

Inclusive Growth: A Poverty Approach

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Abstract

The concept of inclusive growth (IG) was present in the last decade and together with the concept of pro-poor growth. Characteristic of the concept of inclusive growth is the active participation and contribution of the community in the development process. Several approaches have been developed in measuring inclusive growth. This study aims to measure inclusive growth using the provincial poverty approach (IG_p) on the island of Sumatra for the period 2001-2016. The method of approach used in this study is descriptive analysis. The technique of collecting data uses library research. Poverty-Equivalent Growth Rate (PEGR) was developed in the measurement of inclusive growth. The results showed that the provincial economic growth on the island of Sumatra in general was not inclusive. The inclusive growth coefficient (IG_p) in most provinces is positive but lower than the economic growth coefficient (\hat{G}_g). The average IG_p coefficient of Sumatra island is 0.032 lower than the \hat{G}_g coefficient of 0.049. The performance of economic growth determines the value of the coefficient of economic growth and the coefficient of inclusive growth. However, the high economic growth of a region does not guarantee the realization of an inclusive growth. Quality economic growth is not only based on high economic growth achievements but the ability of economic growth to reduce poverty. Policies related to improving development and poverty alleviation programs need to be carried out in an integrated and synergic manner between ministries or institutions from national to regional levels

Keywords: *Economic Growth, Inclusive Growth, Poverty-Equivalent Growth Rate (PEGR), Sumatra-Indonesia.*

Introduction

Pro-poor growth has been known as an approach that measures the benefits of economic growth. One approach used is to measure the benefits of economic growth for poverty reduction (Grosse et al., 2008; Ravallion & Chen, 2003; Soleh, 2019; Soleh et al., 2019). But in the past decade, the concept of inclusive growth (IG) came along with the concept of pro-poor growth (Alexander, 2015; Deutsch & Silber, 2011; Son, 2007; Velalla et al, 2015). The hallmark of the concept of inclusive growth is the active participation and contribution of the community in the development process (Goyal, 2015; Kazi, 2015; Khokhar & Singh, 2016). Several conceptual frameworks for inclusive growth have been proposed by researchers and various international organizations. Among them is the measurement of inclusive growth using the poverty approach. Habito (2009) of the Asian Development Bank (ADB) defines inclusive growth as GDP growth that can reduce poverty. Various studies have also been developed in various countries in measuring inclusive growth using a poverty approach (Akwu & Kanu, 2014; Alao, 2015; Dash, 2015; Goyal, 2015; Iqbatayo & Awoyemi, 2014; Szeles, 2014; Tumusiime & Matotay, 2014; Uduakobong, 2015).

Countries such as New Zealand, China and India have placed inclusive growth at the core of the policy strategy. This is stated in the five-year development plan. The inclusive growth strategy in Indonesia is contained in the 2015-2019 National Medium-Term Development Plan. Indonesia is one of the countries in Southeast Asia which consists of 34 provinces in five large islands, namely Sumatra, Java, Sulawesi, Kalimantan, Papua and four islands, namely the Riau Islands, Bangka Belitung Islands, Nusa Tenggara Islands and Maluku Islands. Sumatra Island is the sixth largest island in the world and is one of the largest islands in Indonesia with an area of approximately 473,481 km² located in the western part of the

archipelago. The island of Sumatra consists of ten provinces, namely Aceh, North Sumatra, West Sumatra, Riau, Jambi, South Sumatra, Bengkulu, Lampung, Riau Islands and Bangka Belitung Islands. The total population in 2016 reached 56,119,398 people or 21.69% of the total population of Indonesia. Most of the population is in the north east part of the island of Sumatra.

The island of Sumatra has strategic potential in terms of national, regional ASEAN and global scope. Within the national scope, the island of Sumatra is a center of production (rubber and palm oil) and processing of agricultural products and energy barns (mining and coal) nationwide. Geographically within the ASEAN region, the island of Sumatra is one of Indonesia's gateways for countries in ASEAN. In the global scope, the Sumatra island geostrategically is expected to be the gateway to the national economy to reach the European, African, South Asian, East Asian and Australian markets. At the national level, the island of Sumatra has a high contribution to the Indonesian economy. Sumatra's GDP contribution to the national period 2001-2016 reached an average of 22.47% per year and was the second largest contribution after Java. The trend of economic growth tends to increase with an average of 5.00% per year (BPS, 2002-2017).

Most provinces on the island of Sumatra have high economic growth with an average above the economic growth of the island of Sumatra and Indonesia. However, high economic growth has not yet fully benefited poverty reduction. In fact, poverty on the island of Sumatra is still very high although accompanied by a decline that tends to be slow. The percentage of poor population reaches 14.29% per year or with a total number of poor population of 7,092,513 people per year. This shows that most provinces on the island of Sumatra experience poverty problems. Economic performance and provincial poverty problems on the island of Sumatra vary. Using the concept of inclusive growth measures the benefits of economic growth on poverty. Studies of inclusive growth in regions with diverse characteristics are still difficult to find. For this reason, it is necessary to measure the province's inclusive growth on the island of Sumatra. This study aims to measure and analyze inclusive growth using the provincial poverty approach on the island of Sumatra.

Methods

The approach used in this study is descriptive analysis. The technique of collecting data uses library research. The data used are secondary data sourced from books, journals, reports and official information from the BPS-Statistics. Poverty-Equivalent Growth Rate (PEGR) was developed to measure the inclusive growth coefficient of Jambi province and Kepulauan Riau province. Defining poverty (P) as a function of the number of poor people (z) and the average income of the population (\varkappa) written as follows:

$$P = P(z, \varkappa) \quad (1.1)$$

Then the change in the percentage of the number of poor people in period 1 and period 2 can be calculated as:

$$P_{12} = P_2 - P_1 = \text{Ln} [P(z_2, \varkappa_2)] - \text{Ln} [P(z_1, \varkappa_1)] \quad (1.2)$$

While changes in the percentage of the average income of the population can be calculated as:

$$\Psi = \text{Ln}(\varkappa_2) - \text{Ln}(\varkappa_1) \quad (1.3)$$

So that the elasticity of poverty on average income (E_p) can be calculated as:

$$E_p = P_{12} / \Psi \quad (1.4)$$

Economic growth (\hat{G}_g) is calculated as a change in Gross Regional Domestic Product in the period, so that economic growth can be written as follows:

$$\hat{G}_g = \text{Ln}(\text{GRDP}_2) - \text{Ln}(\text{GRDP}_1) \quad (1.5)$$

So that the elasticity of poverty to economic growth (E_{pg}) can be calculated as:

$$E_{pg} = P_{12} / \hat{G}_g \quad (1.6)$$

Inclusive growth in reducing poverty, the coefficient is:

$$IG_p = (E_{pg} / E_p) \hat{G}_g \quad (1.7)$$

Note:

IG_p : coefficient of inclusive growth in reducing poverty

E_p : poverty elasticity of average income

E_{pg} : poverty elasticity towards economic growth

\hat{G}_g : economic growth

IG_p stated the inclusiveness of growth in reducing poverty, so that growth was declared inclusive when $IG_p > \hat{G}_g$ (Azwar, 2016; Klasen, 2010).

1) Inclusive Growth with Poverty Approach:

The indicators used in analyzing the factors that influence poverty are economic growth (Kakwani & Son, 2003; Kashi & Shahiki, 2014; Nunez & Espinosa, 2005; Nosheen, et. Al. 2012), per capita income (Fahad & Rehmat, 2010; Saleh, 2002; Sholihah, 2014), inflation (Kashi & Shahiki, 2014; Sabir & Tahir, 2012), and population growth (Sabir & Tahir, 2012). So that the equation is:

$$IG_{p, it} = \alpha_0 + \alpha_1 G_{it} + \alpha_2 PP_{it} + \alpha_3 YPC_{it} + \alpha_4 INF_{it} + \varepsilon$$

Information:

$IG_{p, It}$ = Inclusive Growth Coefficient or Index for Poverty in Province i at time t

G_{it} = Economic Growth in Province i at time t

YPC_{it} = Income Per Capita (Million Rupiah) Province i at time t

PP_{it} = Population Growth of Province i at time t

INF_{it} = Inflation Province i at time t

ε = Error

Results And Discussion

This study measures and analyzes the province's inclusive growth on the island of Sumatra using the poverty approach (IG_p). The economic performance and poverty issues of the provinces on the island of Sumatra will be explained starting this discussion. Furthermore, an analysis of the coefficient of inclusive growth in the period 2001-2016 was carried out.

Inclusive growth using a poverty approach

This section describes the stages of data processing in the analysis of factors affecting inclusive growth using the poverty approach. First, the classical assumption test (heteroscedasticity and multicollinearity test) was carried out; second, the model selection test (Common Effect Model and Fixed Effect Model) was carried out, and the third was performed the hypothesis test (t-statistic test and f-statistic test).

Classical Assumption Test Results

Heteroscedasticity Test Results

The test results to detect the presence of heteroscedasticity were used in analyzing the factors that influence inclusive growth using the poverty approach. In this study, informal and formal methods were used. The informal method is by looking at the plot graph of the predicted value of the independent variable

(ZPRED) and its residual (SRESID). The graph of the test results plot can be seen in Figure 4.10. Figure 4.10 shows that the plot of the predicted value of the independent variable (ZPRED) with its residual (SRESID) has no clear pattern and the dots spread above and below the zero on the Y axis, meaning informally the data is thought to not contain heteroscedasticity symptoms.

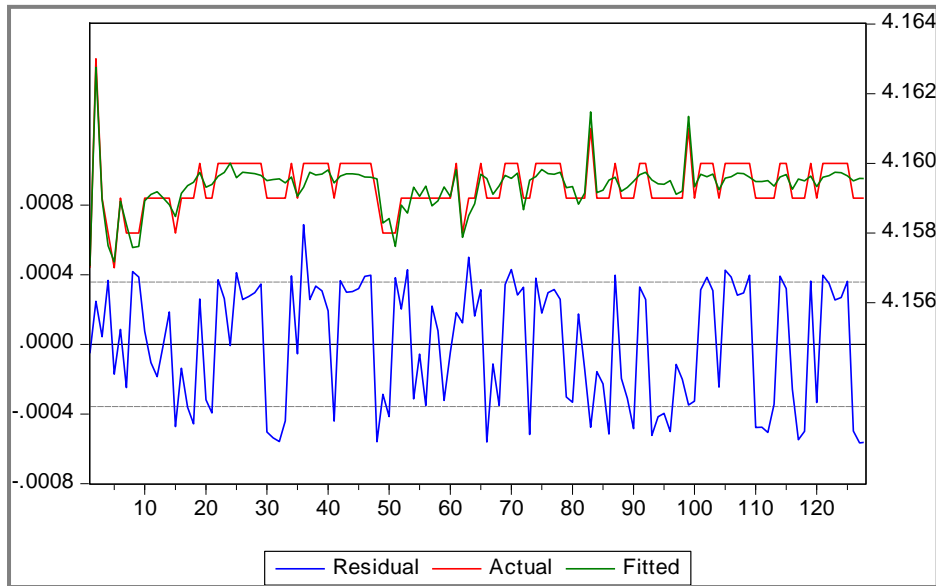


Figure 1. Results of the Heteroscedasticity Test (IGp)

In order to strengthen evidence of the presumption of no heteroscedasticity symptoms, then a formal test was performed using the White's General Heteroscedasticity Test. The results of this test are shown in Table 4:11. In this test, the absence of heteroscedasticity symptoms can be seen in the Obs * R-squared probability. If the probability value > 0.05, there is no heteroscedasticity.

**Table 1
Heteroscedasticity Test Results (IGp)**

F-statistic	1.57046	0	Prob. F(4,123)	0.1864
Obs*R-squared	6.21955	7	Prob. Chi-Square(4)	0.1833
Scaled explained SS	1.50846	8	Prob. Chi-Square(4)	0.8251

Source: 2018 Research Results

Table above that the probability of Obs * R-squared is 0.1833 or greater than 0.05. So in this case it can be stated that formally there are no symptoms of heteroscedasticity.

Multicollinearity Test Results

The results of the correlation test between the independent variables in the Eviews 8 application to see if there are problems or symptoms of multicollinearity are shown in table below.

Table 2
Multicollinearity Test Results (IGp)

	G	PP	YPC	INF
G	1	0.528013	-0.215157	0.078190
PP	0.528013	1	0.060210	0.025812
YPC	-0.215157	0.060210	1	0.036743
INF	0.078190	0.025812	0.036743	1

Source: 2018 Research Results

The regression equation is said to be free from multicollinearity if the level of correlation between the independent variables is less than 0.95 (Ghazali, 2005). Based on table 4:12, it is found that all correlation values between the independent variables in this study are smaller than 0.95. So it can be stated that in this study there are no multicollinearity symptoms.

Model Selection Testing Results

As previously explained, in panel data regression analysis, there are several steps in testing model selection. The following are the test results in these stages. First, the estimation results of the Common Effect Model (CEM) and Fixed Effect Model (FEM) are shown in tables below.

Table 3
Estimation Results of the Common Effect Model (IGp) Test

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	4.163614	0.003263	1276.095	0.0000
G?	0.010567	0.000525	20.13657	0.0000
PP?	-0.011697	0.000911	-12.83922	0.0000
YPC?	-0.000059	0.000210	-0.283449	0.7773
INF?	0.000071	0.000039	1.836409	0.0687

Source: 2018 Research Results

Table 4
Fixed Effect Model (IGp) Estimation Results

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
C	4.166899	0.004303	968.4502	0.0000
G?	0.010785	0.000589	18.31380	0.0000
PP?	-0.012033	0.000942	12.77914	0.0000
YPC?	-0.000683	0.000696	0.981099	0.3286
INF?	0.000074	0.000038	1.941213	0.0547
Fixed Effects				
(Cross)				
_ACEH--C	0.000027			
_SUMUT--C	-0.000069			
_SUMBAR--C	0.000120			
_RIAU—C	0.000281			

_JAMBI—C	0.000065
_SUMSEL—C	-0.000218
_BENGKULU—C	-0.000084
_LAMPUNG—C	-0.000121

Source: 2018 Research Results

Second, the results of the Chow test using the Redundant Fixed Effects Tests are used to determine whether the model used is the Commont Effect Model or the Fixed Effect Model as shown in Table below.

Table 5
Chow Test Results (IGp)

<i>Effects Test</i>	<i>Statistic</i>	<i>d.f.</i>	<i>Prob.</i>
Cross-section F	1.600081	(7,116)	0.1422
Cross-section Chi-square	11.798393	7	0.1074

Source: 2018 Research Results

Based on table 4.15, it is known that the Chi-square Cross-section Prob value of 0.1074 is greater than alpha 0.05. So it can be stated that in the analysis of the factors that affect inclusive growth using the poverty approach, based on the Chow test, the best model is the Commont Effect Model and it does not need to be continued with the next stage of testing, namely the Hausman test or the Langrange Multiplier (LM) test.

After going through classical assumption testing and model selection, the panel data regression equation estimates are obtained using the Commont Effect Model approach as follows:
 $IGp_{it} = 4.163614 + 0.010567G_{it} - 0.011697PP_{it} - 0.000059YPC_{it} + 0.000071INF_{it}$

Hypothesis Test Results

T statistical test results (partially)

Based on the results of the Commont Effect Model (CEM) t-statistic test in Table 4.13, the Prob (t-statistic) value of each independent variable, namely G, PP, YPC, and INF, is 0.000 (<0.05), respectively. 0.000 (<0.05), 0.777 (> 0.05), and 0.068 (> 0.05). This shows that partially:

- a. The economic growth variable (G) has a positive and significant effect on the inclusive growth variable (IGp). With this evidence, H1 is accepted.
- b. The population growth variable (PP) has a negative and significant effect on the inclusive growth variable (IGp), with this evidence, the H2 of this study is accepted.
- c. The per capita income variable (YPC) has a negative and insignificant effect on the inclusive growth variable (IGp). With this evidence, H3 this study is rejected.
- d. The inflation variable (INF) has a negative and insignificant effect on the inclusive growth variable (IGp). With this evidence, H4 this study is rejected.

F Statistical Test Results (Simultaneously)

Based on the results of the F-statistic test, the Commont Effect Model (CEM) estimation in table 4.16 shows the prob value (F-statistic), which is 0.000 which is smaller than alpha 0.05. This means that all the independent variables included in the model have a significant effect simultaneously (simultaneously) on the dependent variable.

Table 6
F-statistic test results (IGp)

<i>Weighted Statistic</i>	<i>F-Statistic</i>	<i>Prob (F-Statistic)</i>
	116.2621	0.0000

Source: 2018 Research Results

Inclusive Growth Using Poverty Approaches (IGp)

After going through classical assumption testing and model selection, the panel data regression equation estimates are obtained using the Commont Effect Model approach as follows:

$$IGp_{it} = 4.163614 + 0.010567G_{it} - 0.011697PP_{it} - 0.000059YPC_{it} + 0.000071INF_{it}$$

Based on the panel data regression above, it can be stated that the economic growth of the island of Sumatra has a positive effect on the inclusive growth coefficient (IGp). The coefficient value of the economic growth variable is 0.010567. This means that if the rate of economic growth increases, the coefficient of inclusive growth (IGp) will increase. The increase in the coefficient of inclusive growth shows that the economic growth that occurs tends to contribute to or influence the reduction of the poverty rate. The t-statistic test results of the Commont Effect Model estimation in table 4.13 confirm that the prob (t-statistic) value of the independent variable G is 0.0000 <0.05. This shows that the economic growth variable (G) has a positive and significant effect on the inclusive growth coefficient (IGp) variable. With this evidence, the H2 of this study is accepted.

The increase in economic growth was accompanied by an increase in the coefficient of inclusive growth. The highest economic growth achievement during the observation period was also accompanied by the achievement of inclusive growth in most provinces. Such as the phenomenon that occurred in the province of North Sumatra. The year 2007 was the achievement of the highest economic growth during the observation period (6.90%). This was accompanied by the achievement of the highest inclusive growth coefficient (IGp) (0.050). Similar conditions where the highest economic growth achievement was accompanied by the highest inclusive growth coefficient value during the observation period also occurred in the provinces of West Sumatra, Riau, Jambi, and Lampung. Likewise, the provinces of South Sumatra and Bengkulu, the achievement of high economic growth was also accompanied by a high value of the coefficient of inclusive growth.

The increasing trend of the coefficient of inclusive growth in most provinces on the island of Sumatra, does not necessarily mean that economic growth is inclusive both in the respective provinces and as a whole on the island of Sumatra. However, the achievement of inclusive growth in most provinces in a given year contributed to the achievement of inclusive growth for the island of Sumatra. The phenomenon that mostly occurs is the coefficient of inclusive growth which has a positive sign or value, but is smaller than the coefficient of economic growth. This condition explains that economic growth occurs faster or higher than the poverty reduction that has occurred.

Empirical studies linking economic growth with poverty include a study conducted by Kakwani & Son (2003); Nunez & Espinosa (2005); Nosheen, et. Al. (2012) and Kashi & Shakiki (2014). The results of research conducted by Kakwani & Son (2003) show that the economic growth of Korea and Vietnam has experienced pro-poor growth in the 1990s. Meanwhile, Thailand's economic growth as a whole has not been pro-poor.

Nunez & Espinosa (2005) also examined the relationship between growth, poverty and income distribution in Colombia in 1996-2004. The results showed that the patterns of economic growth in both urban and rural areas have almost the same characteristics. Only in 2001 and 2003 growth was pro-poor growth while in other years it was anti-pro-poor growth. The increase in urban poverty in the 1996-2004 period of 8.84% was mainly due to the growth effect of 5.17% and the distribution effect of 2.27% and

the effect of the population shift of 1.41%. Whereas in rural areas experiencing a reduction in poverty by -0.60% can be decomposed into a growth effect of 1.45% and a distribution effect of 0.46% and a population mobility effect of -2.21%.

Furthermore, research conducted by Kashi & Shakiki (2014) also explains that economic growth in Iran has a significant effect on poverty. Increased economic growth leads to poverty reduction. The same thing was conveyed by Nosheen, et. al (2012) which uses economic growth as one of the macroeconomic factors affecting poverty in South Asia and Latin America in 1990-2009. Countries that have been successful in terms of economic growth are also very likely to have succeeded in reducing poverty.

The results of the panel data regression equation also show that the population growth of the island of Sumatra has a negative effect on the inclusive growth coefficient (IGp). The coefficient value of the population growth variable is -0.011697. This means that if the population growth rate increases, the coefficient of inclusive growth (IGp) will decrease. A decrease in the coefficient of inclusive growth indicates that increasing population growth will slow down the poverty reduction process. The t-statistic test results of the Common Effect Model estimation in table 4.13 confirm that the prob (t-statistic) value of the independent variable PP is $0.0000 < 0.05$.

This shows that the population growth variable (PP) has a negative and significant effect on the inclusive growth coefficient (IGp) variable. With this evidence, the H3 of this study is accepted. Jhingan (2013) explains that the impact of population growth is to reduce per capita income and the standard of living of people in underdeveloped countries. A study on the effect of population growth on economic development was also carried out by Ogbuabor, et al. (2018). Examining the effect of population growth on economic development in Nigeria, 1980-2016. The results showed that population growth hindered economic development in Nigeria.

During the 2001-2016 period, the island of Sumatra had an average population growth rate of 1.64% per year. This growth is higher than the average population growth of Indonesia (1.44% per year). The highest population growth during the observation period in most provinces was accompanied by a lower or lower coefficient of inclusive growth. As in 2003, this happened in the province of West Sumatra. Furthermore, in 2007 it occurred in the provinces of North Sumatra, Riau and South Sumatra. In 2008, this occurred in the provinces of Jambi, Bengkulu and Lampung. As previously explained, the reduction in the inclusive growth coefficient (IGp) shows that increasing population growth will slow down the process of reducing poverty or even increase the poverty rate.

The results of this study are consistent with the research conducted by Sabir & Tahir (2012). Research conducted in Pakistan over the 1981-2010 time period shows that population growth has a positive impact on poverty. Furthermore, Klasen & Lawson (2007) examined the relationship between population growth and poverty in Uganda. The results showed that population growth contributed significantly to the low achievement of poverty reduction and even exacerbated household poverty conditions. Likewise, Merrick (2002) also explains that low population growth contributes to poverty reduction.

The results of the panel data regression equation further show that the per capita income of the island of Sumatra has a negative effect on the inclusive growth coefficient (IGp). The coefficient value of the per capita income variable is -0.000059. This means that if the level of income per capita increases, the coefficient of inclusive growth (IGp) will decrease. The decrease in the coefficient of inclusive growth shows that an increase in per capita income does not necessarily make the community or population rich or in terms of poverty continues to increase.

This condition is certainly not in accordance with the research hypothesis which states that per capita income has a positive and significant effect on the inclusive growth index (IGp). The t-statistic test results of the Common Effect Model estimation in table 4.13 confirm that the prob (t-statistic) value of the YPC independent variable is $0.7773 > 0.05$. This shows that the per capita income variable (YPC) has a negative and insignificant effect on the inclusive growth coefficient (IGp) variable. With this evidence, the H4 of this study is rejected.

The results of this study are not in line with several previous studies such as Fahad & Rehmat (2010) and Sholihah (2014). Using data from 1994-2005, the results of research conducted by Fahad & Rehmat (2010) show that per capita income has a negative and significant effect on poverty in Pakistan.

Even the elimination of poverty is impractical without increasing per capita income. Furthermore, research conducted by Sholihah (2014). The results showed that per capita income has a positive and significant effect on the inclusiveness of economic growth in Indonesia. The higher the coefficient of inclusive growth leads to increased welfare and reduced poverty.

In contrast to several research results as previously stated, research conducted by Luthfi, et. al (2018) shows that per capita income has a positive and significant effect on poverty in Eastern Indonesia, namely the islands of Maluku and Papua. Thus, the results of these studies are in line with this research. The income per capita of the island of Sumatra has a negative effect on the coefficient of inclusive growth (IGp). This means that if the level of income per capita increases, the coefficient of inclusive growth (IGp) will decrease. The decline in the coefficient of inclusive growth indicates that an increase in per capita income has actually been accompanied by an increase in poverty.

This is also in line with the statement made by economic observer from the Indonesian Institute of Sciences (LIPI) Latief Adam who said that Indonesia's high economic growth is not directly related to people's welfare (<https://www.republika.co.id>). The coordinating minister for the economy, Darmin Nasution, also assessed that the increase in the level of per capita income or the average income of the Indonesian people has not become a guarantee for becoming a developed country. He further saw that the increase in the level of per capita income did not necessarily save Indonesia from being trapped in the middle-income country category (<https://www.cnnindonesia.com>).

The results of the subsequent panel data regression equation also show that inflation in Sumatra has a positive effect on the inclusive growth coefficient (IGp). The coefficient value of the inflation variable is 0.000071. This means that if the inflation rate increases, the inclusive growth coefficient (IGp) will increase. The increase in the coefficient of inclusive growth shows that the increase in inflation that occurs tends to have an effect on reducing the poverty level or does not lead to higher poverty.

This is certainly not in accordance with the research hypothesis which states that inflation has a negative and significant effect on the inclusive growth index (IGp). The t-statistic test results of the Common Effect Model estimation in table 4.13 confirm that the prob (t-statistic) value of the independent variable INF is $0.0687 > 0.05$. This shows that the inflation variable (INF) has a positive and insignificant effect on the inclusive growth coefficient (IGp) variable. With this evidence, this research H5 is rejected.

The results of this study are not in line with several previous studies such as research conducted by Kashi & Shakiki (2014). The results of his research indicate that inflation has a positive and significant effect on poverty in Iran. Furthermore, research conducted by Sabir & Tahir (2012) shows that inflation has a positive and significant effect on poverty in Pakistan.

In addition, there are several research results that show that inflation has a negative effect on poverty, such as research conducted by Taludkar (2012). The results showed that in the majority of cases, inflation showed a positive and statistically significant correlation with poverty. However in the case of low-income countries, the relationship between inflation and poverty is negative and statistically insignificant. Furthermore, Maluleke (2012) also examined the relationship between inflation and poverty in Sharpville. The results also show that inflation has a negative impact on poverty.

Inflation has a positive impact and a negative impact depending on whether or not inflation is severe. If inflation is classified as light, it actually has a positive effect because it can encourage the economy to be better, namely increasing national income and making people excited to work, save and earn. investment. Low inflation can reduce poverty and inequality, especially if food prices are stable, given that food consumption has a large market for the expenditure of the poor.

Based on the results of the F-statistic test, the Common Effect Model estimation in table 4.16 shows the prob (F-statistic) value of 0.0000 which is smaller than alpha 0.05. This means that all the independent variables included in the model have a significant effect simultaneously (simultaneously) on the related variables.

Provincial Economic Performance in Sumatra Island

The economic growth of the island of Sumatra reflects the overall regional economic performance. During the period 2001-2016, the average economy of the island of Sumatra was 5.00% per year. This growth is lower than the average economic growth of Indonesia reaching 5.31% per year. However, the economic growth trend of the island of Sumatra tends to increase. North Sumatra

and Riau are provinces that provide the highest contribution to the economy of the island of Sumatra. The average contribution during the observation period was 24.98% and 21.36% per year, respectively. While the provinces with the lowest contribution were Bengkulu province at 1.84% and Bangka Belitung Islands at 2.31%.

Judging from the performance of each province, there are 7 provinces that have economic growth above the average economic growth of the island of Sumatra. Riau Islands as a province with the highest average economic growth reaches 6.43% per year. The manufacturing industry is a leading sector with a trend of increasing performance. The contribution of this sector to the GRDP in 2016 reached 37.75%. Other regions that also have average economic growth on the island of Sumatra are Jambi (6.23%), Bangka Belitung Islands (6.04%), Bengkulu (5.69%), North Sumatra (5.64%), West Sumatra (5.61%), and Lampung (5.34%). Furthermore, there are 3 provinces that have growth below the average economic growth of the island of Sumatra, including the provinces of South Sumatra (4.83%) and Riau (3.29%). While Aceh is a province that relies on the agriculture, forestry and fisheries sectors having the lowest average economic growth on the island of Sumatra. Average economic growth of 0.72% per year. This low growth is inseparable from the achievement of growth each year, mostly with negative growth. The reason for the low economic growth of the province of Aceh was, among others, a decline in the contribution of the manufacturing and mining sectors. Furthermore, the earthquake and tsunami disaster at the end of 2004 caused Aceh's economy to decline.

Provincial Poverty in Sumatra Island

The high achievement of economic growth in most provinces on the island of Sumatra has not fully overcome the problem of poverty. This is indicated by the high provincial poverty rate on the island of Sumatra. In absolute terms, the average number of poor people on the island of Sumatra in the period 2001-2016 ranks second after the island of Java, which amounted to 7,092,513 people. Whereas relatively, the island of Sumatra has an average percentage of poor population of 14.33% per year. Figure 1 shows the average number and percentage of poor people in the province of Sumatra in 2001-2016. North Sumatra is a province with the largest number of poor people. The average number of poor people reaches 1,596,840 people. This is in line with the high population in the province. More than 25% of the population of the island of Sumatra is in the province of North Sumatra. The highest percentage of poor population is in the province of Aceh reaching 21.98% per year. Poverty in Aceh is generally a phenomenon in rural areas, with around 30% of families in rural areas living below the poverty line compared to less than 15% in urban areas. The low level of education and agriculture as the main activity of the family is also positively related to poverty (Bank Dunia, 2008).

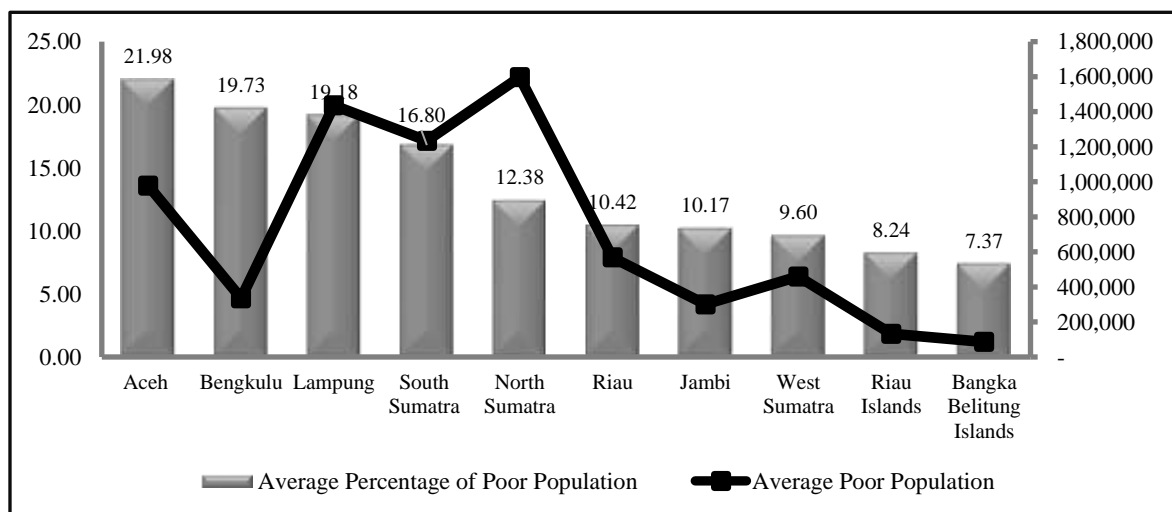


Figure 2. Average Number and Percentage of Provincial Poor in Sumatra Island 2001-2016.

3.3 Provincial Inclusive Growth (IG_p) on the Island of Sumatra

Poverty-Equivalent Growth Rate (PEGR) was developed in measuring the inclusive growth coefficient (IG_p) of the province on the island of Sumatra. Using the poverty approach, economic growth is said to be inclusive if the coefficient of inclusive growth (IG_p) is higher than the coefficient of economic growth (\hat{G}_g). The results showed that most provinces on the island of Sumatra had a positive growth coefficient (IG_p) but were lower than the economic growth coefficient (\hat{G}_g). The average inclusive growth coefficient (IG_p) of the island of Sumatra for the period 2001-2016 was 0.031 lower than the coefficient of economic growth (\hat{G}_g). This shows that in general the provincial economic growth on the island of Sumatra is not inclusive. The results of this study are in line with research conducted by Azwar (2016) and Soleh et al. (2019).

The inclusive growth (IG_p) of the island of Sumatra occurred in 2003. The coefficient of inclusive growth (0.110) is higher than the coefficient of economic growth (0.109). Achievement of regional inclusive growth contributed to the achievement of aggregative inclusive growth on the island of Sumatra. In 2003, there were four provinces on the island of Sumatra, namely the provinces of North Sumatra, Riau, South Sumatra and Bengkulu experiencing inclusive growth achievements. The coefficient of inclusive growth is higher than the coefficient of economic growth. The phenomenon that occurred in each province in that year was an increase in economic performance accompanied by a decrease in poverty growth. As stated by Habito (2009) that inclusive growth as GDP growth can reduce poverty.

Regional economic performance is known that the province of Aceh experienced the achievement of inclusive growth in 2004 and 2005. The coefficient of inclusive growth was higher than the coefficient of economic growth. In 2004, there were two important sectors in Aceh province that experienced a decline, namely the mining sector 20.46% and the manufacturing industry 17.8%. The decline in these two sectors caused Aceh's economic growth to be negative by -9.63%. But in fact, the decline in economic growth was accompanied by a decrease in poverty growth of -7.73%. The contribution of the agricultural sector to the GRDP of Aceh province in 2004 increased by 2.96% from the previous year. After the earthquake and tsunami disaster at the end of 2004, Aceh's economy in 2005 experienced negative growth of -10.12%. This is due to the three main sectors supporting the economy of the province of Aceh, namely the agriculture, mining and manufacturing sectors which experienced a decline. Poverty in Aceh province grew by 0.79%.

Inclusive growth also occurred in the province of North Sumatra in 2008. The coefficient of inclusive growth (0.067) was higher than the coefficient of economic growth (0.062). The phenomenon that occurred that year, North Sumatra experienced economic growth of 6.39%. This condition was accompanied by a reduction in poverty. The number of poor people decreased from 1,768,500 people to 1,613,800 people or there was a decrease in poverty from 13.90% to 12.55%. In absolute terms, poverty in rural areas is 852,100 people, more than the poor population in urban areas, which is 761,700 people. But relatively, the percentage of poor people in urban areas (12.85%) was higher than the percentage of poor people in rural areas (12.29%). This indicates that the welfare of the community in rural areas is relatively better when compared to people living in urban areas.

The average inclusive growth coefficient (IG_p) of the provinces in Sumatra for the period 2001-2016 is shown in figure 2. The provinces of North Sumatra and Bengkulu have an average inclusive growth coefficient higher when compared to other provinces on the island of Sumatra, amounting to 0.043. The average economic growth in the two provinces is also above the average economic growth of the island of Sumatra. However, the high economic growth of a region also does not guarantee the realization of an inclusive growth. Such a phenomenon occurs in the provinces of Riau Islands and Jambi. Both provinces have higher average economic growth compared to other provinces on the island of Sumatra, but economic growth tends to be not inclusive during the observation period. Achievement of regional economic growth has an impact on the acquisition of the coefficient of economic growth and inclusive growth. As happened in the provinces of Aceh and Riau. The low economic growth has an impact on the low coefficient of economic growth (\hat{G}_g) as well as the coefficient of inclusive growth (IG_p) with a negative average value. However, both provinces experienced inclusive growth outcomes during the observation period. This shows that, the quality of

economic growth is in the benefits of reducing poverty or improving people's welfare.

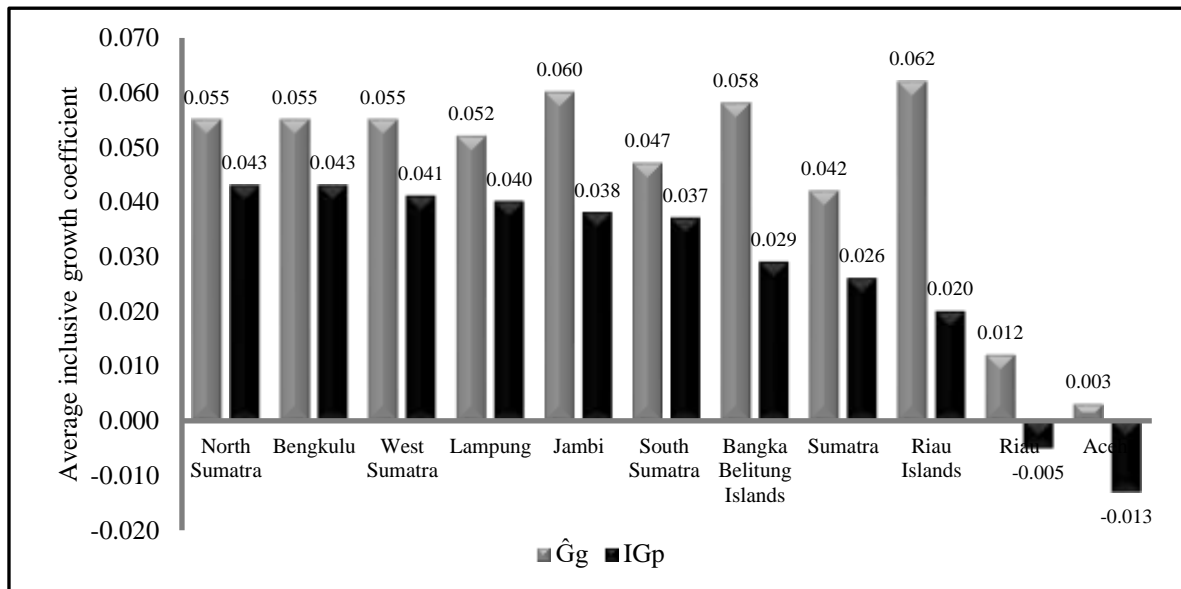


Figure 3. Average Economic Growth Coefficient (G_g) and Inclusive Growth Coefficient (IG_p) Province in Sumatra Island in 2001-2016.

The low achievement of inclusive growth in most provinces on the island of Sumatra shows that economic performance is not fully in favor of the poor. Poverty in most provinces is still high. The government needs to strive to achieve quality economic growth that is able to reduce poverty. Economic development on the island of Sumatra is closely related to community empowerment based on regional economic potential, so as to increase the added value and competitiveness of superior commodities that can be done through (a) preparing special economic zones; (b) developing palm oil, rubber and fishery processing industries and marine resources into export-oriented high value-added products; (c) Increasing the productivity of leading commodities of oil palm and rubber both within special economic zones and around the Special Economic Zones (community gardens); (d) developing leading manufacturing industries of export-oriented areas in the Free Trade Zone and Free Ports of Batam, Bintan and Karimun, as well as the tourism industry in the Free Trade Zone and Free Port of Sabang by utilizing free trade facilities and free ports; and (e) prepare free trade facilities and infrastructure and free ports.

Conclusion

Provincial economic growth on the island of Sumatra in the period 2001-2016 was generally not inclusive. The results showed that the majority of provinces had an inclusive growth coefficient (IG_p) which was positive but lower than the coefficient of economic growth (\hat{G}_g). The average inclusive growth coefficient of the island of Sumatra is 0.032 lower than the economic growth coefficient of 0.049. The inclusive growth achievements of the provinces of North Sumatra, Riau, South Sumatra and Bengkulu contributed to the inclusive growth achievements of the island of Sumatra in 2003. Regional economic growth determines the coefficient of economic growth and the coefficient of inclusive growth. However, the high economic growth of a region does not guarantee the realization of an inclusive growth. Quality economic growth is not only based on high economic growth achievements but the ability of economic growth to reduce poverty. Policies related to improving development and poverty alleviation programs need to be carried out in an integrated and synergic manner between ministries or institutions. Assessment and measurement of inclusive growth can use several approaches other than poverty such as the unequal distribution of income, labor and the environment. So that the use of approaches other than poverty as conducted by researchers is very necessary to be done in order to obtain more comprehensive results.

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References

- [1] Adam, Latif. (2019). Pendapatan Per Kapita Tak Jamin Kesejahteraan Marata. <https://www.republika.co.id/berita/ekonomi/makro/12/08/07/m8dj06-pendapatan-perkapita-tak-jamin-kesejahteraan-merata>. (12 September 2019).
- [2] Akwu, Kingsley Chidozie., & Kanu, Ejikeme Jhonson. (2014). Inclusive Planning in Nigeria: Veritable Tool for Poverty Reduction. *Journal of Geography and Regional Planning*, 7 (10), 214-217.
- [3] Alao, Esther Monisola. (2015). Inequality, Poverty Among Nigeria Women And Youth And The Challenges Of Inclusive Growth In Post 2015 Millennium Development Goals (MDG). *International Journal of Development and Economic Sustainability*, 3 (5), 15-25.
- [4] Alexander, K. (2015). *Inclusive growth: Topic Guide*. Birmingham, UK: GSDRC, University of Birmingham. 1-27
- [5] Azwar. (2016). Pertumbuhan Inklusif Di Provinsi Sulawesi Selatan Dan Faktor-Faktor Yang Memengaruhinya. *Jurnal BPPK*, 9 (2), 1-29. [In Indonesian]
- [6] Bank Dunia. (2008). *Dampak Konflik, Tsunami, dan Rekonstruksi Terhadap Kemiskinan di Aceh; Kajian Kemiskinan di Aceh Tahun 2008*. Jakarta: Bank Dunia. [In Indonesian]
- [7] Badan Pusat Statistik. (2002-2017). *Statistik Indonesia*. Jakarta: Badan Pusat Statistik. [In Indonesian]
- [8] Dash, Aswini Kumar. (2015). Inclusive Growth And Development With Specific Reference To India. *International Journal of Application or Innovation in Engineering & Management (IJAIEM)*, 4 (4), 67-69.
- [9] Deutsch, Joseph., & Silber, Jacques. (2011). On Various Ways of Measuring Pro-Poor Growth. *Economics The Open-Access, Open-Assessment E-Journal*, JEL. 132, 015, 1-54.
- [10] Fahad, Israr., & Rehmat, Ali. (2010). Impact Of Macroeconomic Policies On Poverty Alleviation In Pakistan. *Romanian Economic and Business Review*, 8 (4). 48-60.
- [11] Goyal, Seema. (2015). Inclusive Growth in India : Dream or Reality. *PARIPEX - Indian Journal Of Research*, 4 (1), 161-163.
- [12] Grosse, M., Harttgen, Kenneth., & Klasen, Stephan. (2008). Measuring Pro-Poor Growth in Non-Income Dimension. *World Development*, 36 (6), 1021-1047.
- [13] Habito, Cielito F. (2009). Patterns of Inclusive Growth in Developing Asia: Insights from an Enhanced Growth-Poverty Elasticity Analysis. *Asian Development Bank Institute (ADB) working paper series No. 145*, 1-55.
- [14] Igbatayo, Samuel A., & Awoyem, Bosede Olanike. (2014). Exploring Inclusive Growth and

- Poverty Reduction Strategies in the BRICS Economies: A Multi-Country Study Of Brazil, China and South Africa. *IOSR Journal of Economics and Finance (IOSR-JEF)*, e-ISSN: 2321-5933, p-ISSN: 2321-5925. 5 (6) Ver. I (Nov.-Dec. 2014), 54-68.
- [15] Jhingan, M.L. (2013). *Ekonomi Pembangunan dan Perencanaan*. Jakarta: PT. Raja Grafindo Persada.
- [16] Kakwani, Nanak., & Son, Hyun H. (2003). Pro-poor Growth: Concepts and Measurement with Country Case Studies. *The Pakistan Development Review*, 42(4), 417-444.
- [17] Kashi, Farhad Khodadad., & Shahiki Tash, Mohammad Nabi. (2014). Effects of macroeconomic variables on poverty in Iran (Application of bootstrap technique). *Theoretical and Applied Economics*, XXI, 5(594), 85-96.
- [18] Kazi, Muktazur Rahman. (2015). Status of Women in India in the Context of Inclusive Growth. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)*, 20(4), 125-130.
- [19] Klasen, Stephen & Lawson, David. (2007). The Impact of Population Growth on Economics Growth and Poverty Reduction in Uganda. Germany: *University of Göttingen*. JEL Code: O15, I32, J13.
- [20] Khokhar, Amit Singh., & Singh, Bharat. (2016). Role of Women Entrepreneurship in Inclusive Growth. *WOMEN'S LINK*, 22 (2), 1-6.
- [21] Klasen, Stephan. (2010). Measuring and Monitoring Inclusive Growth: Multiple Definition, Open Questions, and Some Constructive Proposals. Manila: Asian Development Bank. *Working Paper Series*, 12, 1-15.
- [22] Luthfi, Muhammad Yudhi., Hamzah, Muhammad Zilal., Izazi, Sabila Aqlima. (2018). Determinant Factors of Percapita Income and Poverty Level in the Eastern Indonesia Period Year 2004-2016. *OIDA International Journal of Sustainable Development*, 41-52.
- [23] Maluleke, Tiyeselani Clara. (2012). *The Relationship Between Poverty and Inflation Sharpaville*. Dissertation Magister Commercii (Economics) in the School of Economic Sciencen at the North-West University.
- [24] Merrick, Thomas W. (2002). Population and Poverty: New Views on an Old Controversy. *International Family Planning Perspectives*. 28(1), 41-46.
- [25] Nasution, Darmin. (2019). Pendapatan Per Kapita Naik Tak Jamin Jadi Negara Maju. <https://www.cnnindonesia.com/ekonomi/20190207063136-532-367017/darmin-pendapatan-per-kapita-naik-tak-jamin-jadi-negara-maju>. (12 September 2019).
- [26] Nosheen, et. al. (2012). Determinants Of Poverty (Cross Country Evidence). *Interdisciplinary Journal Of Contemporary Research In Business*, 4(1), 559-570.
- [27] Nunez, Jairo., & Espinosa, Silvia. (2005). *Pro-Poor Growth And Pro-Poor Programs In Colombia*. Documento CEDE 2005-51. CEDE.
- [28] Ogbuabor, Jonathan E., Udo, Godwin C., & Onuiqbo, Fidelia N. (2018). Population Growth and Economic Development in Nigeria. *Saudi Journal of Business and Management Studies (SJBMS)*. 3(12), 1348-1354.
- [29] Ravallion, Martin., & Chen, Shaohua. (2003). Measuring pro-poor growth. *Economic*

Letters, 78, 93-99.

- [30] Sabir, Hazoor Muhammad., & Tahir, Safdar Hussain. (2012). The Impact Of Different Macroeconomic Variables On Poverty In Pakistan. *Interdisciplinary Journal Of Contemporary Research In Business*, 3(10), 788-799.
- [31] Saleh, Samsubar. (2002). Faktor-faktor Penentu Tingkat Kemiskinan Regional di Indonesia. *Jurnal Ekonomi Pembangunan (Kajian Negara Berkembang)*, 7(2), 87-102.
- [32] Sholihah, Dyah Hapsari Amalina. (2014). *Pertumbuhan Inklusif : Faktor-Faktor Yang Memengaruhi dan Dampaknya Terhadap Pertumbuhan Kelas Menengah di Indonesia*. Program Pasca Sarjana. Institut Pertanian Bogor.
- [33] Soleh, Ahmad. (2019). Village-Owned Enterprises (BUM Desa) For Inclusive Growth on Bengkulu Province. *WoMELA-GG 2019*, Januari 26-28, Medan, Indonesia.
- [34] Soleh, Ahmad., Sukiyono, Ketut., Nurazi Ridwan. (2019). Inclusive Growth in Bengkulu Province: Multidimensional Approach. 1st International Conference on Progressive Civil Society (IConProCS 2019). *Advances in Social Science, Education and Humanities Research*, 317, 89-94.
- [35] Son, Hyun Hwa. (2007). *Pro-Poor Growth: Concepts and Measures*. Philippines: Asian Development Bank.
- [36] Szeles, Monica Raileanu. (2014). A Multidimensional Approach To The Inclusiveness Of Economic Growth In The New Member States. *Romanian Journal of Economic Forecasting*, XVII(2), 5-24.
- [37] Taludkar, Shahidur Rasyid. (2012). The Effect of Inflation on Poverty in Developing Countris: A Panel Data Analysis. A Thesis in Economics. Texas Tech University.
- [38] Tumusiime, Emmanuel., & Matotay, Edmund. (2014). Agriculture Sustainability, Inclusive Growth, and Development Assistance: Insights from Tanzania. *Journal of Sustainable Development*, 7(4), 181-190.
- [39] Uduakobong, S. Inam. (2015). Poverty Alleviation Strategies In Nigeria: A Call For An Inclusive Growth Approach. *Journal of Poverty, Investment and Development*, 15, 110-118.
- [40] Vellala, Paramasivan S. K Madala, Mani., & Chhattopadhy, Utpal. (2015). *Assessment of Inclusive Economic Growth in Major Indian States*. Twelfth AIMS International Conference on Management. P 926-9