

Analysis of Poverty, Regional Tax and Economic Growth on HDI District/City in North Sumatra

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Abstract: This study aims to analyze Poverty, Regional Taxes and Economic Growth on HDI District/City In North Sumatra. The analytical model used in this study is panel data analysis using time series data from 2013 to 2016 while the cross section data is 33 District/City in North Sumatra. From the estimation results show that poverty has a negative influence on HDI, regional taxes have a positive influence on HDI and economic growth has a positive influence on HDI. This means that an increase in poverty will comply with the HDI, and an increase in regional taxes and economic growth will increase the HDI of District/City in North Sumatra.

1 INTRODUCTION

The development paradigm that is currently developing is economic growth as measured by human development, seen by the level of quality of human life in each country. One of the benchmarks used in looking at the quality of human life is the Human Development Index (HDI) which is measured by the quality of education, health and economic levels (purchasing power). Through the improvement of these three indicators, it is expected that there will be an increase in the quality of human life. This is due to the existence of individual heterogeneity, geographic disparity and the diverse social conditions of the community, causing income levels to no longer be the main benchmark in calculating the success rate of development (Ananta, 2013).

Placing human development as the ultimate goal of the development process is expected to create opportunities that directly contribute to efforts to expand and improve human capabilities and the quality of their lives, among others, through improving health services, basic education and social security (Sen, 1999). The government as the executor of development certainly requires quality human capital as the basic capital of development. To produce quality human beings, efforts are needed to improve their human resources. The human

quality can be measured through the human development index.

Regional tax is a financial source that comes from the community in an area that will be used to finance the needs of an area. The size of the tax paid depends on the population and the potential of the community in improving the economy. One way to improve the economy is to improve the quality of human resources as measured by the Human Development Index (HDI). The higher the HDI in an area, the more advanced the quality of human resources which results in an increase in the potential of the community in increasing their economy which results in an increase in local taxes as a result of economic activities. This is in line with the research conducted by Fatmasari (2015) and Saragih (2018) which states that regional taxes have a significant effect on increasing the HDI value.

Economic growth is something that is often associated with human development. The increase in economic growth can enable increased output and income in the future so that it will increase the HDI. One of the most important development tasks is to translate economic growth into an increase in human development. Human development or the quality of Human Resources (HR) is very important, efforts to improve the quality of human resources in development have become a necessity. Good quality of human resources in a region has a role in

determining the success of management development in the region (Putra, 2015).

Poverty will prevent individuals from consuming nutritious nutrition, get proper education and enjoy the environment that supports healthy living. From an economic point of view all of them will produce less qualified human resources, or can be said to have a low level of productivity. So that in development this will affect the level of human development in an area. This is consistent with the research conducted by Mirza (2012) which states that poverty has a negative effect on the Human Development Index. This means that if the poverty level rises, the HDI falls.

When viewed from the condition of North Sumatra, the increase in Regional Taxes, GDRB was followed by an increase in the Human Development Index (HDI) but the poverty rate even increased in 2015. The following are GDRB data, poverty rates and HDI in North Sumatra from 2013 - 2016.

Table 1: Regional Tax Data, GDRB and Poverty in North Sumatra

Years	GDRB (Rp)	Poverty (Person)	Regional Tax (Rp)	HDI (%)
2013	469464020000	1416400	1937261087	68.36
2014	521954950000	1360600	2050583195	68.87
2015	571722010000	1508140	2290986197	69.51
2016	628394160000	1452550	2407715357	70.00

Source: Central Statistics Agency (CSA)

If seen from the table above, the increase in regional taxes from 2013 - 2016 was followed by an increase in GDRB and HDI. This was not followed by a decrease in the number of poor people. In 2014 to 2015 the number of poor people increased from 1360610 to 1508140.

Based on the data and description above regarding the human development index, economic growth, poverty and local / regency / city tax in North Sumatra, the authors are motivated to conduct further research under the title Poverty Analysis, Economic Growth and Regional Taxes on Regency / City Economic Growth in North Sumatra ".

2 THEORICAL FRAMEWORK

Human Development Index (HDI)

The basic idea underlying this index is the importance of paying attention to the quality of human resources. HDI has played two key roles in the field of economic development implemented: 1) as a tool for popularizing human development as a

new understanding of welfare, and 2) as an alternative to per capita GDP as a way to measure the level of development for comparison between countries and time (Elizabeth, 2007). To find out the quality of life or welfare of the community, the United Nations has determined the Human Development Index (HDI) or Human Development Index (HDI), which is a measure of human development standards. This index is formed based on four indicators namely: 1). life expectancy, 2). literacy rates, 3). average school years and 4). purchasing power. Life expectancy indicators represent the dimensions of longevity and health (health dimensions), while indicators of literacy and school length reflect the output of the knowledge dimension (education dimension). The indicators of purchasing power ability (income) are used to measure the dimensions of decent life (UNDP, 2004).

Poverty

Etymologically, "poverty" comes from the word "poor" which means it is not material and is inadequate. The Central Bureau of Statistics defines as the inability of individuals to meet the minimum basic needs for decent living (BPS, 2016) further stated that poverty is a condition that is below the standard line of minimum needs, both for food and non-food called the poverty line or also called a limit poverty. According to (World Bank, 2004) one of the causes of poverty is due to lack of income and assets to meet basic needs such as food, clothing, housing, acceptable levels of health and education. In addition, poverty is also related to limited employment and usually those who are categorized as poor do not have jobs (unemployment), and their education and health levels are generally inadequate. The measure of poverty is not only living in food shortages and low income levels, but looking at the level of health, education and fair treatment before the law and so on (Adisasmita, 2005).

Economic Growth

In general, economic growth is defined as increasing the ability of an economy to produce goods and services. Economic growth shows the extent to which economic activity will generate additional income for the community in a given period. Because basically economic activity is a process of using production factors to produce output, then this process will in turn result in a return of service to the factors of production owned by the community. With the economic growth, it is expected that people's income as the owner of production factors will also increase (Sukirno, 2006: 423). According to Kuznets economic growth is a long-term increase in the ability of a country to provide more and more

types of economic goods to its population; this ability grows according to technological progress, and institutional and ideological adjustments that are needed (Jhingan, 2010: 57).

Thus it can be concluded that developments in economic activities are characterized by an increase in the output of goods and services which impacts on the increase in per capita income.

Economic growth is an increase in the output of society caused by the increasing number of production factors used in the production process, without any change in "technology" production itself, for example an increase in output caused by the growth of capital stock or the addition of production factors without changes in technology long production (Arsyad, 2010).

The concept of calculating economic growth in a period is:

$$G_t = \frac{(PDRB_t - PDRB_{t-1})}{PDRB_{t-1}}$$

Where:

G_t = period t economic growth (quarterly or annual)

$PDRB_t$ = Real Gross Domestic Product period t (based on constant prices)

$PDRB_{t-1}$ = PDRB one previous period

Local tax

Regional Regional Tax is a mandatory fee carried out by an individual or regional head body without balanced direct compensation, which can be forced based on applicable laws and regulations and used to finance the administration and regional development (Prakosa, 2005). Measuring the success of regional development in increasing the value of HDI, the amount of PAB acquisition is one of the factors used to see the successful implementation of regional autonomy. PAD was chosen as one of the influential factors, because this research was shown to look at the financial performance of local governments in supporting the implementation of regional development. Regional taxes which act as regional revenues will then determine the size of the PAB acquisition and are used to support government expenditures, one of which is shown to improve social welfare. The effect of PAD on HDI will then again affect the receipt of regional retribution. In addition, the changes that occur in the GRDP value will again affect the value of regional taxes, regional levies and regional profits which act as sources of regional revenue. From the explanation, it can be concluded that there is a causal relationship between regional revenue and the implementation of regional development.

Effect of Poverty on the Human Development Index (HDI)

The new growth theory emphasizes the importance of the role of government, especially in improving HDI and encouraging research and development to improve human productivity. The reality can be seen by investing in education will be able to improve the quality of human resources as shown by the increase in one's knowledge and skills. The higher the level of education of a person, then the knowledge and expertise will increase so that it will encourage an increase in work productivity. Companies will get more results by hiring workers with high productivity, so the company will also provide higher salaries to those concerned. In the informal sector such as agriculture, increasing the skills and expertise of the workforce will be able to increase agricultural output, because skilled workers are able to work more efficiently. In the end someone who has high productivity will get better welfare, which is shown through increased income and consumption. The low productivity of the poor can be caused by their low access to education (Rasidin and Bonar, 2004).

The Effect of Economic Growth on the Human Development Index (HDI)

The relationship between economic growth and human development is influenced by 2 (two) main lines, namely the path of household activities, including households and various community organizations, as well as shopping channels and government policies. Household activities contribute greatly to improving human development indicators through household spending on food, clean water, health care and schools (UNDP, 1996). The tendency of household activities to spend a number of factors that directly reduce human beings. Vice versa, the relatively high level of income tends to increase household spending to increase human development (Ananta, 2013).

Economic growth provides direct benefits for increasing human development through increasing income. Increased income will increase the allocation of household spending for more nutritious food and education, especially for poor households (Ranis, 2004).

Regional Tax Effects on the Human Development Index

The decentralization policy is aimed at realizing regional independence, autonomous regional governments have the authority to regulate and manage the interests of local communities according to their own initiatives based on community

aspirations (Law No. 34/2004). The ability of regions to provide funding originating from the regions is highly dependent on the ability to realize these economic potentials into forms of economic activity that are capable of creating revolving funds for sustainable regional development (Darwanto and Yustikasari in Setyowati and Suparwati, 2012).

PAD is the most important source of financing in supporting regional capacity in carrying out regional autonomy. In this context, PAD as a measure of regional own income is highly expected as a source of funding for improving services to the community (Abdullah and Solichin, in (Setyowati and Suparwati, 2012).

3 RESEARCH METHOD

This study examines the analysis of poverty, regional tax and economic growth in the Regency / City Human Development Index in North Sumatra during the period of 2013 to 2016. It always leads to increased income. This is because the resources generated by economic growth cannot be used to promote the improvement of other indicators. In addition, the structure and processes that occur in the community cannot benefit the poor. For example, various increases in yields only benefit landowners and not laborers. However, the condition can change. The poor can get multiple benefits from income growth and increasing HDI if the government wants to use the benefits of growth to finance health services and access to education for the poor. In addition, the structure and processes that exist in the community are appropriate, so that the benefits of economic growth are also enjoyed by the poor. According to the World Development Report, progress in both fields is mutually reinforcing each other and one without the other is not enough (Kanbur and Squire, 1999).

Types and Data Sources

The data in this study are secondary data obtained from the North Sumatra Central Bureau of Statistics which is panel data consisting of time series data during the period 2013-2016 and cross section data consisting of 33 regencies / cities in North Sumatra.

Analysis Method

In the model data panel model equation with a combination of time series and cross section, the model can be written with:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 X_{it} + \beta_3 X_{it} + \mu_{it}$$

Information:

Y	= Human Development Index (HDI)
X1	= Poverty
X2	= Regional Tax
X3	= Economic Growth
β_0	= intercept
$\beta_1, \beta_0, \beta_3$	= independent variable regression coefficient
μ_{it}	= error component at time t unit cross section i
i	= 1, 2, 3, ..., 33 (district / city cross section data in North Sumatra)
t	= 1, 2, 3, 4 (time series data, 2013 - 2016)

There are three tests that can be used as a tool in choosing a panel data regression model (Common Effect Model, Fixed Effect Mode, and Random Effect Model) based on the characteristics they have, namely: F Test (Chow Test), Hausman Test and Lagrange Multiplier Model .

- a. F Test (Chow Test)

It is done to choose which model is the most appropriate between the Common Effect Model and the Fixed Effect Model. The basis of the hypothesis is obtained by comparing the probability values of Cross-Section Chi-Square. If the Probability value < 0.05 , Fixed Effect Model is more appropriate to use than the Common Effect Model. Whereas if the Probability value > 0.05 then the Common Effect Model is more appropriate to use than the Fixed Effect Model.
- b. Hausman Test

Is done to choose whether which model is the most appropriate between Fixed Effect Model or Random Effect Model. If the Probability of Cross-Section Random < 0.05 , Fixed Effect Model is more appropriate than the Random Effect Model. Whereas if the Probability value > 0.05 then Random Effect Model is more appropriate to use than the Fixed Effect Model.
- c. Lagrange Multiplier Model

If the Chow Test model chosen is the Common Effect Model while the Hausman Test model is chosen by Random Effect Model, then to determine which model is the most appropriate between Common Effect Model or Random Effect Model, the Lagrange Multiplier Model is tested. The method used is Pagan Breusch. If the P value is < 0.05 , the best estimation method is the Random Effect Model. If the P value is > 0.05 , the best estimation method is the Common Effect Model.

Testing of Classical Assumptions

- a. Multicollinearity Test
The multicollinearity test aims to test whether the panel regression model found a correlation between independent variables. A good model is a model that does not have a correlation between the independent variables. To test the problem of multicollinearity can be seen from the correlation coefficient of more than 0.80, there is multicollinearity (Gujarati, 2006). Uji Heterokedastisitas
- b. Uji heterokedasticity
Used to see whether the residuals of the model formed have a constant variance or not. A good model is a model that does not occur heterocedasticity. The heterocedasticity test used in this study used the Glejser Test. The Glejser test regresses the independent variables to absolute residuals. The Glejser test only applies to the Fixed Effect Model. Glejser Test Results can be seen from the Probability value. If the P value is < 0.05, there is heterocedasticity. Conversely, if P value > 0.05, it is free from violations of the assumption of heterocedasticity.
- c. Normality test.
The normality test aims to test whether in the regression model the panels are normally distributed or not. A good regression model is to have normal data distribution. This can be seen by comparing the value of Probability Jarque - Bera (JB). If P value JB > 0.05 then the data is normally distributed. Conversely, if P value JB < 0.05, the data is not normally distributed.

Hypothesis test

- a. T test
The t test is used to test the independent variables on the dependent variable partially. This can be known from the prob value t count. If the prob value is < 0.05, the hypothesis is accepted. Conversely, if the Prob value is > 0.05, the hypothesis is rejected.
- b. F test
The F test is used to test the relationship of independent variables to the dependent variable simultaneously. This can be known from the prob value F count. If the prob value is < 0.05, the hypothesis is accepted. Conversely, if the Prob value is > 0.05, the hypothesis is rejected.
- c. Coeficient Determinan (R²)
The coefficient of determination is used to see how much influence the independent variables

have on the dependent variable. The coefficient of determination is determined by the adjusted R-Square value. Table 2

4 RESULT AND DISCUSSION

Table 2: Panel Data Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.687909	0.048541	75.97551	0.0000
Log(Poverty)	-0.097306	0.009664	-10.06939	0.0000
Log(GDP)	0.073514	0.007612	9.658163	0.0000
Log(Regional Tax)	0.013555	0.004713	2.876176	0.0047
R-squared	0.613785	Mean dependent var		4.217612
Adjusted R-squared	0.604662	S.D. dependent var		0.073225
S.E. of regression	0.046041	Akaike info criterion		-3.288525
Sum squared resid	0.269207	Schwarz criterion		-3.200733
Log likelihood	219.3984	Hannan-Quinn criter.		-3.252851
F-statistic	67.27757	Durbin-Watson stat		0.088255
Prob(F-statistic)	0.000000			

From the table of estimation results, the regression equation in this study is made as follows:

$$Y_{it} = 3.687909 - 0.097306 X_{it} + 0.073514 X_{it} + 0.013555 X_{it} + \mu_{it}$$

From the above equation, it can be explained as follows:

- a. The constant value is 3.687909, meaning that if Poverty, Economic Growth and Regional Taxes increase, the HDI will increase by 3.69%. Nilai $\beta_1 = -0.097306$, meaning that if the Poverty variable rises by 1% while the Economic Growth and Regional Tax variables remain then HDI decreases by 9.7306% Sign (-) shows there is a contradictory relationship between Poverty and HDI. If poverty increases, the HDI will drop.
- b. The value of $\beta_2 = 0.073514$, meaning that if the Economic Growth variable rises by 1% while the Poverty and Regional Tax variables remain then HDI increases by 7.3514% Signs (+) indicate that there is a unidirectional relationship between Economic Growth and HDI. If Economic Growth rises, the HDI will rise.
- c. The value of $\beta_3 = 0.013555$, meaning that if the Regional Tax variable rises by 1% while the Poverty and Economic Growth variables remain then the HDI increases by 1.3555% Signs (+) indicates that there is a unidirectional

relationship between Regional Taxes and HDI. If the Regional Tax increases, the HDI will rise.

Test Panel Data Model

a. Chow Test

Table 3: Chow Test Result

Effects Test	Statistic	d.f.	Prob.
Cross-section F	583.158537	(32,95)	0.0000
Cross-section Chi-square	692.386875	32	0.0000

From the table it can be seen that the probability value of the Chi-Square cross-section is 0,000 <0,05, so it is concluded that the Fixed Effect Model is more appropriate to use than the Common Effect.

b. Hausman Test

Table 4: Hausman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	209.276642	3	0.0000

From the table it can be seen that the probability value of the cross-section random is 0,000 <0,05, so it is concluded that Fixed Effect Model is more appropriate to use than Random Effect.

Classic assumption test

a. Multicollinearity Test

Table 5: Multicollinearity Test Result

	log(p eko)	Log(paja k daerah)	log(kemiski nan)
log(GDRP)	1	0.4029351	0.3068735
log(Regional Tax)	0.4029351	1	0.5091601
log(Proverty)	0.3068735	0.5091601	1

If the value of the independent variable is < 0.80, there is no multicollinearity between independent variables.

b. Heteroscedasticity Test

Table 6: Heteroscedasticity Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.48428	8.378710	1.490001	0.1395
Log(GDRP)	-1.103073	1.025723	-1.075410	0.2849
Log(Regional Tax)	-0.043890	0.095112	-0.461459	0.6455
Log(Proverty)	-1.009355	1.435608	-0.703085	0.4837

From the table above it can be seen, the probability value of the independent variable > 0.05

is free from violations of the assumption of heteroscedasticity.

c. Normality test

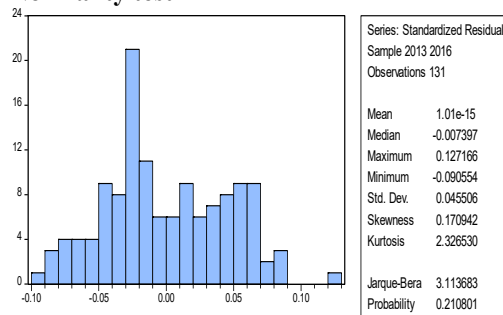


Figure 1: Normality Test Result

From the table it is known that the Jarque-Bera Probability value is equal to 0.210801 where it is greater than 0.05 so it is concluded that the data is normally distributed.

Hypothesis testing

a. T test

From the results of testing the data obtained the value of Prob (t-statistic) α is equal to 0.0000 <0.05 for the poverty variable. Thus the poverty variable has a negative and significant influence on the District / City HDI in North Sumatra. So, the higher the poverty, the lower the HDI Regency / City in North Sumatra will be. The value of the Prob (t-statistic) Economic Growth variable is 0.0000 <0.05. With the value of the Prob (t-statistic) shows that the variable economic growth has a positive and significant effect on HDI. So, the higher the economic growth, the higher the HDI district/city in North Sumatra. The value of the Prob (t-statistic) Regional Tax variable is equal to 0.0047 <0.05. With the Prob value (t-statistic) it shows that the regional tax variable has a positive and significant effect on HDI. So, the higher the regional tax, the higher the HDI district / city in North Sumatra.

b. F test

The F test is used to test the relationship of independent variables to the dependent variable simultaneously. From the results of testing the data obtained the value of Prob (F-Statistics) α that is equal to 0.000000 <0.05. Then the two independent variables, namely poverty, economic growth and local taxes jointly influence the HDI District / City in North Sumatra.

c. Determinant Coefficient (R2)

The coefficient of determination is used to see how much influence the independent variables have on the dependent variable. The coefficient of determination is determined by the adjusted R-

Square value. Based on the estimation results obtained the value of R-Squared is equal to. This shows that the variables of poverty, regional tax and economic growth are able to explain the HDI variable of 61.3785%. While the remaining 38.6215% is influenced by other variables not used in this study.

5 CONCLUSIONS

Based on the results of the analysis and discussion that has been conducted, the conclusions can be taken as follows:

1. Partially, Poverty has a negative and significant effect on HDI District / City in North Sumatra.
2. Partially, Economic Growth has a positive and significant effect on District / City HDI in North Sumatra.
3. Partially, Regional Taxes have a positive and significant effect on District / City HDI in North Sumatra.
4. Poverty, Economic Growth and Regional Tax simultaneously have a positive and significant effect on HDI District / City in North Sumatra

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