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Economic Growth Inclusivity in Sumatra Province

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Abstract

The purpose of this research using a static panel regression model is to analyze the effect of inclusive growth through the World Economic Forum (WEF) indicator on income inequality and poverty in Sumatra Province, where partially inclusive economic growth has a positive and significant effect on income inequality during the 2007-2020 period at the regressor error rate of 5% or 0.0637 with a determination value of R2 of 0.0247 and a constant value of 5.9561 or with t-count> t-table value of (1.8695> 1.6450). Meanwhile, for analysis purposes, the effect of inclusive growth on poverty partially has a positive and significant effect on the regression error rate of 5% or 0.0008 with an R2 value of determination of 7.85% at a constant value position of 0.0068 with proof t-count value and t table (3.3401 > 1.6450). The findings of this study indicate that government policies need to maintain law enforcement and be able to increase state income to ensure social protection for the community in a fair and equitable manner as well as guarantee the right of every citizen to obtain a decent income and reduce the level of income inequality happening in society.

Keywords
inclusive economic growth; income inequality; poverty

I. Introduction

Economic growth aims to improve people's welfare. In the theory of Robert Sollow and Trevor Swan which has developed since the 1950s, the process of economic growth is actually influenced by economic and non-economic factors. Then according to this theory that economic growth depends on an increase in the supply of production factors (population, labor, capital accumulation) and the level of technological progress. Raharjo, (2013). According to this theory, the extent to which an economy will develop depends on population growth, capital accumulation, and technological progress. Meanwhile, according to Acemoglu, (2019), the inclusive concept is that the welfare of a country cannot be measured from geographical conditions, but from the country's inclusive political institutions. Then according to Birdsall, (2007) in Amalia, (2013) that conducive economic growth can increase the socio-economic capacity of the people in a country. So that all citizens can get the same opportunity to enjoy the results of economic growth. Because economic growth can improve people's welfare through increased income.

According to Diniar, (2014) a high income distribution will create changes, improvements and opportunities to improve people's welfare, such as alleviating poverty, unemployment, reducing inequality and other socio-economic difficulties in society. Conversely, if the distribution of national income or an area is not evenly distributed, social welfare will not be created for all levels of society. This means that these efforts are very important to continue to increase the growth of the national economy or a province/district. Because economic growth has implications for increasing national or regional income. Meanwhile, according to Elfindri, (2013) said that in the concept of inclusive economic development there are many aspects that need to be considered, including infrastructure development, especially economic infrastructure (physical and non-physical).

The economic condition of the population is a condition that describes human life that has an economic score (Shah et al, 2020). Economic growth is still an important goal in a country's economy, especially for developing countries like Indonesia (Magdalena and Suhatman, 2020).

Sodik et al's research, (2019) revealed that the relationship between economic growth and poverty has conclusive results, this is because these variables are indirect, where the importance of inclusive growth provides access for the poor to work and business opportunities. Meanwhile, according to Van et al, (2005), it can be seen that the growth pattern varies between provinces, so it is necessary to have a determinant factor related to the human development index factor and labor absorption to the GDP per capita growth rate between provinces. Meanwhile, according to Tikson, (2005) a number of economic indicators that can be used by international institutions include income per capita (GNP or GDP), economic structure, urbanization, and total savings.

According to Todaro, (2003) there are three main factors in economic growth, namely capital accumulation, population and labor force growth and technological progress. On the other hand, according to Keshmeer's research (2018), economic analysis from the point of view of inclusive growth is an external factor through investment in creating jobs and economic expansion in the long term. In addition, remittances and foreign direct investment have a positive effect on inclusive economic growth in both the long and short term. However, according to Diniar, (2014) Investment problems can arise when investors tend to prefer to invest in areas that have location advantages, and have complete facilities and infrastructure. The problem of agglomeration can occur if the location advantage is that which arises due to the concentration of several related economic activities in a certain area.

Research conducted by Peterson, (2017) that economic growth is closely related to population growth. Low population growth in high-income countries tends to create social and economic problems. Meanwhile, according to Arini, (2016) states that supporting inclusive economic growth depends on government spending so that the level of welfare in each region is achieved. A different view according to Victorio et al, (2018) states that gender equality can encourage inclusive economic growth. In Akeju's view, (2014) states that there is a negative relationship between the unemployment rate and economic growth.

Based on the theoretical phenomena and previous research above, it strengthens this study to focus on analyzing inclusiveness economic growth through a static panel model, especially in Sumatra Province, where the purpose of this study is to partially analyze how the influence of inclusive economic growth with the World Economic Forum (WEF) indicator on inequality income and how the influence of inclusive economic growth on poverty during the period 2007-2020 in the province of Sumatra.

II. Research Method

2.1 Data Types and Sources

The type of data used in this study is inclusive economic growth, income inequality and poverty in Sumatra Province for the period 2007-2020 using panel data on 10 in Sumatra Province. Meanwhile, the data sources are obtained through national and international scientific publications and BPS reports in figures.

2.2 Data Analysis Method

Panel data regression model is a regression that uses panel data. Panel data regression model with K units of sectors, T units of time and P independent variables as follows: $\boldsymbol{Y_{it} = \alpha_{it} + \sum_{j=1}^{P} \beta_j X_{jit} + \varepsilon_{it}}$

Then there are three panel data models, namely Cammon Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) with the following formulation:

a. *Cammon Effect Model* (CEM)

Cammon Effect Model (CEM) assumes there is no difference in sector or time effects, so that in the model there is only one model for all observations. The Cammon Effect Model (CEM) estimation technique is through *ordinary Least Squares* (OLS): $Y_{it} = \alpha + \sum_{j=1}^{P} \beta_j X_{jit} + \varepsilon_{it}$

b. *Fixed Effect Model* (FEM)

Fixed Effect Model (FEM) assumes that between sector units or between time units give different effects to the model. These different effects are shown in the value of the intercept coefficient, so the Fixed Effect Model (FEM) will have a different intercept for each province: $Y_{it} = \alpha_i + \sum_{j=1}^{P} \beta_j X_{jit} + \varepsilon_{it}$

Fixed Effect Model (FEM) will be estimated using a dummy variable technique or known as Least Square Dummy Variables (LSDV) with the following formulation: $Y_{it} = I\alpha_i + \beta_i X'_{ip} + \varepsilon_i$

c. *Random Effect Model* (REM)

The Random Effect Model (REM) assumes that there are sector effects or time effects that are assumed in the residual components of the Random Effect Model (REM) model. The residual is not correlated with the dependent variable, so the formulation can be written as follows: $Y_{it} = a + \sum_{j=1}^{P} \beta_j X_{jit} + V_{it}$

The next step is the completion of the panel data model:

1. Test Chow

The Chow test is used to determine whether the FEM model is better than the CEM model with the following formulation:

$$F\ count = \frac{(SSE_1 - SSE_2)/(K-1)}{SSE_2/(KT-K-P)} \sim F_{(\alpha,(K-1),(KT-K-P)}$$

2. *Hausman* Test

Hausman test is used to determine which model is better between FEM and REM models, so to determine the selection of this model using a covariance matrix of vector differences $[b-\beta]$, namely:

$$Var[b-\beta] = Var[b] + Var[\beta] - Cor[b,\beta] - Cor[b,\beta]$$
$$= Var[b] + Var[\beta] - Cor[\beta] - Cor[]$$
$$= Var[b] - Var[\beta]$$
$$= \boldsymbol{\Psi}$$

3. Normality Test

Normality test is a test carried out with the aim of assessing the distribution of data in a group of data or variables, whether the distribution of the data is normally distributed or not.

$$X^2 = \sum \frac{(O_i - E_i}{Ei}$$

The data analysis method used is in accordance with the research objectives, namely the static panel data regression model through the Least Squares approach (NLS and ARMA) and then the model is determined into the following model:

$$Y_{it} = \alpha_i + \beta_1 X'_{it} + \varepsilon_{it} \text{ or } Y_{it\_KTP=} \alpha_i + \beta_1 X'_{itPEik} + \varepsilon_{it}$$

$$Y_{it} = \alpha_i + \beta_1 X'_{it} + \varepsilon_{it} \text{ or } Y_{it\_KMS=} \alpha_i + \beta_1 X'_{itPEik} + \varepsilon_{it}$$

Description:

Y_{it_KTP} = Income Inequality

Y_{it_KMS} = Poverty

α = Constant

β = Variable *Coefficient*

$\varepsilon_{1,}$ = *Disturbance or schochastic disorders*

X'_{it_PEik} = Inclusive Economic Growth

Hypothesis test:

1. t Statistic-Test: $t = \frac{\widehat{\beta_j}}{se(\widehat{\beta_j})}$

2. f Stistic Test: $F = \frac{MSR}{MSE} = \frac{SSR/(K+P-1}{SSE/(KT-K-P)}$

III. Results and Discussion

3.1 The Effect of Inclusive Economic Growth through the World Economic Forum (WEF) Indicator on Income Inequality in Sumatra Province

Table 1. Cammon Effect Model (CEM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.249722	1.062557	4.940650	0.0000
Y	5.956106	3.185865	1.869542	0.0637
R-squared	0.024702	Mean dependent var		7.228000
Adjusted R-squared	0.017634	S.D. dependent var		1.152494
S.E. of regression	1.142287	Akaike info criterion		3.118125
Sum squared resid	180.0652	Schwarz criterion		3.160149
Log likelihood	-216.2688	Hannan-Quinn criter.		3.135202
F-statistic	3.495186	Durbin-Watson stat		0.182768
Prob(F-statistic)	0.063667			

Equality $Y=5{,}249+5{,}9561X_1$	*Chow* Test	*Hauman* Test
Sig: (0,0637)	Y=5,2497+5,9561X1	Y=4,5941+7,9297X1
t-count: (1,8695)	Sig: (0,0637)	Sig: (0,0431)
R^2: (0,0247)	t-count: (1,8695)	t-count: (2,0617)

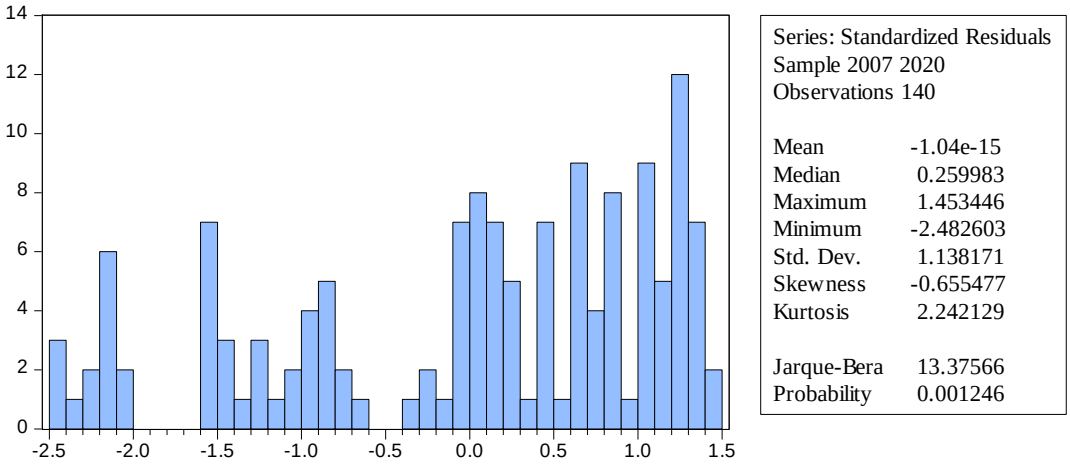
The results of the Cammon Effect Model (CEM) model suitability test can be seen from the Chow test which means that the Cammon Effect Model (CEM) model can be accepted for analysis in this study where to see the effect of inclusive economic growth on income inequality in Sumatra Province with a static panel regression function value is= $5{,}2497 + 5{,}9561X1$. Based on the equation of the static panel regression model above, the regression coefficient for inclusive economic growth is (+) 5.9561 where this value indicates that if inclusive economic growth increases by 1%, it will directly affect income inequality by (+) 5.9561 with the assumption that economic growth inclusive does not change / stay satisically paribus.

Partially, the effect of inclusive economic growth on income inequality in Sumatra Province is very significant, with below 10% or 0.0637. This means that inclusive economic growth with World Economic Forum (WEF) indicators such as finance, social protection and anti-corruption behavior index has had an influence on people's income inequality so that the government needs attention so that inclusive economic growth can reduce income inequality continuously, especially in Sumatra Province. The significant effect of inclusive economic growth on income inequality proves that the indicators set by the World Economic Forum (WEF) through the financial system, social protection and anti-corruption behavior index have an impact on economic development and community welfare in Sumatra Province. The same thing is also seen from the results of the simultaneous calculation of the constant value obtained a value of (+) 5.2497, meaning that if inclusive economic growth does not change / stays, then income inequality is (+) 5.2497. Besides, the results of the significance test of the coefficient of determination (R^2) show a value of 0.0247, this proves that the independent variable (inclusive economic growth) is able to affect income inequality by 2.47% during the 2007-2020 period and the remaining 97.53% influenced by variables other than in this study.

Then to prove the hypothesis that has been built in this study where there is a value of Ho:β1=0, there is no positive and significant effect between partially inclusive economic growth (X1) on reducing income inequality in Sumatra Province (Y) while it is different for the interpretation of Ha:β1≠0, where there is a positive and significant influence between inclusive economic growth (X1) partially on employment in the province of Sumatra (Y). Based on the t-statistical test, the results show that the t-count is 1.8695 and the t-table is 1.6450. Because t arithmetic is greater than t table (1.8695>1.6450) with a significance level of 0.0637, partially inclusive economic growth variable has a very positive and significant effect on the dependent variable (income inequality) during the period 2007-2020 in Therefore, the hypothesis of Ha is accepted in Sumatra Province. It can be concluded that the results of this study indicate that inclusive economic growth can directly affect income inequality in the province of Sumatra. This means that if inclusive economic growth increases, it will have an impact on increasing people's income and increasing community welfare.

Normality Test

The normality test is used to assess the distribution of data in a group of data or research variables, whether the distribution of the data is normally distributed and based on the findings of this study the data used in this study is normally distributed with a significance probability value of 0.001246. To see the fluctuations in the normality test value for the effect of inclusive economic growth on income inequality in Sumatra Province, it is as follows:



3.2 The Effect of Inclusive Economic Growth through *World Economic Forum* (WEF) Indicators on Poverty in Sumatra Province

Table 2. *Cammon Effect Model* (CEM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.867962	0.140793	48.78046	0.0000
Y	0.000680	0.000198	3.430133	0.0008
R-squared	0.078561	Mean dependent var		7.228000
Adjusted R-squared	0.071884	S.D. dependent var		1.152494
S.E. of regression	1.110299	Akaike info criterion		3.061318
Sum squared resid	170.1214	Schwarz criterion		3.103342
Log likelihood	-212.2923	Hannan-Quinn criter.		3.078395
F-statistic	11.76581	Durbin-Watson stat		0.186176
Prob(F-statistic)	0.000796			

Equality Y=6,8679+0,0068X1		*Chow* Test		*Hausman* Test	
Sig:	(0,0008)	Y=6,8679+0,0068X1		Y=6,7869+0,0083X1	
t-count:	(3,4301)	Sig:	(0,0008)	Sig:	(0,0004)
R^2:	(0,0785)	t-count:	(3,4301)	t-count:	(3,6483)

The results of the Cammon Effect Model (CEM) model suitability test can be seen from the Chow test, meaning that the Cammon Effect Model (CEM) model can be accepted for analysis in this study where to see the effect of inclusive economic growth on poverty in Sumatra Province with a static panel regression function value of $= 6{,}8679 + 0{,}0068X1$. Based on the equation of the static panel regression model above, the regression coefficient for inclusive economic growth is (+) 0.0068 where this value indicates that if inclusive economic growth increases by 1%, it will directly affect poverty by (+) 0.0068 with the assumption that economic growth inclusive does not change / stay on a cateris paribus basis.

Partially, the effect of inclusive economic growth on the poverty rate in Sumatra Province is very significant, with below 5% or 0.0004. This means that inclusive economic growth with World Economic Forum (WEF) indicators such as finance, social protection and the anti-corruption behavior index has had an impact on poverty, so it is necessary to get the government's attention so that inclusive economic growth can reduce poverty continuously, especially in Sumatra Province. The significant effect of inclusive economic growth on poverty proves that the indicators set by the World Economic Forum (WEF)

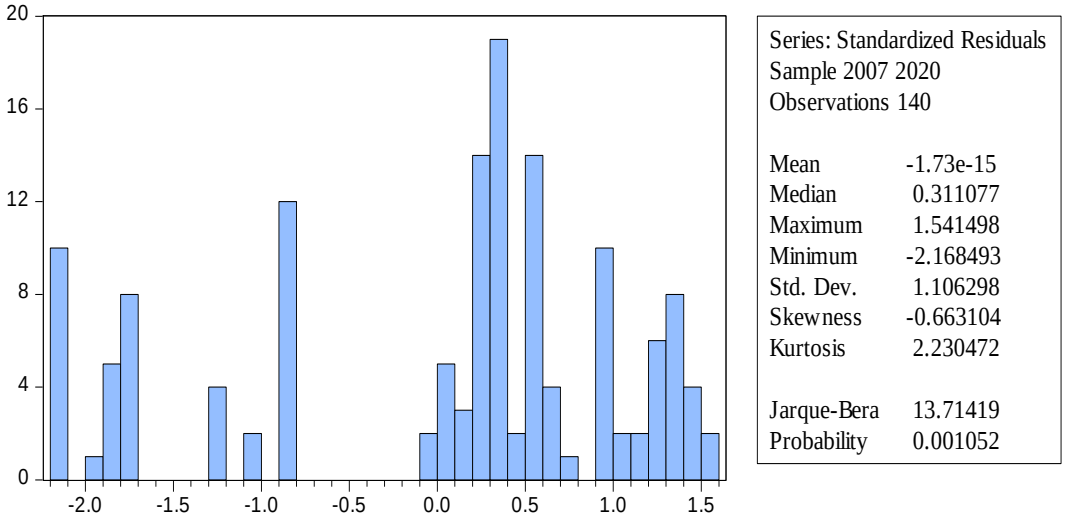
through the financial system, social protection and anti-corruption behavior index have a broad impact on economic development, especially reducing poverty that occurs in the people of Sumatra Province.

In general, the arguments expressed can be proven through the results of simultaneous calculations where the constant value obtained is (+) 6.8679, meaning that if inclusive economic growth does not change / stays, then poverty is (+) 6.8679. Besides looking at the constant values that have been found, the strength of the influence between variables is also seen from the results of the significance test and the value of the coefficient of determination (R^2) which shows a value of 0.0785, this proves that the independent variable (inclusive economic growth) is able to affect poverty by 7, 85% during the period 2007-2020 and the remaining 92.15% is influenced by variables other than in this study.

According to the hypothesis that has been built in this study, it is necessary to prove the value of Ho:β1= 0, there is no positive and significant effect between partially inclusive economic growth (X1) on poverty reduction in Sumatra Province (Y) while it is different for interpretation. Ha:β1≠0, where there is a positive and significant effect between inclusive economic growth (X1) partially on poverty in Sumatra Province (Y). Where based on the t-statistical test, the t-count result is 3.3401 with a t-table value of 1.6450. Because t-count is greater than t-table (3.3401>1.6450) with a significance level of 0.0008, partially inclusive economic growth has a very positive and significant effect on the dependent variable (poverty) during the 2007-2020 period. In Sumatra Province, therefore, the Ha hypothesis is accepted. Inclusive economic growth can directly affect poverty in Sumatra Province, meaning that if inclusive economic growth increases it will have an impact on reducing poverty rates so that it directly improves the welfare of society in general.

Normality Test

Normality test is used to assess the distribution of research data whether the distribution of the data is normally distributed. Based on the findings of this study, the data used in this study were normally distributed with a significance probability value of 0.001052. To see the fluctuations in the normality test value for the effect of inclusive economic growth on poverty in Sumatra Province, it is as follows:



IV. Conclusion

Inclusive economic growth through World Economic Forum (WEF) indicators such as the corruption, finance and social protection index found that in the first objective of the significance test results the coefficient of determination (R^2) was 0.0637 and this proves that the independent variable (inclusive economic growth) is capable of affect income inequality by 6.37% with a constant value of 5.9561 during the period 2007-2020. As for the results of the significance test in the second research objective where the coefficient of determination (R^2) is 0.0785, this proves that the independent variable (inclusive economic growth) is able to affect poverty by 7.85% and is at a constant value of 0.0068.

Suggestion

Referring to the inclusive economic growth indicators World Economic Forum (WEF) proves that indicators such as finance, social protection and anti-corruption behavior index in general are able to influence income inequality and poverty in Sumatra Province during the 2007-2020 period, so the government through its policies needs to maintain law enforcement and able to increase state income to ensure social protection for the community in a fair and equitable manner as well as guarantee the right of every citizen to obtain a decent income through reducing the level of income inequality that occurs in the midst of society.

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