistribution on poverty change using Decomposition of Poverty through Shapley value. This research is divided into two periods, i.e. 2012-2014 and 2014-2016 by grouping the territory of Indonesia into three areas, i.e. Java and Bali, Sumatra and Kalimantan Island, and Eastern Indonesia. The result shows that in 2012-2014, the income growth in Indonesia is inclusive, while in 2014-2016 its growth is not inclusive yet. This is due to the effect of economic growth still hampered by the effect of income inequality over the years 2014 to 2016.

Keywords: Inclusive Growth, Poverty, Pro Poor Growth, Decomposition, Growth Incidence Curve

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I. Introduction

1.1 Research Background

The development efforts of developing countries are identified with the efforts to increase per capita income or so-called economic growth strategies. However, many third world countries who quite successfully reached a relatively high level of economic growth began to realize that the apparently high growth has not led to a meaningful benefit for members of the society of the poorest and most in need of improvement in standard of living due to inequality of income distribution (Todaro, 1998). Klasen (2010) revealed that many countries in Asia have high economic growth rates in the last two decades. However, policy makers in Asian countries and international organizations are increasingly concerned about the improvement of this economic growth. This is due to the growth that happened was very uneven and often accompanied by an increase in income inequality. In addition, it seems the disadvantaged groups, including members of ethnic minorities, people in remote rural areas, and women, are not benefited proportionately from the rapid economic growth. There is a possibility that the economic growth that occurred can leave out the poor and disadvantaged.

Indonesia is one of the countries that were experiencing rapid economic growth in the post-economic crisis in 1998. Indonesia's economic growth rate in 2002 was 4.5 percent and continued to grow positively until 2016 with a value of 5.02 percent. High economic growth has reduced the level of poverty in 2002 from 18.20 percent to 10.86 percent in 2016. However, high economic growth actually increased the income inequality from 2002 to 2015 which shown by the increasing value of the Gini ratio. The ratio of Gini in 2002 was 0.329 and it became 0.397 in 2016.

Figure 1. *Poverty Rate (%), Economic Growth (%) and Gini Ratio of Indonesia, 2002-2016*
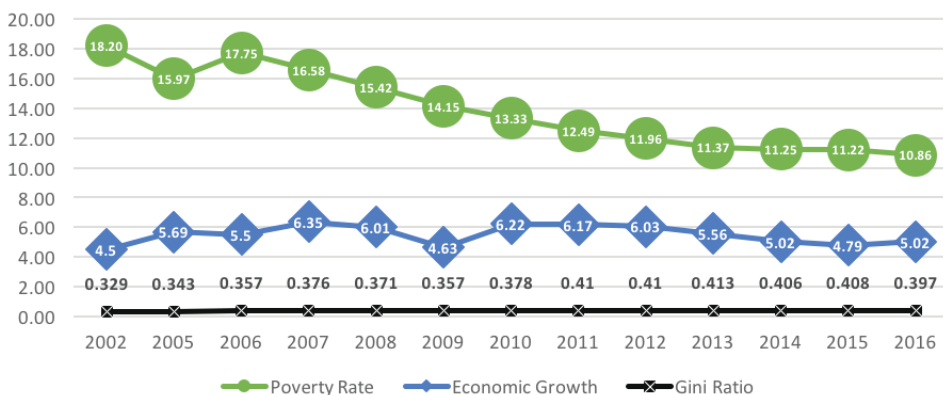
Source: Central Bureau of Statistics, 2016 (processed)

Besides income inequality, there is also an area inequality matter in terms of the level of poverty. There is a huge difference in terms of poverty levels in some areas of the islands of Indonesia. The percentage of the poor population in the Eastern Indonesia showed a much higher number compared to the Western region of Indonesia. The data of Central Bureau of Statistics shows that the five highest area according to the level of poverty in the year 2016 is entirely in Eastern regions, namely Papua, West Papua, Gorontalo, Maluku, and East Nusa Tenggara. It is also seen in Figure 2 that the level of poverty in the Eastern region is always higher than those of the Western region throughout the year 2009 until 2016. The poverty level for the Western region in the year 2009 was 13.30 percent and was 19.63 percent for the Eastern region in the same year. Likewise in the year 2016, the poverty level in the Western region was 10.09 percent and in the East region was 15.61 percent.

Figure 2. *Percentage of Poor Population by Region in Indonesia, 2009-2016*
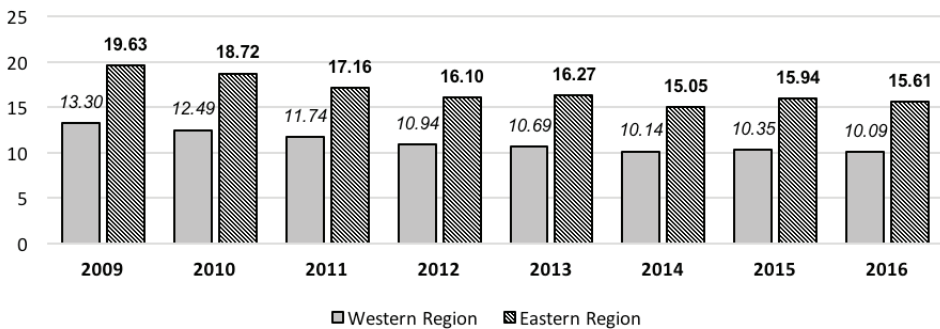
Source: Central Bureau of Statistics, 2016 (processed)
Description:
1.   Western Region: Java, Bali, Sumatra, and Kalimantan
2.   Eastern Region: Sulawesi, Nusa Tenggara, Maluku, and Papua

If the region's poverty rate is associated with the portion of GDP, it turns out that the share of GDP in Western Indonesia is much larger than the portion of GDP that originated from the Eastern region from 2011 to 2015. The contribution of western region GDP to Indonesia's GDP is 90.60 percent while the GDP from the eastern region only 9.40 percent in 2011. Then in 2015, the ratio of GDP contribution did not change significantly. In the western region it decreased slightly to 90.04 percent and in the eastern Indonesia it increased to 9.96 percent in 2015.

The inequality of income distribution and territory shows the importance of the government's role in designing and realizing the concept of economic growth that enables all segments of society to enjoy the benefits of economic growth so as to reduce poverty and inequality. Inclusive growth is considered as a strategy to overcome the inequality and its negative impact. It has been contained in the RPJMN period 2015-2019 which the purpose of Indonesia's development is to achieve a strong, inclusive, and sustainable economy. Sustainable and inclusive economic growth is a growth that meets the needs of the current generation without compromising the ability of future generations, distributed in different regions, and can reduce income inequality. Inclusive development can also be interpreted as a growth that not only creates new economic opportunities but also ensures equal access to the opportunities created for all segments of society, especially for the poor.

Research on inclusive growth was done by Ali and Son (2007) by applying Social Mobility Curve to see the equality in accessing education and health. Then the measurement is used by Anand et al. (2013) which is applied to the income side to measure inclusive growth. Azwar's research (2015) which measured and analyzed the phenomenon of inclusiveness of economic growth in South Sulawesi Province also used the same method. While Klasen (2010) adopted the concept of Poverty Equivalent Growth Rate (PEGR) to determine the dimension of inclusive growth. In contrast to the previous research, this study will focus on the characteristics of the income distribution growth to see the inclusiveness of growth in income aspects of Java-Bali, eastern Indonesia and western regions other than Java-Bali during the period 2014-2016.

1.2 Research Objective

Based on the research background, this study aims to:
1. Analyze empirically the phenomenon of inclusiveness of economic growth in Java and Bali, Sumatera and Kalimantan, and eastern Indonesia.
2. Analyze the level of economic growth benefits received by the poor in Java and Bali, the island of Sumatra and Kalimantan, and eastern Indonesia.
3. Analyze empirically the impact of economic growth and income distribution on poverty reduction in Java and Bali, Sumatra and Kalimantan island and eastern Indonesia.

II. Literature Review

Various definitions of inclusive economic growth have been defined by several experts and international organizations. According to Berg and Ostry (2011a), inclusive growth refers to pace and distribution of economic growth whereby growth becomes sustainable and effective in reducing poverty so the growth needs to be inclusive. IMF (2013) describes the growth usually considered inclusive if the benefits are shared widely across the population. OECD (2017) concept about Inclusive growth is economic growth that creates opportunity for all segments of the population and distributes the dividends of increased prosperity, both in monetary and non-monetary terms, fairly across society. And McKinley (2010) specifies two key dimensions of inclusive growth: (i) achieving sustainable growth that will create and expand economic opportunities, and (ii) ensure wider access towards these opportunities so that community members can participate and get the benefit from the growth. Inclusive growth usually refers to the goal of increasing high growth while providing productive employment and equal opportunity, so that all segments of society can share in the growth and employment, which ultimately fix inequality in the results obtained, especially for the poor.

Inclusive growth differs from pro poor growth. This growth is a broader concept than pro poor growth. Pro poor growth only focuses on the poor or the reduction of poverty. While inclusive growth is a growth that benefits everyone (Klassen, 2010).

However, the concept of inclusive growth actually originated from the concept of pro poor growth introduced by Kakwani and Pernia (2000) but developed by including non-income elements (Ranieri and Ramos, 2013). Habito (2009), Rauniyar and Konbur (2010) argued that inclusive growth is closely related to the concept of pro poor growth. Habito (2009) defines inclusive growth as Gross Domestic Product (GDP) growth leading to significant poverty reduction. Whereas Habito has included non-income elements through multidimensional poverty by examining non-income factors that affect the growth elasticity.

Whereas Kireyev (2017) mentions that the growth called inclusive if such growth reduces poverty and inequality. Growth reduces poverty if the average income of poor people is increasing. Growth reduces inequality if it helps streamline the Lorenz

curve which plot the total percentage of income generated from various parts of a population when the population is classified according to the dimension of income.

Inclusive growth should not be separated from pro poor growth. Because both inclusive growth and pro poor growth see the distribution of economic growth received by each community group, although pro poor growth is more on the poor. In addition, inclusive growth also can be aligned with pro poor growth. Why ? because in fact, economic growth is often only enjoyed by the rich. While the poor have been left behind in terms of income growth.

The growth that happens is never inclusive because in many countries, the poor have not seen their incomes rise for years. The gap between the rich and the poor has widened, with those at the top capturing the 'lion's share' of growth. Share of economic growth enjoyed by the poor is not the same proportionately with the rich. Therefore, the inclusive growth will also be linked to improving the standard of living of the poor or reducing poverty.

The triangular relationship between growth, distribution and poverty is explained by Bourguignon (2004). Changes in poverty levels are a function of growth and distribution change. For example, the amount of poverty is defined as the area under the curve to the left of the poverty line (shaded area) and it is assumed that the income per capita of the population follows the normal log distribution. The x-axis shows the density of the income distribution i.e. the number of individuals at each income level in the logarithmic scale. The y axis shows the share of population with a certain level of income to the entire population.

Figure 3. Decomposition of poverty rate to growth effect and distribution effect
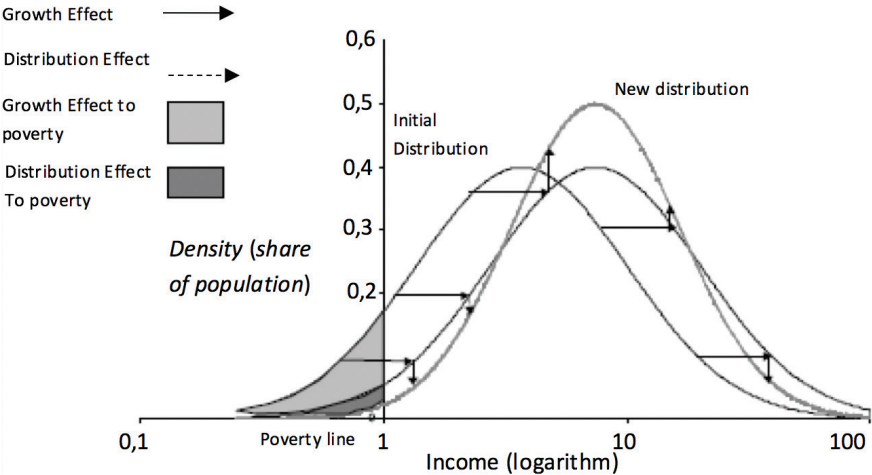
Source: Bourguignon, 2004

Changes in poverty in two time periods are shown in shaded areas in Figure 3. In such cases, the effect of growth (shaded area brighter) contributes more than the effect of distribution (darker shaded area). If the benefits of growth are neutral or evenly distributed then the shape of the distribution curve does not change, and the effect is only the effect of growth, while the effect of the distribution is zero.

Measurement of the level of financial inclusion and inclusive growth in Indonesia was conducted by Sanjaya and Nursechafia (2015) by using data of the province. Methods used namely Index of Inclusive Growth (IIG) developed by social

opportunity function method by increasing the average level of opportunity and equity index of opportunities. The result shows that several provinces have been successful achieving inclusive growth include Central Java, West Sumatra, Maluku, South Kalimantan, West Java, Bali, Banten, and Central Kalimantan. In Maluku, inclusive growth was influenced by contributions of a higher chance of distribution. Increasing opportunities for the poor could increase the growth inclusive in Riau, Banten, Southeast Sulawesi, Bali, and South Kalimantan. For other provinces, the goal of equalization can be achieved by increasing opportunities such as Jakarta, Bangka Belitung, North Sumatra, North Maluku, West Papua and Papua.

Kireyev (2017) examines inclusive growth in Senegal using Growth Incidence Curve (GIC). Between 2001 and 2005, the GIC curve was positively curved, indicating an increase in inequality during this period which meant growth was not inclusive. Between 2005 and 2011, the average growth rate curve (GIC) was above zero but flat in shape, indicating a lack of a clear trend in changes of inequality. On average during the year of 2001-2011, an increase on average of consumption clearly confirms the decline in poverty, because middle-class improve their relative position. But for the year 2001-2011 overall, the GIC has a slightly positive slope, which worsens the inclusiveness of growth.

Existing researches rarely match inclusive growth and pro poor growth. Yet these two concepts of growth cannot be separated. Nor studies linking growth with income distribution and poverty to analyze inclusive growth are also rare. Inclusive growth should be linked to poverty because the poor do not get the equivalent benefits compared to the non-poor.

This research linked inclusive growth and pro poor growth by matching the results of Growth Incidence Curve and Poverty Equivalent Growth. Then, look at the triangle relationship between growth, distribution and poverty through the poverty decomposition to see growth effect and distribution effect on poverty change.

III. Research Methodology

3.1 Scope
Analysis of the inclusiveness of economic growth in this study is divided into two periods, i.e 2012-2014 and 2014-2016. In addition, the phenomenon analysis will be described in 3 regions i.e:
1. Java and Bali island which consists of seven provinces (DKI Jakarta, West Java, Central Java, East Java, DI Jogjakarta, Banten, and Bali).
2. Sumatera and Kalimantan Islands which consists of fifteen provinces (DI Aceh, North Sumatra, West Sumatra, Riau, Riau Islands, Bengkulu, Jambi, South Sumatra, Bangka Belitung, Lampung, South Kalimantan, West Kalimantan, East Kalimantan, Kalimantan Central, and North Kalimantan), and
3. East Indonesia which consists of twelve provinces (South Sulawesi, West Sulawesi, Southeast Sulawesi, Central Sulawesi, North Sulawesi, Gorontalo, Maluku, North Maluku, West Nusa Tenggara, East Nusa Tenggara, Papua and West Papua).

3.2 Data
This study uses secondary data from the Central Bureau of Statistics (BPS) in the form of raw data of household expenditure which is the result of the National Social Economic Survey (Susenas) Indonesian Consumption Module period 2012 to 2016. An approach for calculating household income using the expenditure value, because it is considered more reflective of the actual circumstances. According to Nunez and Espinosa (2005), the expenditure approach would better to be used as a decent standard of living due to in household surveys, respondents tend to report

lower income while their spending closer to actual conditions. Any household tends to adjust their spending through transfer or donation when the income is low.

3.3 Analysis Method
3.3.1 Growth Incidence Curve (GIC)

The GIC curve is one of the ways that Kireyev (2017) used to examine whether income growth in a region is inclusive or not by using graphs. GIC was introduced by Ravallion & Chen (2003) by calculating income growth per capita (or alternatively with expenditure growth rate per capita) at each percentile point along the income distribution. If the GIC curve forms has downward sloping or negative slope along the income distribution then the growth has provided more benefits to the poor and decreased inequality which means that the growth is inclusive. Conversely, if the GIC has an upward sloping or a positive slope along the income distribution then the top population group receives more benefits during the economic growth process, inequality increases and it means that the growth is not inclusive (Kireyev, 2017).

GIC measurement method is done in the following way:
1. In the first stage, the sample distribution (population) is grouped based on the proportioned income level using per capita expenditure data.
2. After being grouped, calculation of the growth incidence of each expenditure group (Gi) is performed with the formula:

$$\textbf{Growth Incidence } (\textbf{Gi}) \ (ta - tn) = \frac{\textbf{mean consumption per capita } (i\ ;ta) - \textbf{mean consumption percapita}(i;tn)}{\textbf{mean consumption per capita}(i;tn)} \quad (3.1)$$

which:
$(i;ta)$	= group i, year/initial period
$(i:tn)$	= group i, year/end period

3. Then compare the Growth Incidence Curve to the average growth line of all expenditure groups.

Inclusive growth analysis method which already exists only produce score without being able to show how much share received by the poor. Growth Incidence Curve is a growth chart of income or expenditure by expenditure group (percentile). So this curve can show how much share received by the poor and the non-poor and show the nth percentile that needs to be assisted to increase their income.

3.3.2 Poverty Equivalent Growth Rate (PEGR)

PEGR method introduced by Kakwani, et. Al. In 2004. This method is an improvement of pro poor growth method using Poverty Bias of Growth (PBG) by Culloch and Baulch (2000) then Pro Poor Growth Index by Kakwani and Pernia (2000). PEGR has confirmed the criterion of monotonicity that previous methods did not address. Axiom of monotonicity implies that the rate of poverty reduction should be a monotonically rising function of pro poor growth rate. If value of function of pro poor growth rate increases means rate of poverty reduction is also greater, and otherwise smaller value of its function then smaller decrease in poverty that occurs. PEGR method has confirmed the axiom criteria of monotonicity, because greater value of PEGR indicates greater poverty reduction. And negative PEGR score shows no poverty reduction. In addition PEGR can be applied to all FGT poverty measures such as, headcount, poverty gap ratio, severity of poverty index and Watt poverty measure.

This method is used to explain the magnitude of economic growth itself, as well as the level of benefits that the poor obtained from economic growth achieved. The value of PEGR can be formulated as follows: PEGR $= \gamma * = (\delta / \eta)\gamma$ (3.2)

which: total elasticity of poverty (δ), growth elasticity of poverty (η), and $\hat{\gamma}$ is actual growth.

Then the value of Poverty Equivalent Growth Rate (PEGR) is compared with the value of actual growth where the criteria are as follows:

1. $\hat{\gamma}* = \hat{\gamma}$ It means growth is neutral, everyone receives the same benefits proportionately from the growth.
2. $\hat{\gamma}* > \hat{\gamma}$ It means growth is pro poor growth, the poor population more receive benefits from the growth.
3. $0 < \hat{\gamma}* <$ It means growth is not pro poor growth yet, the benefits of growth are more accepted by non-poor people (inequality increases) but poverty reduction still occurs.
4. $\hat{\gamma}* < 0$ It means growth is anti pro poor growth or benefits of the growth enjoyed by non-poor people, and poverty increases.

3.3.3 Poverty Decomposition with Shapley Value

The poverty change between the two periods can be decomposed due to the effect of growth and the effect of income redistribution. Shapley decomposition of poverty is used to explain the change in poverty. There are several methods that can be used to decompose poverty, such as Datt and Ravallion (1992) approach and Shapley Value approach by Shorrocks (1999). This research uses poverty decomposition with Shapley Value approach because the result obtained already does not contain a residual element which is the interaction of the effects of growth and distribution. The poverty change can be completely decomposed into the effect of growth and the effect of distribution with Shapley Decomposition of Poverty.

Shapley decomposition of poverty model in the form of FGT (Foster-Greer-Thorbecke) normalization can be written as follows:

$$\Delta P = P_2(z,\alpha) - P_1(z,\alpha) \qquad (3.3)$$

$$= 0.5\left[\left(P_1(\frac{z\mu_1}{\mu_2},\alpha) - P_1(z,\alpha)\right) + \left(P_2(z,\alpha) - P_1(\frac{z\mu_2}{\mu_1},\alpha)\right)\right] + 0.5\left[\left(P_2(\frac{z\mu_2}{\mu_1},\alpha) - P_1(z,\alpha)\right) + \left(P_2(z,\alpha) - P_1(\frac{z\mu_1}{\mu_2},\alpha)\right)\right] \quad (3.4)$$

$\underbrace{\qquad\qquad\qquad}_{\text{Effect of Growth}}$ $\underbrace{\qquad\qquad\qquad}_{\text{Effect of Distribution}}$

which:

ΔP = Poverty Change.

$P_1(z,\alpha)$ = the normalization form of FGT poverty dimension at the beginning of the period.

$P_2(z,\alpha)$ = the normalization form of FGT poverty dimension at the end of the period.

$P_i(\frac{z\mu_t}{\mu_s},\alpha)$ = the normalization form of FGT poverty dimension if there is a change in the average income from period t to period s, for t ≠ s, and t, s = 1, 2.
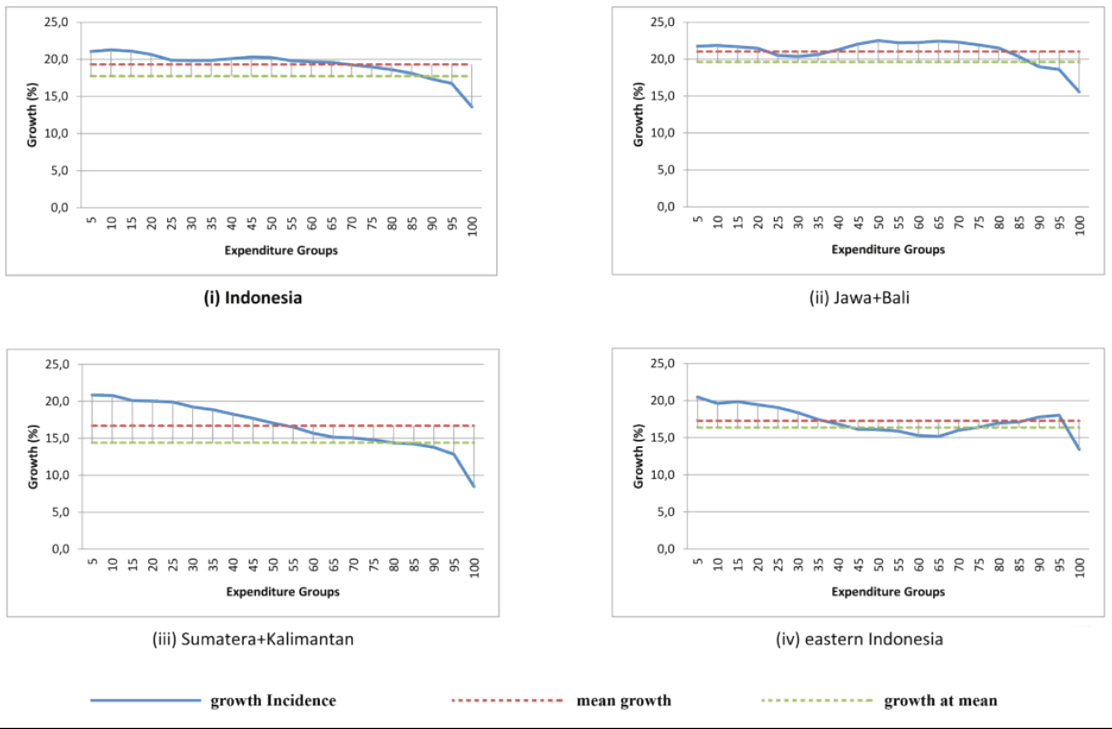
IV. Result and Discussion

4.1 Inclusive Growth

Economic growth can be called inclusive if growth can reduce poverty and inequality. The dimension of the inclusive growth can be seen through the Growth Incidence Curve (GIC). Growth Incidence Curve of Indonesia period 2012-2014 shown in Figure 4 (i) has greater value than zero (positive) and negative slope means

that the higher expenditure groups (percentile) the lower expenditure growth. This condition indicates that during that period, the population in the low-spending (poor) group received more benefits from growth or it could be interpreted that Indonesia's growth was inclusive. Seen from the figure 4, the 70 percent downward spending group had above average growth and the top 30 percent had below average growth.

If described based on previously classified areas, the three regions show the same conditions where growth is positive and the direction of the slope is negative. However, the three regions have slightly different growth rates and distribution patterns. The highest average growth rate was found in the islands of Java and Bali with average growth reaching 21.01 percent followed by East Indonesia by 17.27 percent and Sumatera Island and Kalimantan by 16.69 percent. This result seems to prove the issue that development is more perceived by people in Java is correct.

Figure 4. GIC period 2012-2014

(i) Indonesia

(ii) Jawa+Bali

(iii) Sumatera+Kalimantan

(iv) eastern Indonesia

growth Incidence   mean growth   growth at mean

Source: Author's calculation base on Susenas (BPS)

A slightly different pattern occurs in Java and Bali as shown in Figure 4 (ii). Growth occurred in the lowest 20 percent of expenditure group, then the 25-35 percent expenditure group was slightly below average growth, then become high again in the middle expenditure group that is in the percentile between 40 and 80 percent. While in the top 20 percent expenditure group back down below the average growth. The formed pattern tend to be more flat but still have a negative slope direction indicating growth is still quite inclusive.
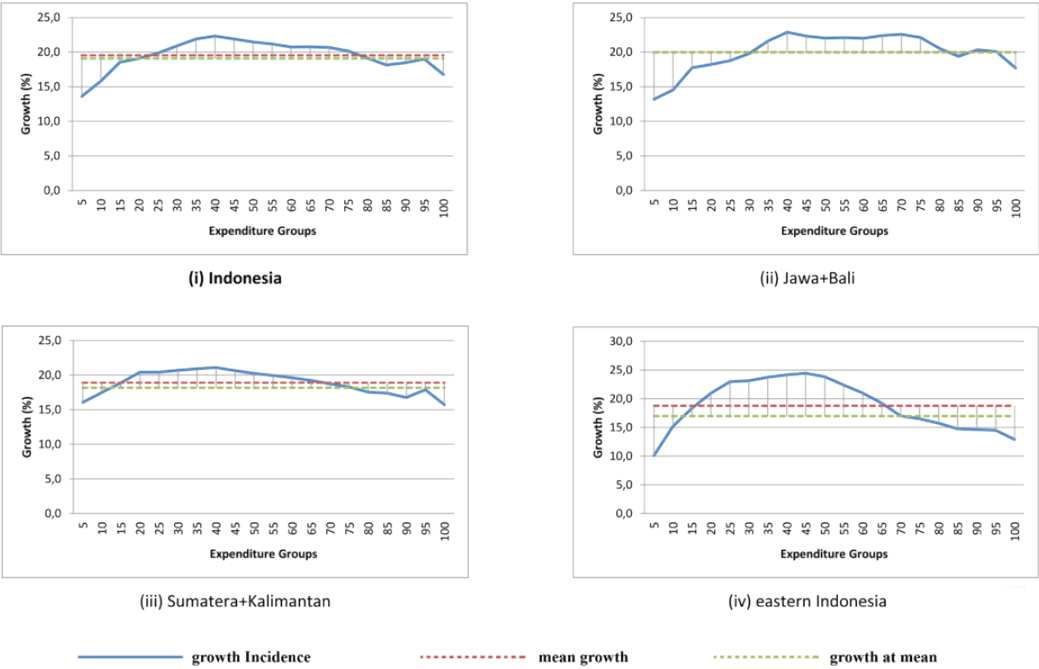
Figure 4 (iii) describes the distribution of expenditure growth conditions per capita in Sumatra and Kalimantan island. The curve shows a pattern that

is almost similar to national conditions but with a steeper slope in which above average growth is perceived by bottom 50 percent expenditure group. While the condition in eastern Indonesia in Figure 4 (iv) shows that the lower 35 percent of the population expenditure groups enjoy more growth benefits than the larger expenditure groups although the growth in the 90-95 percent expenditure group is also above the average. Based on the GIC curve, it can be concluded that the growth which occurred in the three regions in the period 2012-2014 is inclusive.

Indonesia's growth incidence curve for the period 2014-2016 in Figure 5 shows a different form than the previous period. It provides information that there is a shift/ change in distribution in 2014-2016, although the average growth that occurred relatively the same which is about 19 percent. The four curves show the intermediate group have above average expenditure growth and the lower and upper expenditure groups have low growth. It means that growth benefits most people in the middle of expenditure distribution.

Nationally, the expenditure group between 25 to 75 percent had above average growth. While the population with the lowest 25 percent and the top 25 percent expenditure group had below average growth. The direction of the GIC slope in this period tends to be positive which means growth is more enjoyed by the population of the upper expenditure group or not inclusive yet.

Figure 5. GIC period 2014-2016

(i) Indonesia

(ii) Jawa+Bali

(iii) Sumatera+Kalimantan

(iv) eastern Indonesia

growth Incidence .... mean growth .... growth at mean

Source: Author's calculation base on Susenas (BPS)

If described into three areas, in the period 2012-2014 the highest average growth is still experienced by people in Java and Bali with an average growth of 20.02 percent. However, the second and third rank is changed, i.e. Sumatra and Kalimantan has become 18.89 percent and the lowest is in Eastern Indonesia that is 18.77 percent. Despite having the highest growth rates, the distribution growth in the Java and Bali regions has a steeper positive slope direction that potentially increases inequality. Seen from Figure 5 (ii) that growth is more enjoyed by non-poor

community groups. The lowest growth occurred in the expenditure group below 30 percent, while the highest growth was enjoyed by the population of the expenditure group 35 to 80 percent. This indicates that growth in the region is not inclusive yet.

Growth in Sumatra and Kalimantan island in figure 5 (iii) shows a similar pattern to national distribution growth, however, with a more sloping pattern around the average growth line. So the condition of growth in this region in the period 2014-2016 is difficult to be defined by just looking at the GIC. Meanwhile, in figure 5 (iv), the growth of expenditure in eastern Indonesia looks quite different than the other two regions. Although it has similarities that the benefits of growth are enjoyed by people in the middle of the income distribution, but people who enjoy the growth in this region is largely middle group and below (20 to 65 percentile) with higher growth rate compare toother regions. While the top 65 percent expenditure group had below average growth. So the pattern formed shows a negative slope direction that characterizes inclusive growth, although growth in the lowest 15 percent group is still below average.

4.2 Pro Poor Growth

The next method used to see inclusive growth is the Poverty Equivalent Growth Rate (PEGR) approach. The result of PEGR index can reinforce the analysis gained from the GIC because it is able to explain the level of benefit that the poor received from the process of income growth. The difference between the PEGR index and the positive real growth index shows that economic growth is pro poor or the benefit of economic growth is more enjoyed by the poor. And one of the characteristics of inclusive growth is pro poor, although pro-poor growth is not necessarily inclusive. In other words, the PEGR method becomes an evaluation tool for measuring inclusiveness but cannot infer directly to the inclusiveness of growth in a region or period.

Table 1 below shows that in the period of 2012-2014, economic growth in Indonesia, both nationally and regionally, has positive value as well as PEGR value and PEGR difference to real growth. This value means that the period has a pro-poor growth. This result is consistent with the results described by the GIC where all curves of the period indicate inclusive growth.

Table 1. *Table of Composition of Indonesia's Poverty Equivalent Growth Rate by region in the period of 2012-2014 and 2014-2016*

Regions	2012-2014			2014-2016		
	Real Growth	PEGR	PEGR-Growth	Real Growth	PEGR	PEGR-Growth
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Jawa+Bali	0.19613	0.21426	0.01813	0.19952	0.16193	-0.03759
Sumatera+Kalimantan	0.14393	0.18866	0.04473	0.18165	0.16643	-0.01522
Eastern Indonesia	0.16365	0.18554	0.02188	0.16945	0.19172	0.02226
Indonesia	0.17728	0.20423	0.02696	0.19076	0.16803	-0.02273

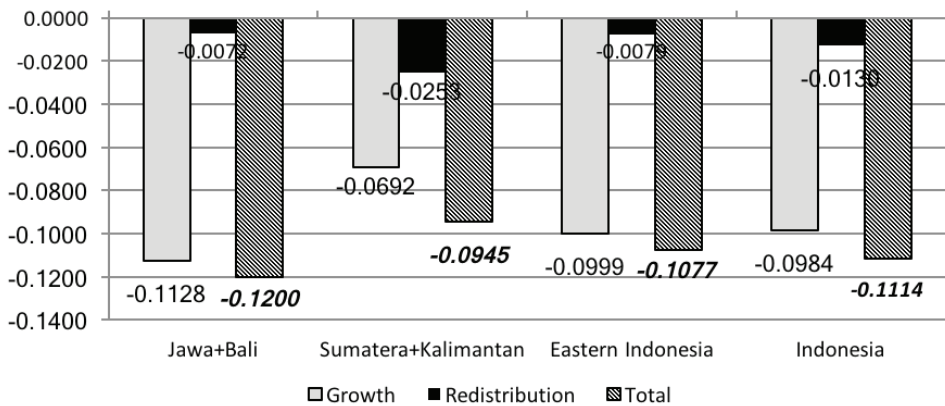*Source: Author's calculation base on Susenas (BPS)*

The PEGR period of 2014-2016 also shows consistent results against the growth incidence curve. The difference between PEGR index and actual growth in Java and Bali, Sumatera and Kalimantan, as well as nationally shows the negative result which means growth is not pro poor yet so it cannot be inclusive. Meanwhile, for the Eastern Indonesia region shows a positive value which means the growth has been pro poor.

4.3 Decomposition of Poverty

Analysis of the poverty Decomposition can be used to explain the factors that influence poverty change between the two periods. So by doing the decomposition of poverty, the results obtained from measurement of GIC and PEGR can be explained more thoroughly, especially regarding the influence of the growth and income redistribution towards poverty. The results of the decomposition of poverty can be positive which means it has the effect of increasing poverty while a negative value means it has the effect of reducing poverty.

The total effect of income changes which is approached by the value of expenditure shows negative result both in the period 2012-2014 and the period 2014-2016. It means that in total (growth and distribution), income change in both periods has a potential to reduce the poverty. Nationally, income change has a potential to reduce poverty by 11.14 percent in the period 2012-2014 and decrease 6.96 percent in the period 2014-2016.
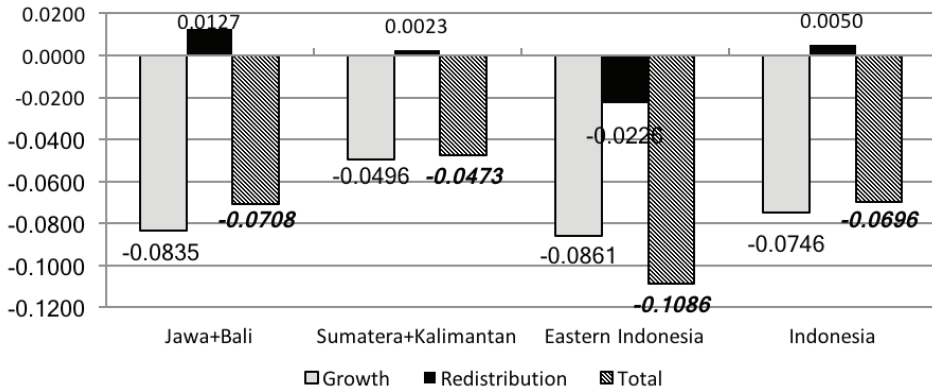
Figure 6. *Shapley Decomposition of Poverty in 2012-2014*

Source: Author's calculation base on Susenas (BPS)

Decomposition of poverty change due to income change in the period 2012-2014 in Figure 6 shows that both the growth effect and the effect of income distribution contribute to poverty reduction. This condition occurs in all regions of Indonesia including if measured nationally. The growth effect that gives the greatest reduction effect against poverty is found in Java and Bali, i.e. 11.28 percent. While the redistribution effect which gives the largest poverty reduction effect occurred in Sumatra and Kalimantan, i.e. 2.53 percent. These results indicate that inclusive and pro poor growth can lead to poverty reduction through income growth as well as income redistribution.

Figure 7. *Shapley Decomposition of Poverty in 2014-2016*

Different phenomenon showed by the decomposition of poverty in the period 2014-2016 as shown in Figure 7. The income change in Java and Bali, Sumatra and Kalimantan, as well as nationally, it has a positive income redistribution effect which means potentially increasing poverty. While the Eastern Indonesia has a negative redistribution effect that reduces poverty. The result of this poverty decomposition is consistent with the previous analysis, where income redistribution on non-inclusive growth has effect in increasing poverty. It means that there is a potential increase in poverty because the income redistribution process is not running as expected or there is an increase in income inequality.

V. Conclusions

The inclusiveness of growth of a region or country in terms of income can be measured and viewed using a variety of methods, including Growth Incidence Curve (GIC) and Poverty Equivalent Growth Rate (PEGR) with pro poor growth approach. In this paper, inclusive growth in Indonesia analysis was conducted by using GIC, PEGR, and Shapley Decomposition of Poverty method in which all three methods showed consistent results. It shows that these three methods can be paired in the measurement of the inclusiveness growth in an area.

The results of inclusive growth analysis shows that economic growth in Indonesia in the period 2012-2014 is inclusive both nationally and in three areas where the growth is more enjoyed by the low expenditure population than the upper expenditure population. Meanwhile, in the period 2014-2016 Indonesia's growth has not been inclusive yet except in eastern Indonesia. In this period, growth provides benefits for most people in the middle of expenditure distribution while lower and upper spending groups have below average growth. It indicates a phenomenon of strengthening economic conditions in the middle class in Indonesia. But this fact must be investigated further.

In addition, the result obtained show that the region with an inclusive growth will result in a difference between the PEGR index and the actual growth which is positive (pro poor), although the pro poor growth are not necessarily inclusive. Similarly, the result of poverty decomposition proves that inclusive growth will have a growth effect and redistribution of income that decreases poverty. However, poverty reduction (total effect) can still occur in non-inclusive growth.

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