ANALYSIS OF THE INFLUENCE OF THE HUMAN DEVELOPMENT INDEX (HDI) AND UNEMPLOYMENT RATE OPEN (TPT) AGAINST POVERTY IN NORTH SUMATRA PROVINCE

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ABSTRACT

Poverty is a fundamental problem for every country, especially for developing countries. The inability to meet basic needs in all aspects of life where people cannot maximize the function of the wealth they have. There is an increase in the number of poor people both from a global scope in Indonesia, especially also in North Sumatra Province. The purpose of this study was to determine and analyze the effect of the Human Development Index (HDI) and the Open Unemployment Rate (OUR) in North Sumatra Province. This study uses secondary data from BPS Province for the observation year 2017- 2022. The research method used is the panel data regression method with the help of the Eviews12 application. The results of this study are a) the Human Development Index (HDI) has a negative and significant effect on poverty in North Sumatra Province, b) the Open Unemployment Rate (OUR) has no significant effect on poverty in North Sumatra Province, c) simultaneously the Human Development Index (HDI) and the Open Unemployment Rate (OUR) have a significant effect on poverty in North Sumatra Province. The results of this study also show that the contribution of the Human Development Index (HDI) and the Open Unemployment Rate (OUR) variables to poverty is 53.21 percent.

Keywords: Poverty; Human Development Index (HDI); Open Unemployment Rate (OUR).

INTRODUCTION

One of the socio-economic problems faced by every country is poverty. Poverty is a long-term social problem that is difficult to overcome. Poverty is a fundamental problem in every country, especially for developing countries. As a developing country, poverty is not a QE Journal|Vol.11 - No.02 -2 new problem in Indonesia. Almost all periods of government in Indonesia have made poverty a development issue. Poverty cannot be ignored because poverty is suspected of causing many other problems such as social crimes and other multiplier effects. Poverty is a condition when someone has no assets, has a low income, and is unable to meet the basic needs of a decent life, such as clothing, food, shelter, services, education, health, clean water services, and sanitation (Dwijowijoto, 2004). According to the Melbourne Institute (2012), the poverty line is defined as the level of income or expenditure that is set, where if a person's income is below that level, he or she is classified as poor. Indonesia is a country that is still developing and poverty is a problem that is still a concern.

The development of the number of poor people in Indonesia fluctuates quite a bit from year to year.

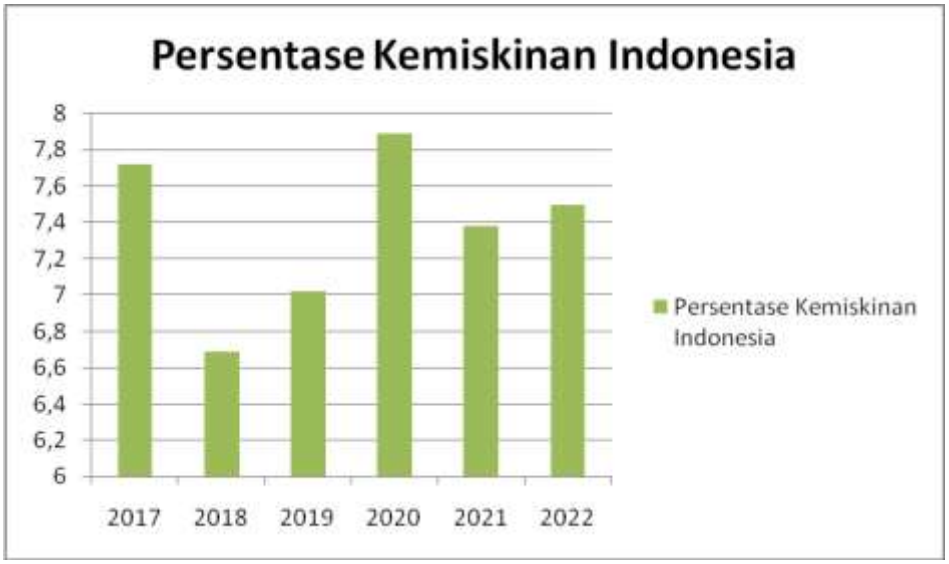


Figure 1. Development of Poverty Rate in Indonesia in Semester I 2017-2022

Based on Figure 1 above, it can be seen that the largest number of poor people in Indonesia was in 2020 reaching 7.89%, due to the Covid-19 pandemic factor. The impact of Covid 19 on poverty was caused by many workers losing their jobs due to the applicable restriction policies. Various policies related to poverty during Covid-19 have been seen in 2022 with a decrease in the percentage of poverty reaching 7.5%.

Of course, there are many factors that affect the level of poverty in a country. According to Sharp and Kuncoro (2001), there are three factors that cause poverty from an economic perspective. First, poverty arises because of the inequality of resource ownership patterns that cause unequal income distribution. Having limited and quality resources also causes people to become poor. Second, poverty arises due to differences in the quality of human resources. The quality of resources means low productivity and also means low wages. The causes of lowquality human resources are low levels of education, discrimination, disadvantage or heredity. Third, poverty arises due to differences in access and capital.

Not only at the Indonesian level, various problems related to poverty certainly also occur at the provincial level, especially North Sumatra Province. One of the factors that QE Journal|Vol.11 - No.02 -3 influences poverty is the Human Development Index. According to the Central Statistics Agency (2007), the Human Development Index is a measure of human development achievement based on the number of basic components of quality of life. In the context of economic development in a region, the Human Development Index is determined as one of the main measures included in the regional development pattern. The HDI which is the benchmark for the development of a region is positively correlated with poverty conditions in the region because it is expected that a region that has a high HDI, ideally the quality of life of the community is also high or it can be said that if the HDI value is high, the poverty rate of the community will be low (Kurnia Lismawati, 2007). The following is a graph of data on the development of poverty and the Human Development Index in North Sumatra Province in 2017-2022:

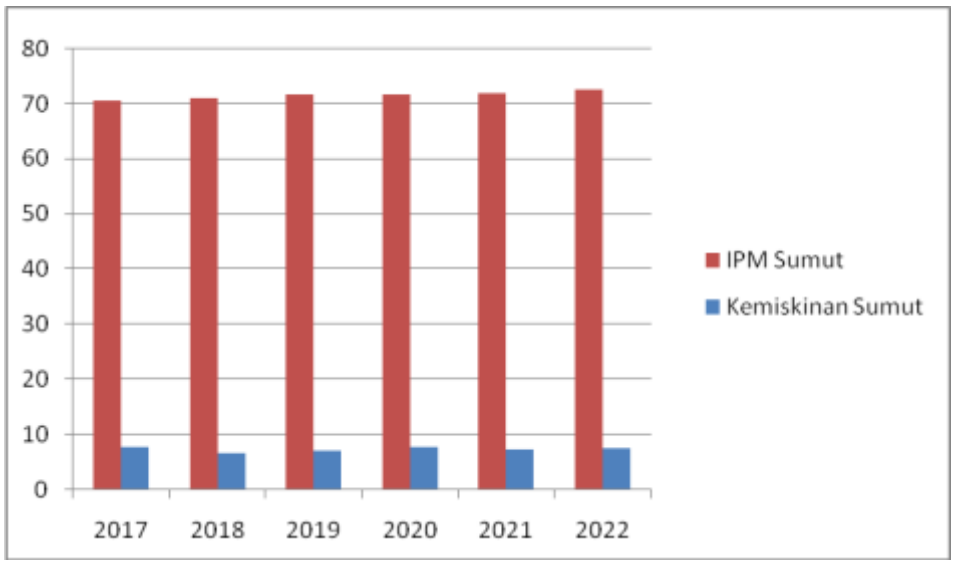


Figure 2. Development of the Number of Poor People and the Human Development Index in North Sumatra Province 2017-2022

Based on Figure 2 above, it can be observed that the poverty rate and Human Development Index data are quite fluctuating. The fluctuation in the number of poor people certainly does not occur by itself. Based on the theory that the Human Development Index has a negative effect on poverty. So if the Human Development Index increases, poverty will decrease. However, based on the graph above in 2021 there is a gap where there is an increase in the Human Development Index but poverty also increases. So, this is interesting to study. Where the Human Development Index variable is often associated with a decrease in the number of poor people.

Studies linking the Human Development Index with poverty have been widely studied before. In theory, the Human Development Index gives a negative direction to poverty. This is in line with Syaifullah & Tia Ratu Gandasari (2016), Reki Ardian, Yulmardi, and Adi Bhakti (2021), Renta Yustie (2017), Sarah Farida Fitria (2021). However, this also contradicts the results of other research by Ema Dian Ristika, Wiwin Priana Primadhana, and Mohammad QE Journal|Vol.11 - No.02 -4 Wahed (2021) which concluded that the HDI has a positive effect on poverty. As well as the results of research by Rizky Febriana Saragih, Purnama Ramadani Silalahi, and Khairina Tambunan (2022) which stated that the HDI has a negative but not significant effect on poverty. Of course, the differences in research results between these studies are an interesting study to further explain how the HDI is related to poverty, especially in North Sumatra Province. In addition to the Human Development Index (HDI), the Open Unemployment Rate (TPT) is also a factor that influences poverty. According to Todaro (2000) most of the unemployed are the poorest groups of people, who do not have regular jobs or who work seasonally. However, not everyone who does not work is necessarily poor, there are always voluntary unemployed in developing countries, namely those who can easily get good jobs but choose to be unemployed because the type of work does not match their education, skill qualifications, personal aspirations, and financial targets or prestige standards. The following is a graph of data on the development of poverty and the Open Unemployment Rate in North Sumatra Province in 2017- 2022:

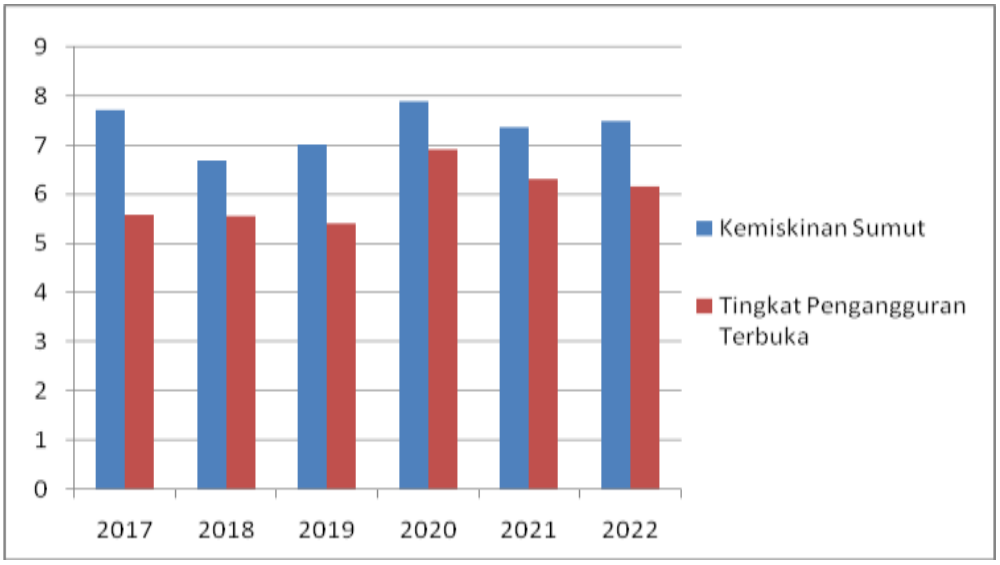


Figure 3. Development of the Number of Poor People and the Open Unemployment Rate in North Sumatra Province 2017-2022

Based on Figure 3 above, it can be observed that the poverty rate and Open Unemployment Rate data are quite fluctuating. The fluctuation in the number of poor people certainly does not happen by itself. If viewed based on the theory that the Open Unemployment Rate has a positive effect on poverty. So if the Open Unemployment Rate increases, poverty will also increase. However, based on the graph above in 2021 there was a decrease in the TPT but poverty increased. So, this is interesting to study. Where the Open Unemployment Rate variable is one of the factors that is often associated with an increase in the number of poor people.

Studies linking the Open Unemployment Rate with poverty have been widely studied before. In theory, the Open Unemployment Rate gives a positive direction to poverty. This is QE Journal|Vol.11 - No.02 -5 in line with Rizky Febriana Saragih, Purnama Ramadani Silalahi, and Khairina Tambunan (2022), Renta Yustie (2017), Sarah Farida Fitria (2021). However, this also contradicts the results of other research by Ibrahim Hasballah (2021) which concluded that the HDI had a negative effect on poverty. As well as the results of research by Wiwin Priana Primadhana, and Mohammad Whed (2021), Reki Ardian, Yulmardi, and Adi Bhakti (2021), Syaifullah & Tia Ratu Gandasari (2016) which stated that the HDI had a positive but not significant effect on poverty. Of course, the differences in research results between these studies are an interesting study to further explain how the TPT is related to poverty, especially in North Sumatra Province.

Various expert opinions and research results linking the Human Development Index and the Open Unemployment Rate to Poverty. However, the results of various studies indicate that there is still a gap (Research Gap) and is contrary to the direction of the theory. The problems of poverty, HDI, and TPT are common problems in Indonesia, so that this poverty problem with various factors that influence it is increasingly interesting to be studied further and in depth as a series of studies, especially those that occur in North Sumatra Province.

Poverty

Poverty is the inability to meet basic needs in all aspects of life. According to Todaro (2003) poverty is not a condition where society is only limited to wealth but rather tends to describe a condition where society cannot maximize the function of the wealth it has.

According to Sumitro Djojohadikusumo (1995) there are four patterns of poverty. Where the first pattern is persistent poverty, namely chronic or genetic poverty. The second pattern is cyclical poverty, namely poverty that follows the pattern of the entire world cycle. The third pattern is seasonal poverty, this seasonal poverty can be seen from the case of fishermen or food producers. And the fourth pattern is accidental poverty, where there is an impact of certain policies that lead to poverty due to natural disasters or lower levels of social welfare.

According to the World Bank (2010), defines poverty as a lack of well-being, and consists of many dimensions. This includes low income and the inability to obtain basic goods and services needed to survive. On the other hand, according to BPS (Central Bureau of Statistics) the poverty rate is based on rupiah consumption in the form of food, which is 2,100 calories per person per day (from 52 types of commodities consumed), and non-food consumption (from 45 different foods that are urban). This 2100 calorie adequacy guideline applies to estimates of all ages, genders, levels of physical activity, weight, and physiology of the population. This measure is often referred to as the poverty line.

According to Kuncoro (2003) there are several causes of poverty, including:

1. On a micro level, poverty arises due to unequal patterns of resource ownership which results in an unequal distribution of income.
2. Poverty arises due to differences in the quality of human resources. Poverty arises due to differences in access to capital

Human Development Index

HDI according to BPS (Central Bureau of Statistics) is measuring human development performance based on several basic factors of quality of life. HDI is calculated based on data obtained explained four factors that measure success: life expectancy in the health sector, literacy rates, and average educational ability and success. In UNDP (United Nations Development Programme), human development is a process to enlarge human choices.

In calculating the Human Development Index (HDI), three dimensions are used, including:

1. Longevity and healthy living are measured in life expectancy at birth. Life expectancy (UHH) is the average estimate of the number of years a person can live since birth. According to UNDP standards, the life expectancy index is calculated with the highest number as the maximum limit used 85 years and the lowest is 20 years.
2. School Expectancy Rate (AHS) and Average Length of Schooling Rate (ARRLS) knowledge dimension. The knowledge dimension as a shaper of the HDI is measured through the education level index. Where the indicators used are the average length of schooling and the average expected length of schooling. These two indicators are given the same weight which is then combined and used as a factor or component forming the HDI.
3. A decent standard of living derived from Gross Domestic Product (Purchasing Power Per Capita). A decent standard of living indicates the level of welfare that can be enjoyed by the population as a result of the improving economy. BPS uses the average real per capita expenditure adjusted for purchasing power parity.

Marhoji and Nurkhasanah (2019:56) stated that the human development index (HDI) is a number that measures the achievement of human development based on the number of basic components of quality of life that can affect the level of productivity produced by a per-

son. However, at all levels of development there are three choices, namely a long and healthy life, getting an education and having the ability to access various sources of needs in order to live properly. If these three basic things are met, then the other choices cannot be reached properly.

Open Unemployment Rate

According to Sukirno (2004), unemployment is defined as someone who is a partnership with an active workforce looking for work at a certain level and a certain wage QE Journal|Vol.11 - No.02 -7 does not get the job they want. The negative effects of unemployment are reducing people's income which ultimately reduces the level of prosperity achieved. Unemployment is a measure taken if someone does not have a job but they have made an active effort in the last four weeks to find a job (Kaufman & Hotchkiss, 1999). The success or failure of overcoming the problem of unemployment depends greatly on the adaptation process applied to respond to the everchanging global economy (Dutt, Mitra, & Ranjan, 2009).

According to BPS, Unemployment is a person who is looking for a job that is impossible. BPS classifies adults into several categories, including:

1. Work is an economic activity carried out by a person for the purpose of earning or supporting income for at least 1 hour a week (no interruptions) and then profiting after that. The activity includes patterns of activities for unpaid workers which support business/economy.
2. Unemployment means temporarily stopping work or looking for another job. Inactive people are those aged 15 years and over who are still in school, who are doing household chores, in addition to personal activities (Prasetyoningrum 2018).

Research Hypothesis

H1 **Ho:** The Human Development Index (HDI) does not have a negative and significant effect on poverty in North Sumatra province.

Ha: The Human Development Index (HDI) has a negative and significant effect on poverty in North Sumatra province.

H2 **Ho:** The Open Unemployment Rate (TPT) does not have a positive and significant effect on poverty in North Sumatra province.

Ha: The Open Unemployment Rate (TPT) has a positive and significant effect on poverty in North Sumatra province.

H3 **Ho:** Simultaneously or together, the Human Development Index (HDI) and Open Unemployment Rate (TPT) do not have a significant effect on poverty in North Sumatra province.

Ha: Simultaneously or together, the Human Development Index (HDI) and the Open Unemployment Rate (TPT) have a significant influence on poverty in North Sumatra province.

RESEARCH METHODS

Types and Sources of Research Data

This type of research uses a quantitative method consisting of samples and numerical data (Sutrisno & Haryani, 2017). Quantitative research focuses on test theory by measuring research variables numerically and analyzing data using statistical methods (Iskandar, 2020).

According to Kuncoro (2013), quantitative data is data that is measured on a numerical scale (numbers), which is divided into interval data and ratio data.

The data sources used in this study are secondary data. Secondary data is data that has been processed such as the results of library research, because the data is not obtained directly but is obtained from intermediary media. The data used in this study is panel data. Panel data is a combination of time series and cross-section data taken from 33 regencies/cities in North Sumatra Province obtained from the Central Statistics Agency (BPS). The data collected is data on the number and percentage of variables used in the study in 2018-2022. The Dependent Variable (Y) in this study is Poverty. The Independent Variable (X1) in this study is the Human Development Index (HDI). The Independent Variable (X2) in this study is the Open Unemployment Rate (TPT).

Data Analysis Techniques

This study uses panel data regression analysis techniques that will be estimated with several steps to obtain the right model and estimation. In order for the research objectives to be achieved and hypothesis testing, this study uses Eviews 12 software. In the study, the estimation model used is Ordinary Least Square (OLS) and the regression evaluation includes the goodness of regression (R-Square), model feasibility test (F Test), and dependent variable significance test (T Test).

The panel data regression model for this study is:

$$\textbf{Poverty} = \beta 0 + \beta 1\ \textbf{TPT} - \beta 2\ \textbf{IPM} + \varepsilon it$$

Information:

Poverty : Poverty Rate in North Sumatra Province

TPT : Level Open Unemployment in North Sumatra Province

IPM : Human Development Index in North Sumatra Province

According to Basuki (2016:276–27), the regression model estimation method using panel data can be done using three approaches, including:

a. Pooled Least Square or Common Effect Models (CEM)
   According to Basuki and Prawoto (2017), Common Effect Models are the simplest panel data model approach because they only combine time series and cross-section data and estimate them using the Ordinary Least Square (OLS) approach.
b. Fixed Effect Models (FEM)
   According to Basuki and Prawoto (2017), this model assumes that differences between individuals can be accommodated from differences in their intercepts, where each individual is an unknown parameter.
c. Random Effect Models (REM)
   This model will estimate panel data where disturbance variables may be interrelated across time and between individuals in Random Effects the difference in intercepts is accommodated by the error terms of each company. This model is also called the Error Component Model (ECM).

Basuki and Prawoto (2016: 277) stated that to select the most appropriate model for managing panel data, several tests were carried out, namely:

a. Chow Test
   Chow Testnamely testing to determine the most appropriate fixed effect or common effect model to use in panel data estimation.
   - If the probability value > α (0.05) then H0 is accepted so that the most appropriate model to use is the Common Effect Model.

- If the probability value > α (0.05) then H0 is rejected so the most appropriate model to use is the Random Effect Model.

b. Hausman test
   Hausman Testis a statistical test to choose whether the fixed effect and random effect models are most appropriate to use. The hypothesis used in this test is as follows:
   - If the probability value > α (0.05) then H0 is accepted so that the most appropriate model to use is the Random Effect Model.
   - If the probability value > α (0.05) then H0 is rejected so the most appropriate model to use is the Fixed Effect Model.

c. Lagrange Multiplier Test
   The Langrange Multiplier (LM) test is conducted for the selected model in the Hausman test, namely the Random Effect Model (REM). To find out which model between the Random Effect model or the Common Effect model is better. The hypothesis used in this test is as follows: QE Journal|Vol.11 - No.02 -10
   - If the probability value > α (0.05) then H0 is accepted so that the most appropriate model to use is the Random Effect Model.
   - If the probability value > α (0.05) then H0 is rejected so the most appropriate model to use is the Common Effect Model.

Classical Assumption Test

The classical assumption test aims to determine whether the data has met the classical assumptions or not. By using the Ordinary Least Square (OLS) method, to produce more precise parameter values for the estimator model, it is necessary to detect whether the model deviates from the classical assumptions or not, including the following:

a. Normality Test
   The normality test aims to test whether the independent variable, dependent variable or both have a normal distribution or not. One way to see the normality of the residual is to use the jarque-bera (JB) method. According to Ajija, Shocrhrul Rohmatul et al. (2011) the normality test is only used if the number of observations is less than 30, to find out whether the error term data approaches a normal distribution. If the number of observations is more than 30, then there is no need to do a normality test. This is because the distribution of the error term sampling has approached normal. Then according to Gujarati & Porter (2009) based on the Central Limit Theorem, research that has more than 100 observations does not need to do a normality test.

b. Multicollinearity Test
   Multicollinearity is defined as a condition where one or more independent variables can be expressed as a collinear combination of other variables. This test aims to determine whether there is a correlation between independent variables in this regression. The way to detect symptoms of multicollinearity is done by testing the Variance Inflation Factor (VIF) with the provision that the VIF value<10 is stated as no multicollinearity.

c. Autocorrelation Test
   Autocorrelation test is a condition where there is a correlation between this year's residual and the previous year's error rate. The autocorrelation test aims to examine whether a linear regression model has a correlation between the disturbance error in

period t and the error in period (t-1). The autocorrelation test is not performed because this test is carried out on time series data, so if it is carried out on data other than time series data, for example cross section or panel data, it will be in vain because panel data has a more dominant cross section nature (Basuki & Prawoto, 2015).

d. Heteroscedasticity Tes

A regression model is said to be affected by heteroscedasticity if there is an inequality of variance from the residuals from one observation to another. To find out whether or not heteroscedasticity exists, in this case it will be done by looking at the Scatterplot graph. If there is a certain pattern in the graph such as the existing dots forming a certain regular pattern (wavy, widening, then narrowing), then it indicates that heteroscedasticity has occurred. If there is no clear pattern such as dots spreading above and below the number 0 on the Y axis, then there is no heteroscedasticity (Ghozali, 2001:69).

Hypothesis Testing

a. Test of Determination Coefficient (R2)

This test aims to determine the proportion or percentage of total variation in the dependent variable explained by the independent variable or to measure the extent to which the percentage of the regression model is able to explain its dependent variable. If the analysis used is simple regression, then the R-Square value is used. However, if the analysis used is multiple regression, then the Adjusted R Square is used.

b. Partial Test (T Test)

The t-test is a test of independent variables that is carried out individually. The purpose of this test is to determine the significance of the independent variables on the dependent variable with the assumption that other variables are fixed. To determine whether an independent variable value significantly affects the dependent variable, the t value is calculated from each regression coefficient compared to the t table value, and the probability value is compared to the significance level $\alpha = 5\%$ or 0.05.

c. Simultaneous Test (F Test)

Widarjono (2009) explains that the F test is conducted to determine whether the independent variables as a whole are statistically significant in influencing the dependent variable. The F test is a test used to determine the influence of independent variables together on the dependent variable. If the calculated F is greater than the critical F value, then the independent variables as a whole have an influence on the dependent variable.

RESULTS AND DISCUSSION

Results

Panel Data Regression Estimation Model

a. Common Effect Model (CEM)

Dependent Variable: KEMISKINAN
Method: Panel Least Squares
Date: 11/13/23 Time: 20:08
Sample: 2017 2022
Periods included: 6
Cross-sections included: 33
Total panel (balanced) observations: 198

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	67.73051	3.886241	17.42828	0.0000
IPM	-0.814594	0.058002	-14.04426	0.0000
TPT	0.195334	0.097583	2.001724	0.0467

Root MSE	3.226705	R-squared	0.544362
Mean dependent var	11.13899	Adjusted R-squared	0.539689
S.D. dependent var	4.792353	S.E. of regression	3.251431
Akaike info criterion	5.211103	Sum squared resid	2061.502
Schwarz criterion	5.260926	Log likelihood	-512.8992
Hannan-Quinn criter.	5.231270	F-statistic	116.4857
Durbin-Watson stat	0.049737	Prob(F-statistic)	0.000000

b. Fixed Effect Model

Dependent Variable: KEMISKINAN
Method: Panel Least Squares
Date: 11/13/23 Time: 20:09
Sample: 2017 2022
Periods included: 6
Cross-sections included: 33
Total panel (balanced) observations: 198

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	61.73056	3.745947	16.47930	0.0000
IPM	-0.722942	0.053273	-13.57043	0.0000
TPT	0.096564	0.051727	1.866801	0.0637

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.554746	R-squared	0.986532
Mean dependent var	11.13899	Adjusted R-squared	0.983723

S.D. dependent var	4.792353	S.E. of regression	0.611411
Akaike info criterion	2.012923	Sum squared resid	60.93314
Schwarz criterion	2.594182	Log likelihood	-164.2793
Hannan-Quinn criter.	2.248197	F-statistic	351.1805
Durbin-Watson stat	1.516574	Prob(F-statistic)	0.000000

c. Random Effect Model

Dependent Variable: Poverty
Method: Panel EGLS (Cross-section random effects)
Date: 11/13/23 Time: 20:10
Sample: 2017 2022
Periods included: 6
Cross-sections included: 33
Total panel (balanced) observations: 198
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	62.40733	3.512043	17.76953	0.0000
IPM	-0.732695	0.049397	-14.83265	0.0000
TPT	0.099069	0.050606	1.957657	0.0517

Effects Specification		
	S.D.	Rho
Cross-section random	3.322324	0.9672
Idiosyncratic random	0.611411	0.0328

Weighted Statistics

Root MSE	0.604273	R-squared	0.532179
Mean dependent var	0.834524	Adjusted R-squared	0.527381
S.D. dependent var	0.885713	S.E. of regression	0.608904
Sum squared resid	72.29897	F-statistic	110.9131
Durbin-Watson stat	1.283223	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.539477	Mean dependent var	11.13899
Sum squared resid	2083.604	Durbin-Watson stat	0.044527

Model Research Choice

a. Uji Chow

H0 : Common Effect Model
H1 : Fixed Effect Model
Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	167.239016	(32,163)	0.0000
Cross-section Chi-square	697.239773	32	**0.0000**

Based on the Eviews output results above, the Cross section Chi-Square probability value is 0.0000. This shows that the probability value is smaller than the significance level of 5% or 0.05 (0.0000<0.05), so it can be concluded that the chow test results reject H0 of the Common Effect model and accept H1 of the fixed effect model. This means that the fixed effect model is better than the common effect model.

b. Hausman test

The hypothesis decisions taken in the Hausman test are as follows:

H0 : Random Effect Model

H1 : Fixed Effect Model

The results of the Hausman test were obtained through the Correlated Random Effect Test – Hausman Test in the following table:

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	0.404294	2	**0.8170**

Based on the results of the Hausman test above, the Cross Section Random probability value is 0.8170. This shows that the probability value is greater than the significance level of 5% or 0.05 (0.8710> 0.05), which means that the Hausman test accepts H0, namely the Random Effect Model. This shows that the Random Effect Model is better than the Fixed Effect Model. Based on the results of the Chow test and the Hausman test, it is necessary to carry out another Langrange multiplier test.

c. Lagrange Multiplier Test

The hypothesis decisions taken in the Hausman test are as follows:

H0 : Random Effect Model

H1 : Common Effect Model

Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	459.2595	1.600406	460.8599
	(0.0000)	(0.2058)	(0.0000)

Honda	21.43034 (0.0000)	-1.265071 (0.8971)	14.25900 (0.0000)
King-Wu	21.43034 (0.0000)	-1.265071 (0.8971)	6.701458 (0.0000)
Standardized Honda	22.42359 (0.0000)	-1.070325 (0.8578)	11.29389 (0.0000)
Standardized King-Wu	22.42359 (0.0000)	-1.070325 (0.8578)	4.231351 (0.0000)
Gourieroux, et al.	--	--	459.2595 (0.0000)

Based on the results of the Langrange Multiplier test above, the Breusch pagan probability value is 0.000. This shows that the probability value is smaller than the significance level of 5% or 0.05 (0.000<0.05), which means that the Langrange Multiplier test accepts H0, namely the Random effect model. This shows that the Random Effect Model is better than the Common Effect Model.

From the three tests conducted and the selected test results, namely the Random Effect Model (REM) was selected twice, it was concluded that the REM model was selected as the model used in this study.

Classical Assumption Test

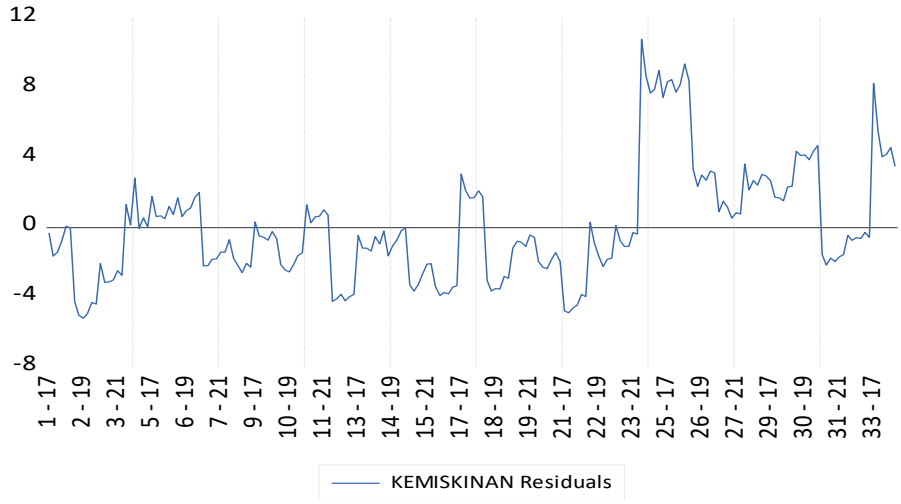
a. Multicollinearity Test

Multicollinearity test is conducted to see whether or not there is a high correlation between independent variables in the regression model. The following are the results of the multicollinearity test:

Correlation		
	IPM	TPT
IPM	1.000000	0.508909
TPT	0.508909	1.000000

Based on the Eviews output results above, it shows that the correlation coefficient between the Human Development Index and Open Unemployment Rate variables has a value of less than 0.80. So it can be concluded that there is no multicollinearity problem.

b. Heteroscedasticity Test



Based on the residual graph (blue color) it does not cross the limits (500 and -500) meaning that the residual variance is the same. Therefore, there is no symptom of heteroscedasticity or it passes the heteroscedasticity test (Napitupulu et.al, 2021:143).

Panel Data Regression Analysis Model

a. Interpretation of the REM Model

Based on the results of the Chow test, Hausman test and Lagrange multiplier test, the best panel data regression model estimate chosen is the Random Effect Model in the following table:

Dependent Variable: KEMISKINAN
Method: Panel EGLS (Cross-section random effects)
Date: 11/13/23 Time: 20:01
Sample: 2017 2022
Periods included: 6
Cross-sections included: 33
Total panel (balanced) observations: 198
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	62.40733	3.512043	17.76953	0.0000
IPM	-0.732695	0.049397	-14.83265	**0.0000**
TPT	0.099069	0.050606	1.957657	**0.0517**

Effects Specification		
	S.D.	Rho
Cross-section random	3.322324	0.9672
Idiosyncratic random	0.611411	0.0328

Weighted Statistics			
Root MSE	0.604273	R-squared	0.532179

Mean dependent var	0.834524	Adjusted R-squared	0.527381
S.D. dependent var	0.885713	S.E. of regression	0.608904
Sum squared resid	72.29897	F-statistic	110.9131
Durbin-Watson stat	1.283223	Prob(F-statistic)	0.000000

Unweighted Statistics

R-squared	0.539477	Mean dependent var	11.13899
Sum squared resid	2083.604	Durbin-Watson stat	0.044527

Based on the Eviews output results above, the coefficients of each research variable are obtained so that the following analysis model equation can be formed:

POVERTY = 62.4073345925 - 0.732694892007*HDI + 0.0990690939563*TPT + [CX=R]

From the results of the model equation above, it can be interpreted as follows:

1. A constant of 62.4073345925 was obtained, so it can be estimated that if the assumption of the independent variables, namely IPM and TPT, is equal to 0, then the poverty rate in North Sumatra Province will increase by 62.4073345925 percent.
2. The regression coefficient of the investment variable is -0.732694892007, which means that every 1 percent decrease in the HDI will increase poverty in North Sumatra Province by 0.732694892007 percent, assuming other variables remain constant. The negative HDI coefficient means that there is a negative relationship between poverty and the Human Development Index. The higher the HDI, the lower the poverty rate.
3. The regression coefficient of the inflation variable is 0.0990690939563, which means that every 1 percent increase in TPT will increase poverty in North Sumatra Province by 0.0990690939563 percent, assuming other variables remain constant. The TPT coefficient is positive, meaning that there is a positive relationship between poverty and the Open Unemployment Rate. The higher the TPT, the higher the poverty rate.

Hypothesis Testing

a. Partial Test (T Test)

In the t-test, the t-count is compared with the t-table with the following decision-making criteria:

Hey : If t count < t table and or prob > 0.05 in one-way test. This means that there is an influence of the independent variable on the dependent variable.

Ha : If t count > t table and or prob < 0.05 in one-way test. This means that there is an influence of the independent variable on the dependent variable.

The following are the results of the partial t-test on the selected Randon Effect model:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	62.40733	3.512043	17.76953	0.0000
IPM	-0.732695	0.049397	-14.83265	0.0000
TPT	0.099069	0.050606	1.957657	0.0517

Based on the results of the data processing above, the probability value of each variable is obtained so that it can be interpreted as follows:

1. The Influence of Human Development Index on Poverty

The HDI variable has a t-Statistic value of -14.83265, meaning that the calculated t value (-14.83265) > t table (4.30265273) and a probability value of 0.0000<α = 5% or 0.05. Therefore, the t-test hypothesis test then Ho is rejected and Ha is accepted. This means that the HDI variable partially has a negative and significant effect on poverty in North Sumatra Province.

2. The Impact of Open Unemployment Rate on Poverty
   The inflation variable has a t-Statistic value of 1.957657, meaning that the calculated t value (1.957657) < t table (4.30265273) and a probability value of 0.0517> α = 5% or 0.05. Therefore, the t-test hypothesis test then Ho is accepted and Ha is rejected. This means that the TPT variable partially does not have a significant effect on poverty in North Sumatra Province.

b. Simultaneous Test (F Test)

The decision-making criteria are as follows:

Hey : If f count < f table and/or prob > 0.05 in a one-way test. This means that simultaneously there is no influence of the independent variable on the dependent variable.

Ha : If f count > f table and or prob < 0.05 in one-way ui. This means that there is a simultaneous influence of independent variables on the dependent variable.

The following are the results of the simultaneous F test on the selected Random Effect Model:

Root MSE	0.604273	R-squared	0.532179
Mean dependent var	0.834524	Adjusted R-squared	0.527381
S.D. dependent var	0.885713	S.E. of regression	0.608904
Sum squared resid	72.29897	F-statistic	110.9131
Durbin-Watson stat	1.283223	Prob(F-statistic)	**0.000000**

Based on the table above, the f statistic value is 110.9131. This means that the F-statistic (110.9131) > f table (3.042229897) and the probability value is 0.000000<α = 5% or 0.05. Therefore, the F test hypothesis test then Ho is rejected and Ha is accepted. So that simultaneously the IPM and TPT variables have a significant effect on poverty in North Sumatra Province.

c. Test of Determination Coefficient (R2)

Root MSE	0.604273	R-squared	**0.532179**
Mean dependent var	0.834524	Adjusted R-squared	0.527381

From the regression results above, the coefficient of determination R (R-Squared) is obtained as0.532179 or 53.21%. This shows that the independent variables in this study areIPM and TPT explains the magnitude of the influence onpoverty in North Sumatra Province. The remaining 46.79% is explained by other variables not included in the study.

Discussion

a. The Influence of the Human Development Index on Poverty

Based on the results of data testing in this study, Ha was accepted, which means that the Human Development Index has a negative and significant effect on poverty in the

Regency/City of North Sumatra Province. This is evidenced by the results of data processing where the coefficient of the Human Development Index variable of 0.0000 is also evidenced by a significant value of less than 0.05 (0.0000<0.05), the coefficient value means that if the Human Development Index is 0.0000 in 33 Regencies/Cities in North Sumatra Province for the period 2017-2022.

The results of this study are in line with research conducted by Syafullah Gandasari (2016) in Banten Province showing that the Human Development Index has a negative and significant effect on Poverty. In addition, this study is also in line with research conducted by Reki Ardian et al. (2021) in Jambi Province which also stated that the HDI has a negative and significant effect on poverty.

The results of this study are in line with the theory of Apriliyah S. Napitupulu (2007) which states that the Human Development Index has an influence on reducing the number of poor people. The Human Development Index has composition indicators in its calculation, including life expectancy, literacy rates, and per capita consumption. Improvements in the health and education sectors and the higher quality of humans in a region will reduce the number of poor people in the region.

b. The Influence of the Open Unemployment Rate (TPT) on Poverty

Based on the data testing in this study, Ho is accepted, which means that the Open Unemployment Rate (TPT) does not have a significant effect on the Human Development Index of Regency/City in North Sumatra Province. The Coefficient table shows the coefficient value of the Open Unemployment Rate (TPT) variable of 0.0517> 0.05.

The insignificant effect of the Open Unemployment Rate (TPT) on poverty is thought to be due to the presence of hidden unemployment (those who work with low working hours) who are recorded as working residents. This is generally seen in agricultural or rural households.

The insignificant research results are not in line with Todaro's theory which explains that unemployment is closely related to poverty levels (Todaro 2003). However, the results of this study are in line with the findings of Reki Ardian, Yulmardi, and Adi Bhakti (2021) that the Open Unemployment Rate (TPT) has a positive but insignificant effect on poverty. This study is also in line with (Ema Dian, Wiwin Priana, and Mohammad Wahed 2021) and (Zuhdiyati & David 2015) which state that the Open Unemployment Rate (TPT) has no effect on poverty.

The relationship between TPT which has no effect on the poverty rate proves that the unemployed population is not necessarily low-income people, or those who are unemployed are still supported by people who have sufficient income. In addition, not all unemployed are always poor. Because just like the population included in the open unemployment group, there are several types, for example those who are not looking for work because they are preparing a business, those who are not looking for work because they feel it is impossible to get a job, and those who already have a job but have not started working.

The problem of poverty is not always related to unemployment or employment. According to Lincolin Arsyad in Fatkhul Mufid Choili, it is wrong to assume that every person who does not have a job is poor, while people who work full time are rich. This is because there are workers in urban areas who do not work voluntarily because they are looking for jobs that are more appropriate to their level of education. They reject jobs that they consider lower because they have other sources of income for their financial problems.

c. The Influence of the Human Development Index and Open Unemployment Rate on Poverty in Districts/Cities in North Sumatra Province

Based on the research results obtained from the F test with a probability value of 0.0000<0.05, it can be said that the Human Development Index and Open Unemployment Rate variables have a significant effect together on Poverty in Districts/Cities in North Sumatra Province.

Based on the R Square value on the results of the simultaneous determination test (R2) obtained 0.532179, it can be concluded that the variables of the Human Development Index and Open Unemployment Rate affect poverty by 53.21% and the remaining 46.79% is influenced by other variables not examined in this study. So if the quality of human life is very good and the absorption of labor increases, it can reduce unemployment and increase community prosperity, so that the poverty rate will also decrease.

This study is in line with the findings of (Ema Dian, Wiein Priana and Mohammad Wahed, 2021) and (Sayifullah and Tia Ratu Gandasari, 2016) which state that the Human Development Index and Open Unemployment Rate have a significant joint effect on Poverty.

CONCLUSION

The results of the research and discussion that have been carried out regarding the influence of the Human Development Index and the Open Unemployment Rate on Poverty in North Sumatra Province in 2017-2022 can be concluded that the Human Development Index has a negative and significant influence on poverty in North Sumatra Province in 2017-2022. Furthermore, the Open Unemployment Rate variable states that there is no influence on poverty in North Sumatra Province in 2017-2022. Simultaneously or together, the Human Development Index and Open Unemployment Rate variables have a significant influence on poverty in North Sumatra Province. The contribution of the Human Development Index and Open Unemployment Rate to poverty in North Sumatra Province is 53.21%. Where the most dominant variable on poverty is the Human Development Index.

ACKNOWLEDGMENTS (Optional)

Based on the high level of poverty in North Sumatra Province, it is suggested to the North Sumatra Provincial Government to encourage economic growth and improve its human resources by improving the quality of education, health and income. The government also pays more attention to the availability of jobs to reduce unemployment in North Sumatra Province. Then for further researchers regarding the topic of poverty, it is suggested to conduct a study by adding other variables such as regional spending, GRDP, health, and education.

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