

Analysis of Gross Regional Domestic Product, Open Unemployment Rate, and Human Development Index on the Percentage of Poor People on the Island of Sumatra in 2013-2022

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Abstract

This study aims to analyze the effects of Gross Regional Domestic Product (GDP), Open Unemployment Rate (TPT), and Human Development Index (HDI) on the percentage of poor people on the island of Sumatra in 2013-2022. Poverty is a major problem in development, especially in developing countries such as Indonesia. Some of the factors that affect poverty are GDP, TPT, and HDI. This study uses secondary data obtained from related agencies. The analysis method used is multiple regression. The results of the study show that GDP, TPT, and HDI simultaneously have a significant effect on the percentage of poor people on the island of Sumatra. Partially, GDP and HDI have a negative and significant effect, while TPT has a positive and significant effect on the percentage of the poor. The implication of this study is the need for government policies that focus on increasing GDP, decreasing TPT, and increasing HDI to reduce poverty rates on the island of Sumatra.

Keywords: Gross Regional Domestic Product, Open Unemployment Rate, HDI, Poverty



INTRODUCTION

Poverty is a condition in which a person is unable to enjoy all options and opportunities to meet their basic needs, such as not being able to guarantee good health and a decent standard of living. (1776-3108-1-PB.En.Id, n.d.) Poverty itself is the main problem in development, especially in developing countries.(Hardani et al., 2021) revealed that poverty is a complex problem, so a more appropriate approach is needed. (Ciptawaty et al., 2021) said, Poverty is one of the fundamental problems that is still the focus of government attention in countries, especially developing countries including Indonesia, Poverty is a benchmark for a welfare in Indonesia. Poverty is still a problem caused by the national condition of a country and the global situation. World Bank in its publication.

(Edrcbn17, n.d.), describing poverty as a condition related to the inability to meet basic needs. Like the World Bank, the United Nations also proposes several technical indicators that can be used as markers of whether or not a person is poor or not, such as malnutrition, illiteracy, poor health, inadequate clothing and housing, and helplessness (United Nations, 2006. Then (Ilham & Dian Octaviani, 2024) Poverty is a problem because they do not experience a shortage of needs, but they have to face limitations in enjoying the benefitst.

In several developing countries, including Indonesia, poverty is still a phenomenon that must be overcome immediately by local governments. The Government of Indonesia and until now this problem has not been satisfactorily resolved. After the economic crisis experienced by Indonesia in 1997, the number of poor people in Indonesia increased sharply. In absolute terms, the number of poor people increased very sharply, from 22.5 million people or 11.34% in 1996 to 49.5 million people or 20.30% in 1998. Thus, in times of crisis, the number of poor people is increasing. people, or suddenly many poor people. 27 million people or 120%. Although the economic crisis has passed for 8 years, in 2003 the figure was still extraordinary, namely 37.3 million people or equivalent to 17.42% of Indonesia's population. As a result of this poverty, the standard of living of the community is low because it is unable to meet its own food needs. This low standard of living is manifested in very low income or poverty.

From the various explanations above, it can be explained that the definition of poverty is a situation where a person's standard of living is considered lower than the poverty level itself, which is called the poverty line. Based on its nature, poverty is divided into two types: temporary poverty and chronic poverty. Temporary poor people are those whose family expenses are below the poverty line. They become poor because the

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economy is in recession and their income does not meet the minimum needs. This group of people is not classified as poor if their economic conditions improve because they can get jobs that allow them to have a better livelihood.

In the research conducted (Fanny Cantika Roseline, 2023) poverty itself is influenced by several factors such as regional gross domestic income, open unemployment rate (TPT) and human development inflation index (HDI), where in this study these variables have a significant influence. impact. significant impact on poverty levels in Lampung Province. This is in accordance with the poverty cycle theory which has a close relationship with the unemployment rate, economic growth, and human development. The cycle of poverty includes the idea that when an individual or family is trapped in poverty, their opportunities to get a proper education, enter the job market, and access economic resource mechanisms become limited. In addition, slow economic growth can strengthen this cycle by creating fewer new jobs. Human development is also closely linked to this theory, as a lack of education and health services can exacerbate poverty and unemployment, as well as hinder the ability to generate additional income or benefit from social protection within the country over a period of time. The economic growth of a country or region that continues to increase means that the economy of that country or region is growing. ((Romi et al., 2018)).

Table 1.average Percentage of Poor Population on the island of Sumatra in 2013-2022.

Year	Average Percentage of poor population (%)
2013	11,03
2014	10,64
2015	10,76
2016	10,50
2017	10,06
2018	9,81
2019	9,44
2020	9,82
2021	9,40
2022	9,30



LITERATURE REVIEW

Gross regional domestic product

The poverty rate on the island of Sumatra is influenced by various complex and interrelated factors. Such as economic growth. Economic growth is closely related to poverty. (P. Ekonomi et al., 2019) The basic thing in economic growth is the increase in economic activity in all economic units in a region marked by an increase in gross regional domestic product (GDP). This can certainly give people the opportunity to work and reduce poverty levels. One of the indicators to see the economic growth of a region is the gross regional domestic product (GDP). (Aida et al., 2023). said economic growth is an important sign that the country needs to pay attention to. An increase in GDP can potentially reduce poverty levels, If a region's GDP increases, it indicates greater economic growth. Strong economic growth can create new job opportunities, increase average income, and reduce poverty rates. In general, inclusive and sustainable economic growth has the potential to reduce poverty levels. (Hardani et al., 2021) said, Economic growth itself has a meaningful impact on poverty alleviation, especially if the economic growth that occurs is in favor of the poor

Open Unemployment Rate

Another factor that is no less important is the open unemployment rate, which is the percentage of the number of unemployed people in the labor force. In practice, open unemployment and poverty affect each other and require a comprehensive policy approach to reduce both. Efforts to create decent jobs, improve worker qualifications and skills, and provide effective social safety nets can help reduce unemployment and poverty rates simultaneously. Open unemployment and poverty are interrelated and require a holistic policy approach. Efforts to create decent jobs, upskill workers, and provide a strong social safety net can help reduce unemployment and poverty rates simultaneously. In addition, there is also a need for policies to encourage inclusive economic growth, reduce income inequality, and strengthen social mobility to overcome the problems of unemployment and poverty in the long term.

Human Development Index

Another factor is the Human Development Index. (Hasbullah et al., 2012) said that human resource development has a role in economic development both through general behavior, skills owned, then reducing births, and improving human living standards. (J.



Ekonomi et al., 2023) said that HDI is an overview of the welfare of the community which includes aspects of life such as health, education, and decent living standards.

(Thesia et al., 2024) Unemployment can lead to poverty, it happens because those who are unemployed have a direct influence on their own income, consumption and savings.(Razak Ahlan Alfina, 2023) The research uses multiple linear regression in the research using the poverty rate variable as the bound variable and the GDP, Open Unemployment Rate, and Human Development Index. The results each have a significant effect both positively and negatively.

(Miliki et al., n.d.) The research uses secondary data with the bound variables, namely the poverty level and Open Unemployment, while the independent variable is GDP. The results of the study are that GDP has a positive and significant effect on the poverty rate and has a significant and negative effect on Open Unemployment.

(fajar samsu alama,2024) in his research, he used secondary data with HDI as the bound variable and PAD, PMA and GDP as the free variables. The study showed that there was a positive and significant relationship between PAD and HDI. However, FDI and GDP have a negative and significant relationship with HDI.

(Asman 2024) The study uses secondary data with income inequality (Gini ratio) as the bound variable and HDI, primary, secondary and tertiary economic structure as the independent variable. Where HDI has a significant negative effect on the Gini ratio (income inequality). Likewise, the market structure (SCI) has a significant negative influence on the Gini ratio (income inequality).

(Fahmi et al., 2023) research using unemployment as the bound variable. Then inflation, HDI, and GDP as the independent variables. Where HDI, GDP, and Inflation simultaneously have a significant effect on unemployment in provinces on the island of Sumatra in 2015-2019.

(Permana & Pasaribu, 2023.) examine how inflation, HDI, UMP, and GDP affect poverty in Sumatra. As a result, GDP, HDI, Provincial Minimum Wage have a significant negative impact on poverty. Meanwhile, inflation shows a significant positive influence on poverty on the island of Sumatra.

RESEARCH METHODS

The research method used is to use multiple linear regression where the type of data used is secondary data from the Central Statistics Agency. The data used is a panel type where this data is a combination of cross section and time series data. Namely from 10 provinces on the island of Sumatra with a time span between 2017-2022.

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Cross section data is different from time series data, where data is collected from one entity or the same object in different time intervals. In time series data, observations are made at different time points, while in cross section data, observations are made at one specific time point. In statistical analysis, cross-section data can be used to make generalizations about larger populations or to identify relationships between different variables.

In this study, the researcher used the Multiple Linear Regression Analysis Technique, which is a linear relationship of two or more independent variables. Namely the economic growth variable (X1), the Open Unemployment Rate (X2), the Human Development Index (X3) with the variable bound by the poverty level (Y). The regression equation using panel data can be written as follows:

$$P0_{it} = \beta_0 + \beta_2 PDRB_{it} + \beta_1 TPT_{it} + \beta_3 IPM_{it} + e_{it}$$

Where:

P0	: Poverty Rate (%)
PDRB	: Produk Domestik Regional Bruto (%)
TPT	: Open Unemployment Rate (%)
HDI	: Human Development Index (%)
β_0	: Intercept or constant
$\beta_1, \beta_2, \beta_3$	: Regression coefficients in each of the independent variables
i	: 1,2,3.....(Cross Section data of provinces on the island of Sumatra)
T	: 1,2,3... (data Time Series, 2017-2021)
e	: Error Term

The first thing done in determining the results of this study is to use the *common effect model (CEM)*, *fixed effect model (FEM)*, and *random effect modal (REM) methods*. The next step is to conduct the *chow test*, *hausman test* and *LM test*. The third is to conduct a *multicolonlinearity test*. Hypothesis test T test, F test and R square test (R2). In this study, the researcher used the percentage of poor population (P0) as the bound variable (Y) and the variables of GDP (X1), TPT (X2) and HDI (X3) as the free variables,



Results And Discussion

In determining the best model when conducting regression analysis using panel data, namely conducting several test tests that will be carried out as follows:

From the table of model selection results above, the Chow test shows that the Chi Square probability value of 0.0000 is smaller than the alpha 0.05 ($0.000 < 0.05$), so it can be concluded that the model used is the *Fix Effect model*.

Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	833.972687	(9,87)	0.0000
Cross-section Chi-square	446.904156	9	0.0000

hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.264512	3	0.0408

The *Hausman Test* above shows that the probability value of 0.0408 is smaller than the alpha 0.05 ($0.0408 < 0.05$), so it can be concluded that the *Fix Effect* model is good for estimation. Therefore, the *Fix Effect* model is good to be estimated and analyzed in this study. The hausman test analysis actually does not need to be done anymore, because a *fix effect model* has been selected with the following results:

Results of the calculation of the fixed effect model panel data estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	39.29362	2.286213	17.18721	0.0000
PDRB	-0.036425	0.017755	-2.051549	0.0432
TPT	0.099885	0.047291	2.112119	0.0375
IPM	-0.419195	0.030556	-13.71900	0.0000
R-squared	0.991662			

$$P0_{it} = \beta_0 + \beta_2 PDRB_{it} + \beta_1 TPT_{it} + \beta_3 IPM_{it} + e_{it}$$

$$= 39.29362 - 0.036425 PDRB_{it} + 0.099885 TPT_{it} - 0.419195 IPM_{it} + e_{it}$$



The results of the *fix effect model* estimation in the table above conclude that the constant value is positive. The poverty constant is 39.29362. that is, if the variables of GDP (X1), TPT (X2), HDI (X3) are considered fixed or constant, then the inequality variable will increase by 39.29362.

The value of the variable regression coefficient of GDP on the island of Sumatra is -0.036425. With these results and using a probability value of $0.0432 < 0.05$ ($\alpha=5\%$), it shows that there is a negative and significant influence between the two. With an increase in GDP by 1%, it will reduce the percentage of poor people by 0.036425%.

The value of the variable regression coefficient of TPT on the island of Sumatra is 0.099885. With these results and using a probability value of $0.0375 < 0.05$ ($\alpha=5\%$), it shows that there is a positive and significant influence between the two. With TPT increasing by 1%, it will increase the percentage of the poor population by 0.099885%.

The value of the variable regression coefficient of TPT on the island of Sumatra is 0.099885. With these results and using a probability value of $0.0375 < 0.05$ ($\alpha=5\%$), it shows that there is a positive and significant influence between the two. With TPT increasing by 1%, it will increase the percentage of the poor population by 0.099885%.

The results of the estimation of the value of the determination coefficient (R^2) show a figure of 0.991662 or 99.16%. This shows that there is a relationship between free variables, namely GDP (X1), TPT (X2) and HDI (X3) In Sumatra can explain the variable tied to the poverty level (P0) in Sumatra by 99.16% while the remaining 0.84% can be explained by other variables.

CONCLUSION

In the end, this study shows that GDP has a negative and significant relationship with the percentage of the poor population. This means that the increase in GDP has a negative impact on the percentage of poor people on the island of Sumatra. This means that the greater the GDP on the island of Sumatra, the percentage of poor people in Sumatra will also decrease in line with.

This can happen because GDP is one of the indicators in determining economic growth. Where with good economic conditions can create jobs and reduce the number of poor people on the island of Sumatra.

Meanwhile, the variable open unemployment rate (TPT) has a positive and significant relationship with the percentage of the number of poor people on the island of Sumatra. This means that the higher the TPT value, the higher the percentage of the poor population will increase.



The last one is HDI. Based on the above analysis, it shows that HDI has a negative and significant influence on the percentage of the number of poor people on the island of Sumatra. This means that if the HDI experiences growth on the island of Sumatra, it will reduce the percentage of poor people on the island of Sumatra.

Suggestion

Based on the findings of the study, there are several suggestions that can be made by the government in the provinces on the island of Sumatra. First, the government must be able to maintain and increase GDP, by making policies that support economic growth in the main sectors of the local economy in the provinces in Sumatra and then increasing the scores of the components in the HDI to improve the quality of life, access to education, access to health, and job opportunities. Also, reduce the open unemployment rate (TPT) by opening many new jobs. So that it can reduce the number of unemployed people on the island of Sumatra.

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