

## Macroeconomic Analysis of Poverty in the Province of West Sumatra

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### Abstract

This study aims to determine the effect of economic growth, employment opportunities, economic development and income inequality on poverty in West Sumatra Province. The model used is panel analysis with the population used is the district/city in West Sumatra Province with a time span from 2012 to 2017. From the results of the analysis of the panel data model using random effects are (1). Economic growth has a positive and not significant effect on poverty in West Sumatra. (2). Employment opportunities have a negative and not significant effect on  $\alpha = 5$  percent of poverty in West Sumatra. (3). Economic development has a significant negative effect on  $\alpha = 5$  percent of poverty in West Sumatra. (4). Income inequality has a positive and significant effect on  $\alpha = 10$  percent of poverty in West Sumatra.

**Keywords:** *poverty, economic growth, employment opportunities, income inequality*

### Introduction

Economic development is very closely related to economic growth. Economic development also increases community welfare. The main goal of development is to create the highest growth, development should reduce poverty, income inequality and unemployment. Employment opportunities for the community will provide income to meet their daily needs. Therefore, the results of economic development should be enjoyed fairly and equally from all communities (Todaro; 2011).

Economic development cannot be separated from economic growth, where economic development can encourage economic growth which facilitates the process of economic development. Economic development also aims to improve the welfare of the community. In Indonesia, especially in West Sumatra Province, efforts to improve welfare are still being improved by local governments because the welfare of the people is the main goal of a country. But the problem that is often encountered in improving welfare is where the community has not been able to meet the needs of life. Therefore most of the people are still in poverty.

Economic growth has always been the main reference for all countries in increasing economic activity. Where high economic growth is expected poverty will decrease and even disappear. But in reality in many regions and even countries it is not so easy to do even with high economic growth, poverty rates remain high. The following is the development of economic growth in West Sumatra Province. Based on Figure 1, the trend of economic growth in the Province of West Sumatra tends to decrease from year to year in the last 5 years. In 2017, economic growth was only 5.3 percent, a slight increase compared to the previous year.

The poverty level is the percentage of the population whose family income is below an absolute level which is also called the poverty line (Mankiw: 2006: 540). In other words the poverty level is the percentage of people whose income is below the poverty line. Poverty is considered as an inability from the economic side to meet the basic needs of food and non-food measured from the expenditure side (Central Bureau of Statistics: 2018).

The causes of poverty in economic terms (Kuncoro: 2004: 157) are; (1). On a micro level, poverty arises because of inequality in resource thinking patterns that results in an unequal distribution of income. The poor only have limited resources and the quality is low. (2). Poverty arises as a result of differences in the quality of low human resources, which means that their productivity is low, which results in lower wages. The low level of human resources is caused by low education, disadvantaged fortune, there is discrimination or heredity. (3). Poverty arises due to differences in access to capital,

where someone who has a lot of capital will be able to open a business while someone who has no capital and no capital access, will find it difficult to start a new business.

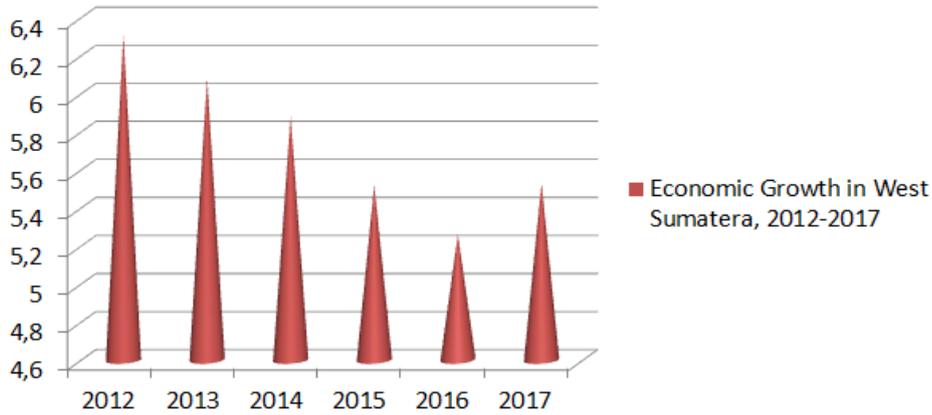
The existence of poor people in an area will not bring prosperity to the region so it must be eradicated. There is no prosperous and happy society, if a part of the population is in poverty and misery. Therefore, eradicating poverty has become a major challenge in development, because open development lies in the income generated by an area, but in improving the quality of life of the population (Todaro, 2011; 219).

Economic growth and poverty are important indicators to see the success of a country's development. Each country will strive to achieve high economic growth with low poverty rates. In general, in countries in the world, the condition of poverty level is low is high economic growth. Economic growth arises as a result of fundamental changes in various economic activities but also in the form of social and political life in society. Therefore economic growth is not only influenced by economic factors but also by non-economic factors (Jhingan; 2012). Economic growth cannot permanently reduce poverty, despite long-term economic growth, many people remain vulnerable to poverty. However, contemporary economic growth can reduce poverty, so that sustainable economic growth is important to reduce poverty (Kuncoro, 2004; 149).

The amount of unemployment that occurs is influenced by the level of wages that are not flexible in the labor market. A decrease in the production process in the economy will result in a shift or decrease in labor demand. As a result there will be a large decrease in the wages set. With wage rigidity in the short term, the wage level will increase to the original wage level. This results in excess supply of labor as inflation and unemployment due to wage rigidity. Job opportunities can be created if there is demand in the labor market so that in other words employment opportunities are demand for labor (Sumarsono; 2003). If employment opportunities increase, the community has income so that it will reduce poverty.

Unequal distribution of income from community groups will inhibit people or groups of people who are negatively affected by income inequality so that it will be difficult to meet basic needs such as clothing, food, education and health needs so that it can be said to be poor population (Obgaide and Aug; 2015). The positive relationship between poverty and income inequality both in the long term and in the short term, because economic growth will improve the process of industrialization, increase employment and business opportunities and investment leads to an increase in income generation that will increase income per capita and ultimately reduce poverty.

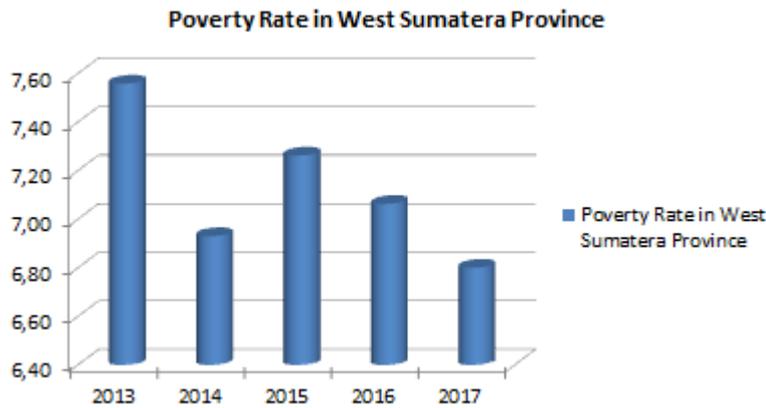
The basic capital for economic development is real income per capita adjusted for purchasing power, health as measured by life expectancy, nutritional intake and child mortality; and attainment of the education level of a country's population as measured by literacy and length of study in schools (Todaro; 2011). All of these indicators are known as the Human Development Index (HDI). This HDI ranks all countries with a scale of zero (the lowest human development) to one (the highest human development) based on three goals or the final product of development, namely the life span (longevity), as measured by life expectancy after birth, knowledge is measured by the average weight adult literacy rates and living standards are measured by per capita gross domestic product in accordance with the purchasing power parity of each country's currency. Countries that invest heavily in education and health mean that additional human capital enhances productivity. Education plays an important role in increasing the ability of a country in implementing modern technology and developing the capacity for sustainable growth and development. Health is a prerequisite for increasing productivity and successful education depends on adequate health. Therefore education and health are seen as vital components of growth and development (Todaro; 2011). Increasing economic development will reduce poverty.



Source: Central Bureau of Statistics, 2018

**Figure 1 Economic Growth, The Year 2012-2017**

Poverty is a very serious problem in almost all regions in West Sumatra Province. Poverty itself becomes a benchmark for measuring the economy in an area or country. In West Sumatra Province itself, as a developing province, it must be able to overcome poverty so that economic growth can be better and balanced. Poverty is still a major problem that must receive special attention from the government, although the level of tendency of the poor population declined in the last three years, but the number of people living below the poverty line was still quite high.



Source : Central Bureau of Statistics, 2018

**Figure 2 Poverty rate in West Sumatera**

Based on Figure 2 shows that in 2013 the high poverty rate was 7.5 percent, then it dropped to 6.93 percent in 2014. In the following year, 2015, it increased again to 7.26 percent. In 2016-2017 the poverty level has decreased.

The problem faced by the government is not only the problem of poverty but also the problem of inequality, unemployment, low economic growth and inflation. In development, high economic growth is the main target, but in reality high economic growth can create high inequality in some developing countries resulting in disparities between regions. Uneven distribution patterns, inequality in asset ownership and access to employment. The impact will be a gap in income between the rich and the poor in the region which is widening. Inequality will threaten the emergence of other social problems. The large amount of unemployment is also a social problem faced by society. As a result, there is an economic or income gap between groups that have high incomes and groups that have low incomes.

**Methods**

This type of research is classified as descriptive and associative research. Descriptive research is a type of research that seeks to describe and explain what is being studied and the data used in the form of numbers. Associative research is research that explains the relationship between exogenous variables and endogenous variables. The population used is the district/city in West Sumatra Province with a time span from 2012-2017. The data used in this study is panel data. The data analyzed are the dependent variable is the level of poverty; the independent variable is economic growth, employment Opportunity, inequality, inflation and unemployment.

The model used in panel regression analysis is as follows

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + U_{it} \dots \dots \dots (3.1)$$

Information :  $Y_{it}$  : Poverty;  $X_{1it}$  : Economic growth;  $X_{2it}$ : employment oportunity;  $X_{3it}$ : Economic development;  $X_{4it}$ : Inequality of income;  $\beta_0$ : a constant;  $U_{it}$ : Error term; i: cross section; t: time series.

Regression Model Estimation Method Panel of the Common effect model (CEM) technique, Fixed effect model (FEM), Random effect model (REM). To choose the most appropriate model to use in managing panel data, there are several tests that can be done, namely: Chow Test and Hausman Test.

**Results and Discussion**

**Model Selection Test**

**Chow Test**

The first model test for panel data is the Chow test which is a test to determine which Fixed Effect or Common Effect model is the most appropriate to use in estimating panel data, the hypotheses in the Chow test are:  $H_0$ : Common Effect Model or pooled OLS;  $H_a$ : Fixed Effect Model (Gujarati: 2006).

The basis for accepting or rejecting the above hypothesis is to compare the significant value of probability with a significant alpha of 5% ( $\alpha = 0.05$ ). If the regression results show probability <5%, then  $H_0$  is rejected and  $H_a$  is accepted so that the model follows the fixed effect.

**Table 1 Result of Chow Test**

Redundant Fixed Effects Tests  
Equation: Untitled  
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	104.596299	(18,91)	0.0000
Cross-section Chi-square	350.757781	18	0.0000

Source: Data proceed, 2019

It can be seen in Table 4.6 above, the Chow test results the probability value of the Chow test is 0.0000 where the probability value is smaller than the significant value ( $\alpha = 0.05$ ), then  $H_0$  for this model is rejected and  $H_a$  is accepted , so a better regression used in this model is the fixed effect model (FEM).

**Hausman Test**

Hausman test is a statistical test to choose whether the Fixed Effect or Random Effect model is the most appropriate. After completing the Chow test and get the right model is the Fixed Effect, then we will then test which model between the Fixed Effect or Random Effect model is the most appropriate, this test is called the Hausman test, the test is carried out with the following hypothesis:

**Table 2 The Result of Hausman Test**

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.044712	4	0.7275

Source: Data proceed, 2019

It can be seen from the table above the probability value of the Hausman test is 0.7275 greater than the significance value (0.05). It can be concluded that  $H_0$  in this model is rejected and  $H_a$  is accepted, so a good estimate used for this model is the random effect model (REM). Based on the results of the Chow test and Hausmant test above, the panel regression uses a random effect model approach. According to Gujarati & Porter (2009), if based on the selection of estimation method that is appropriate for the regression equation is the Random Effect Model then no classic assumption test is needed.

### Regression Estimation Results

This test is used to test the effect of independent variables on the dependent variable in the form of time series data links and cross sections or panel data. From the results of this study, the magnitude of the effect of economic growth (X1), employment (X2), economic development (X3) and income inequality (X3) on poverty (Y) can be determined using the Random Effect Model (REM) approach, to obtain the following results .

Based on the results of the research equation shows that economic growth (X1), employment opportunities (X2), economic development (X3) and income inequality (X3) to poverty (Y) in West Sumatra with a regression coefficient (X1) of 0.122740. This means that if economic growth increase by one percent, poverty will increase by 0.122740 percent and vice versa. In the regression model it can be seen that employment opportunities (X2) negatively affect poverty (Y) in Indonesia with a regression coefficient of 1.44E-07 units. This means that if employment opportunities increase by one unit, poverty will increase by 1.44E-07 percent and vice versa. Furthermore, the regression model shows that economic development (X3) has a negative effect on poverty (Y) with a regression coefficient of 0.322205, this means that if the level of economic development increases one percent then poverty will decrease by 0.322205 percent and vice versa. In the regression model, it can be seen that income inequality (X4) has a positive effect on poverty (Y) with a regression coefficient of 2.467014, this means that if income inequality increases one percent, poverty will increase by 2.467014 percent and vice versa.

The coefficient of determination aims to determine the contribution that can be made by the independent variable in influencing the dependent variable measured by percentage. Based on the results of tests state that it has been carried out obtained R-squared value of 0.460524. This means that 46.05% of the economy can be explained by independent variables namely economic growth (X1), employment opportunities (X2), economic development (X3) and income inequality (X4). While the remaining 13% is explained by other variables outside the model or not included in the study.

**Table 3 Result of Random effect**

Dependent Variable: Y  
 Method: Panel EGLS (Cross-section random effects)  
 Date: 10/16/19 Time: 07:02  
 Sample: 2012 2017  
 Periods included: 6  
 Cross-sections included: 19  
 Total panel (balanced) observations: 114  
 Swamy and Arora estimator of component variances

	Coefficient	Std. Error	t-Statistic	Prob.
C	28.31322	4.440201	6.376564	0.0000
X1	0.122740	0.169068	0.725979	0.4694
X2	-1.44E-07	3.60E-06	-0.040027	0.9681
X3	-0.322205	0.053174	-6.059462	0.0000
X4	2.467014	1.398994	1.763420	0.0806

Effects Specification		S.D.	Rho
Cross-section random		1.977644	0.9531
Idiosyncratic random		0.438773	0.0469

Weighted Statistics			
R-squared	0.460524	Mean dependent var	0.656274
Adjusted R-squared	0.440726	S.D. dependent var	0.581429
S.E. of regression	0.434820	Sum squared resid	20.60842
F-statistic	23.26196	Durbin-Watson stat	1.174502
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.520123	Mean dependent var	7.275175
Sum squared resid	391.3150	Durbin-Watson stat	0.061855

Source: Data proceed, 2019

Panel regression equation as follows:

$$(Y) = 28.31322 + 0.122740 X_1 - 1.44E - 07X_2E - 0.322205X_3 + 2.467014X_4\dots(4.1)$$

**Effects of Economic Growth on Poverty in West Sumatra**

Based on the results of the study indicate that economic growth has a positive and not significant effect on poverty in West Sumatra. This means that if economic growth increases it will increase poverty in West Sumatra. This means that high economic growth reduces poverty because high economic growth increases production, thereby absorbing labor. Community income increases so that the poverty rate decreases. This research is in line with Lewis's (1959) theory on the Trickle-down effect theory which states that economic growth will be followed by a vertical flow from the rich to

the poor which naturally occurs. Economic growth is good for poverty reduction when economic growth is sustained and pro-poor.

#### **Effect of Job Opportunities on Poverty in West Sumatra**

Based on the results of the study showed that employment opportunities had a negative and not significant effect on  $\alpha = 5$  percent of poverty in West Sumatra. This condition shows that employment opportunities only increase output and economic growth but do not encourage poverty to decrease because of the many employment opportunities that do not bring people to justice if they are paid low or inadequate wages so that they do not get out of poverty. Moreover, increased employment opportunities are paid with low wages coupled with high inflation rates so that people will only be trapped in prolonged poverty. Plus labor productivity is low because low human resources will not improve the conditions of the poor in West Sumatra Province. They work without skills because on average the education of the workforce is junior high school educated so that their participation in the labor market does not make the conditions of the poor for the better.

The results of this study are supported by Todaro's theory (2011) which states that investment in education will increase productivity, education will not only increase knowledge but will also increase work skills so that it will increase work productivity which will be absorbed by employment so that it will have a good impact on the economy. Education is one of the important factors in creating quality human resources which ultimately results in an increase in the quality of people who drive the economy thereby reducing poverty.

#### **The Effect of Economic Development on Poverty in West Sumatra**

Based on the results of the study indicate that economic development has a significant negative effect on  $\alpha = 5$  percent of poverty in West Sumatra. The more the economic development achieved the less poverty in West Sumatra. In economic development related to increasing income, education and health will reduce poverty because human resources or quality human capital will increase income and welfare so that poverty will decrease. Therefore, education and health factors are important factors in the development of human resources because it will increase the productivity of workers in particular or society in general in production. Health will correlate with the level of productivity of the population and workers. Increasing the degree of health will extend the working period and endurance which will further affect the economic improvement. According to researchers Health is the main thing for the population that must be fulfilled because if their health is in good condition surely residents can have effective mobility to be more productive according to this research which has a positive impact on economic development so as to reduce poverty.

This study is not in line with the results of Syaifullah and Malik (2017) research on the Human Development Index (HDI) which has a negative and insignificant effect on poverty levels in ASEAN-4 with a probability value of 0.1149. The results of this study are also not similarly done by (Lestari, 2017) which shows that the Human Development Index (HDI) has a negative and not significant effect on poverty levels in Lampung province in 2011-2015. The same research conducted (Suliswanto, 2010) showed that the results of the Human Development Index (HDI) analysis had a negative and significant effect on poverty in Indonesia, the research was conducted in one country, namely Indonesia. Also supported by research conducted by Susanti (2013) shows that the HDI variable has a negative and significant effect on poverty levels in West Java in 2009-2011.

#### **The Effect of Income Inequality on Poverty in West Sumatra**

Based on the results of the study indicate that income inequality has a positive and significant effect on  $\alpha = 10$  percent of poverty in West Sumatra. This means that if income inequality increases it will increase poverty in West Sumatra. In other words that development is still going on in the Province of West Sumatra so poverty is also still high. Development requires stages in which the beginning of development increases which causes widening income inequality between the middle and upper income groups with low income groups. After passing the critical point of construction,

the inequality decreases. Increased income inequality is a common occurrence in developing countries such as Indonesia, especially in the province of West Sumatra.

This research is in accordance with Hypothesis U inverse Kuznets (Todaro: 2011) states that at the initial stage of economic growth, income distribution will tend to deteriorate. Only in the next stage will the income distribution improve if the country or region becomes a developed country or region.

### **Effects of Economic Growth, Job Opportunities, Economic Development and Income Inequality on Poverty in West Sumatra**

Based on the results of the F test shows a joint effect that explains between all the independent variables on the dependent variable that is there is a significant influence between economic growth, economic development employment opportunities and income inequality on poverty in West Sumatra.

### **Conclusion**

From the results of the analysis of the panel data model using random effects and discussion of the results of research between the independent variables of the dependent variable, it can be concluded that: (1). economic growth has a positive and not significant effect on poverty in West Sumatra. (2). Employment opportunities have a negative and not significant effect on  $\alpha = 5$  percent of poverty in West Sumatra. (3). Economic development has a significant negative effect on  $\alpha = 5$  percent of poverty in West Sumatra. (4). Income inequality has a positive and significant effect on  $\alpha = 10$  percent of poverty in West Sumatra.

Based on the discussion and description of the macroeconomic analysis of poverty in West Sumatra, several suggestions can be made; (1). The government must increase economic growth by absorbing labor or labor intensive so that it can reduce poverty. (2). The government must be able to increase employment opportunities for the middle to lower income groups so that it can reduce poverty which will achieve equitable income distribution. (3). Human capital development must continue to be increased so that community productivity increases so that income has increased and poverty can decrease.

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