International Journal Of Accounting & Finance in Asia Pasific
IJAFAP

Effect of Education Levels on North Sumatra Economy

Hastina Febriaty[1], Murviana Koto[2], Sri Endang Rahayu[3]
Universitas Muhammadiyah Sumatera Utara
Correspondence Email: hastinafebriaty@umsu.ac.id

ABSTRACT

This study aims to determine the level of high school education (SMU) and Higher Education (PT) on the Economy of North Sumatra and to identify the effect of the level of education on the economy in North Sumatra. This type of research is a descriptive study, while the approach used is a quantitative approach with a sample of GRDP data and the Labor Force over 15 years with high school education levels (SMU) and Higher Education (PT) from 2000-2017. The type of data used is secondary data obtained from the Central Statistics Agency. The analysis technique used is the multiple linear regression analysis (OLS) method.

The results of this study indicate that partially the level of high school education (SMA) has a positive and not significant effect on the Economy of North Sumatra and the level of education of the University (PT) has a positive and significant effect on the Economy of North Sumatra while simultaneously the level of high school education (SMU) and Higher Education (PT) has a positive and significant impact on the Economy of North Sumatra.

Keywords: High school education level, High School, Economic Growth.

Introduction

One indicator of the success of regional economic development is the occurrence of economic growth where an increase in community income. Economic development in a region cannot be separated from economic growth (Economic Growth), where economic development encourages economic growth and vice versa economic growth accelerates the economic development of a country or region. The economy is said to experience growth if the production of goods and services increases from the previous year. Thus, economic growth shows the extent to which economic activity can generate additional income or welfare for the community in a certain period. In general, economic growth can be interpreted as a fiscal development in the production of 2 goods and services that apply in a country (Sukirno, 2008). According to Sukirno (2006), economic growth is defined as the development of activities in the economy that causes goods and services produced in the community to increase and the prosperity of the community to increase. So economic growth measures the achievements of an economic development. From one period to another the ability of a country to produce goods and services will increase. This increased capability is due to the increase in production factors both in quantity and quality. One of them is a factor human resources (HR) that can compete with overseas human resources in the future.

Education is one of the important things in life today. Success can be achieved through education, and without education we will become people who are left behind. With education we can make our regions much better, even with education we can make Indonesia a more developed country in the future.

The Indonesian government is very concerned about the education sector. This can be seen in the state budget in the education sector which reaches 20%. The regional budget (APBD) also requires to spend 20% to develop the education sector in each region. The Regional Government of North Sumatra has even allocated more than 20% of its APBD to develop the education sector in North Sumatra.

However, the size of the budget spent by North Sumatra has not been matched by a drop in the number of children dropping out of school. In North Sumatra although the education allocation has reached more than 20%, the number of children dropping out of school in North Sumatra in 2017 touched 13,703 students. According to the North Sumatra Governor's LKPJ book at the end of the 2017 fiscal year, the number of children dropping out of school with a distribution at the elementary level was 5,199 students, at the junior high level was 5,003, and

the high school level was 3,501 students. The number is a very large number and very alarming for the world of education in North Sumatra. Coupled with the decline in the percentage of the Labor Force aged 15 years and over with the highest education completed for high school and vocational school in 2016 by 36.28 lower compared to the previous year 2015 of 37.59 (BPS North Sumatra, 2017). The regional government must pay more attention to the education sector and develop education in North Sumatra. Building a good education sector will make North Sumatra better.

Building the education sector does require the role of various parties. Both the role of government and the role of parents. All have the same important duties and responsibilities to make education in North Sumatra better. The government is fully responsible for providing quality education to its people from an early age to tertiary education.

Quality education is not only available in the cities of North Sumatra, but also in remote areas. With the even distribution of quality education throughout North Sumatra, it will greatly change education in the province. According to the North Sumatra Central Statistics Agency data which was last updated on 30 August 2018, the number of schools in Pakpak Bharat Regency was only 5 schools. This number is very different from the number of schools in other districts in North Sumatra. School equity and quality must be improved to all regions in North Sumatra, so that students continue to attend school and do not need to go to other areas to get proper education. If quality education reaches remote areas, surely parents will be lighter in their burden of sending their children to school. Children in the village also get more enthusiasm for learning and prove that the quality in the village is not inferior to the quality of schools in the city.

Then, the participation of parents must be increased by building awareness to parents that their children's education is far more important, than their children must earn money at an early age. Indeed, the educational process is carried out with various stages of a long process, but the success obtained after going through the educational process is much longer, even that success can be felt to the next generation and beyond.

The success of the educational process can not only be felt by each individual, but also to the area where he lives. If in an area there are children who are well educated with all kinds of expertise, then the area will naturally progress. The area will have quality human resources, who are native sons and daughters of their own region. Let's embed the importance of education for every child in North Sumatra, so they can change North Sumatra and even change Indonesia for the better.

Based on the background above, the purpose of this study is to determine the effect of education levels on the economy of North Sumatra.

THEORITICAL REVIEW

Economic growth means the development of fiscal production of goods and services prevailing in a country, such as the increase and the amount of production of industrial goods, the development of infrastructure, the increase in the number of schools, the increase in the production of service sectors and the increase in the production of capital goods. To provide a rough picture of the economic growth achieved by a country, a measure that is always used is the level of real national income growth achieved (Sukirno, 2011: 423).

Economic growth as an increase in GDP / GNP regardless of whether the increase is greater or smaller than population growth, or whether there is a change in economic structure or not. Rapid economic growth continues to enable developed industrial countries to provide everything more to their citizens, more resources for health care and pollution control, universal education for children, and public pensions (Subandi, 2011)

GRDP is the total value of goods and services produced in a particular region or region and within a certain period of time is usually one year. The high level of economic growth as indicated by the high value of GDP shows that the region is experiencing progress in the economy. Gross Regional Domestic Product (GRDP) according to the Central Statistics Agency (BPS) is defined as the amount of added value generated by all business units in an area, or is the sum of the total value of goods and final services produced by all economic units in an area. Gross Regional Domestic Products at current prices reflect the added value of goods and services calculated using prices at each year, while Gross Regional Domestic Products at

constant prices show value added goods and services that are calculated using prices at a certain year (Sukirno, 2004).

Education According to Law No. 20 of 2003, education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have spiritual spiritual strength, self-control, personality, intelligence, noble character and skills needed by themselves, society and the State. Education is the process of forming the fundamental abilities intellectually and emotionally towards nature and fellow humans (Wikipedia, 2013). According to Ki Hajar Dewantara (http://belajarpsikologi.com) guide all natural forces that exist in children, so that they as humans and as members of the community can achieve the highest safety and happiness. According to Mulyadi (2008), education is one form of investment in human resources, because education is expected to overcome economic backwardness through its effects on human improvement and human motivation to excel and eventually will improve their income so that they can improve their standard of living.

The role of education in economic growth will involve schools as institutions that prepare quality human capital. With the creation of quality human resources or graduates who are smart, skilled and ready to work graduates so they are ready to enter the job market. Absorption of graduates who are the output of schools will increase economic growth through the creation of added value to goods and services. Some factors that cause the need to develop the level of education in an effort to build an economy, are: 1). Higher education expands people's knowledge and enhances the rationality of their thinking. This allows the community to take more rational steps in acting or making decisions, 2). education enables people to learn the technical knowledge needed to lead and run modern companies and other modern activities and 3). better knowledge gained from education becomes a stimulus to create innovations in the fields of engineering, economics and in various other aspects of community life.

The Relationship Between Education Level and Economic Growth No country can achieve sustainable economic development without substantial human capital investment. Education enriches the understanding of humans and the world. Education also improves the quality of human life and broader social benefits for both individuals and society. Education increases the productivity and creativity of the workforce as well as increasing entrepreneurship and technological progress. In fact, education plays an important role in saving social and economic progress and increasing income distribution (Ozturk in Riswandi, 2009).

Education plays a major role in shaping the ability of a developing country to create new knowledge, absorb modern technology, give birth to experts and develop capacity to create sustainable growth and development. Theories relating to education and economic growth are the Theory of Human Capital. In this theory it states that education has a positive influence on economic growth. If someone with a higher level of education, and the length of time in education will have a better job and wage compared to lower education. If the wages of workers reflect productivity, the more the population has higher education, the higher the productivity and national economy will grow well (Simanjuntak in Indrasari, 2009).

Level of Education and Economic Growth In human capital theory, human capital is one capital that can be equated with physical capital and natural resources in creating output in a region. The higher level of education achieved by a person, the productivity of that person will be higher as well. Thus, increasing human capital is very strategic in improving the economy in a region. Improving the quality of human resources cannot be done in a short time. This is due to the calculation of the rate of return of the investment in human resources produced. If the resulting rate of return is good, then the investment in human resources is considered beneficial and produces quality resources. In measuring the quality of human resources there are several indicators that can be used, one of which is by looking at RLS (Average Old School Age). RLS is the average number of years spent productive population to take formal education. In accordance with UNDP standards, the minimum limit for RLS of an area is 15 years or the equivalent level of diploma and / or university. Therefore it is necessary to improve the quality of human resources in the regions of North Sumatra in order to spur economic growth in North Sumatra.

International Journal Of Accounting & Finance in Asia Pasific
IJAFAP

The conceptual framework in this study is

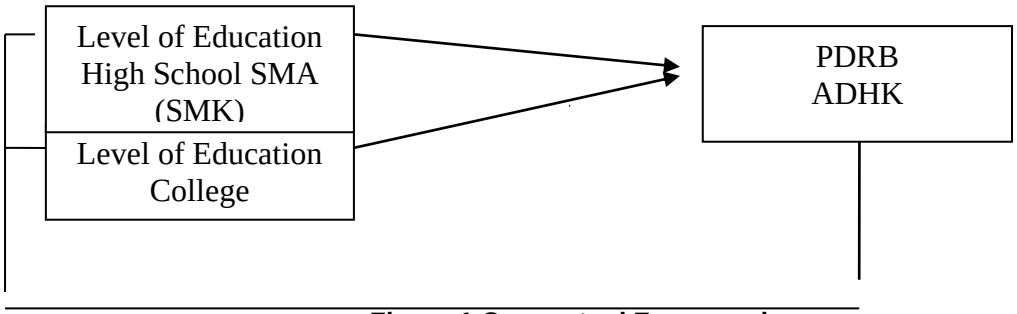


Figure 1 Conceptual Framework

METHOD

The method in this study, the type of research used by the author is descriptive quantitative research, which is to determine the effect of two variables namely the variable level of education with the variable Gross Regional Domestic Product. The study design was used to show how much influence education (X) had on North Sumatra's GRDP (Y). The population or object in this study is the level of education and North Sumatra GRDP, while the sample used is the level of education and GRDP in North Sumatra from 2000 to 2017. Types of data used in this study are secondary data with time series form from 2000- 2017 and the source of the data used was obtained from the Central Statistics Agency (BPS) of North Sumatra city of Medan. While the data collection method used in this study is the documentation method, which is a way to collect data through written documents, mainly in the form of archives and also includes certain books, opinions, theories, or law and others related to research problems. In this study the data analysis technique used is descriptive analysis and simple regression analysis. Descriptive analysis aims to explain the state of education level variables and North Sumatra GRDP in 2000 to 2017. While the regression analysis is used to calculate the magnitude of the influence of education level variables on North Sumatra GRDP using the help of the statistical program Eviews version 10.0. The steps of multiple linear regression analysis are performed, namely the classic assumption test consisting of normality test, heteroscedasticity test, autocorrelation test, and multicollinearity test. While the next hypothesis test consisting of t test, F test and R^2.

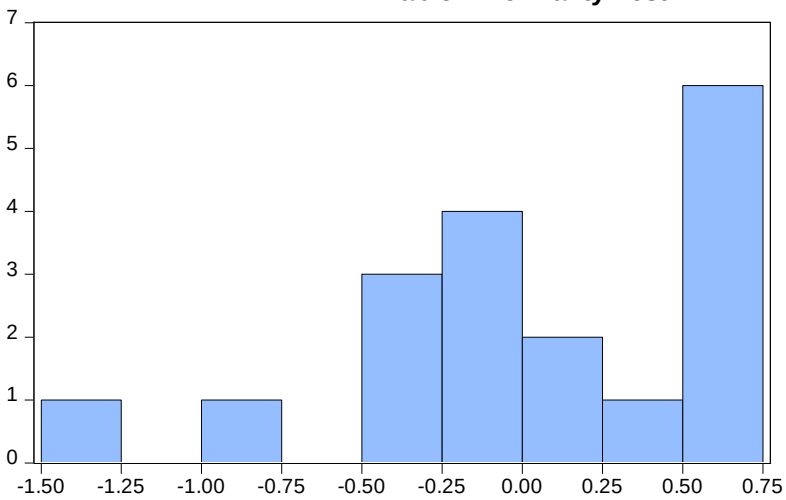
RESULTS AND DISCUSSION

Classical Assumption Testing Results

Normality test

The normality test referred to in the classic assumption of the OLS approach is the residual (data) formed by the linear regression model normally distributed, not the independent variable or the dependent variable. Testing of residuals is normally distributed or cannot use the Jarque-fallow test.

Table 1 Normality Test



Series: Residuals	
Sample 2000 2017	
Observations 18	
Mean	-2.38e-15
Median	-0.005394
Maximum	0.617474
Minimum	-1.297584
Std. Dev.	0.564897
Skewness	-0.689733
Kurtosis	2.721318
Jarque-Bera	1.485444
Probability	0.475817

Source: Data processed

Decisions are normally distributed whether or not residuals are simple by comparing the JB Probability (Jarque-Bera) count with an alpha level of 0.05 (5%). If Prob. JB count is greater than 0.05, it can be concluded that the residuals are normally distributed and vice versa, if the value is smaller then there is not enough evidence to state that the residuals are normally distributed. Prob value JB count is 0.475817 > 0.05 so it can be concluded that the residuals are normally distributed which means the classical assumptions about normalcy have been fulfilled.

b. Heterokedastisitas

Heteroscedasticity occurs when residuals and predictive values have correlations or relationship patterns. This pattern of relationship is not only limited to a linear relationship, but in a different pattern it is also possible. Therefore there are several heteroscedasticity test methods, one of which is the Glejser method.

Table 2 Heterokedasticity Test

Heteroskedasticity Test: Glejser

F-statistic	8.064730	Prob. F(2,15)	0.0642
Obs*R-squared	9.326544	Prob. Chi-Square(2)	0.0694
Scaled explained SS	6.389651	Prob. Chi-Square(2)	0.0410

Source: Data processed

The decision whether or not heteroscedasticity occurs in the linear regression model is by looking at the Prob Value. F-statistics (F arithmetic). If the value of Prob. F count is greater than the alpha level of 0.05 (5%) then H0 is accepted, which means there is no heteroscedasticity, whereas if the Prob value. F count is smaller than alpha level 0.05 (5%) then H0 is rejected, which means heteroscedasticity occurs. Prob value F count of 0.0642 is greater than the alpha level of 0.05 (5%) so that, based on hypothesis testing, H0 is accepted, which means that there is no heteroscedasticity.

c. Multicollinearity

Multicollinearity test to test whether the regression model found a correlation between independent variables by looking at the value of variance inflation (VIF) and tolerance value. If the tolerance value <0.10 or VIF> 10, there will be multicollinearity, conversely if tolerance> 0.10 or VIF value <10, there will be no multicollinearity. The multicollinearity test in this study can be seen in Table 4.4 below

Table 3: Multicollinearity Test

Variance Inflation Factors
Date: 05/23/19 Time: 12:39
Sample: 2000 2017
Included observations: 18

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	4.037778	200.9643	NA
LOG(SMA_SMK)	0.555648	314.6957	6.137881
LOG(PT)	0.112886	20.85574	6.137881

Source: Data processed

Multicollinearity test results, can be seen in the Centered VIF column table. VIF value for high school / vocational and PT (Higher Education) education level variables is 6.137881. Because the VIF value of the two variables is not greater than 10, it can be said that there is no multicollinearity in the three independent variables. Based on the classic assumptions of linear regression with OLS, a good linear regression model is free from multicollinearity. Thus, the above model has been freed from the existence of multicollinearity.

d. Autocorrelation

The data used to estimate the linear regression model is a time series data so it is necessary to assume autocorrelation free. To determine whether the linear regression model is free from autocorrelation, it can use the Brusch-Godfrey or LM (Lagrange Multiplier) Test method.

Table 4 Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.464438	Prob. F(2,13)	0.2669
Obs*R-squared	3.309697	Prob. Chi-Square(2)	0.1911

Source: Data processed

Prob value F (2.13) of 0.2669 can also be called the calculated F probability value. Prob value F count is greater than the alpha level of 0.05 (5%) so that, based on hypothesis testing, H0 is accepted, which means that there is no autocorrelation. Conversely, if the value of Prob. F arithmetic smaller than 0.05, it can be concluded that autocorrelation occurred.

Hypothesis Test Results

Hypothesis testing aims to determine the effect of the level of high school education (SMK) and Higher Education on the Economy in North Sumatra.

Test Results t

T test in multiple linear regression is intended to test whether the parameters (regression coefficients and constants) which are thought to estimate equations / models of multiple linear regression are the right parameters or not. The precise purpose here is that the parameter is able to explain the behavior of the independent variable in influencing the dependent variable.

Table 5 One Way Anova (Regression Results)

Dependent Variable: LOG(PDRB_ADHK)
Method: Least Squares
Date: 05/23/19 Time: 12:39
Sample: 2000 2017
Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	9.969861	2.009422	4.961556	0.0002
LOG(SMA_SMK)	0.141527	0.745418	0.189863	0.8520
LOG(PT)	0.850678	0.335986	2.531886	0.0230

R-squared	0.749862	Mean dependent var	11.81942
Adjusted R-squared	0.716510	S.D. dependent var	1.129482
S.E. of regression	0.601379	Akaike info criterion	1.971828
Sum squared resid	5.424846	Schwarz criterion	2.120223
Log likelihood	-14.74645	Hannan-Quinn criter.	1.992290
F-statistic	22.48343	Durbin-Watson stat	1.131605
Prob(F-statistic)	0.000031		

Source: Data processed

a. High School Education Level

From the regression results, the coefficient value for the variable level of high school education (SMK) is 0.141527 where the variable has no significant effect on the North Sumatra GRDP. This is indicated by the value of t_count = 0.189863 and the probability value of 0.8520 (above α = 5% or 0.05). This shows that the relationship between the level of high school education (SMK) and GRDP has a positive and not significant effect. So it can be said that if the workforce over 15 years who graduated from high school (SMK) is increasing, the Gross Regional Domestic Product (GRDP) will also increase. Therefore the road infrastructure variable is proven to have a positive and insignificant effect on the GRDP, the hypothesis (H1) is rejected.

b. College Education Level (PT)

From the regression results, the coefficient value for the PT variable is 0.850678 where the variable has a significant effect on the North Sumatra GRDP. This is indicated by the value of t_count = 2.531886 and a probability value of 0.0230 (below = 5% or 0.05). This shows that the relationship between college education level with GRDP is positive and significant. So it can be said that if the workforce over 15 years graduating from PT (Higher Education) is increasing, the Gross Regional Domestic Product (GRDP) of North Sumatra will also increase, then the hypothesis (H2) is accepted.

F test

F test results can be seen in table 5 above. Prob value F (Statistic) of 0.000031 is smaller than the 0.05 significance level so that it can be concluded that the estimated regression model is feasible to use to explain the effect of education levels on the economy in North Sumatra. That means the hypothesis (H3) is accepted.

Coefficient of Determination (R-Square)

R-Square value in table 5 above the amount of 0.749862 shows that the proportion of high school (SMK) and PT education levels influences the GRDP variable of 74.98%. This means that the level of high school education (SMK) and PT has a proportion of influence on the economy of North Sumatra of 74.98% while the remaining 25.02% (100% - 74.98%) is influenced by other variables that are not in the regression model.

From the regression results, the regression equation is obtained and will be analyzed as follows:

GRDP = 9,969861 + 0.141527SMA (SMK) + 0.850678PT + μ

From the estimation results obtained can be seen an interpretation of the model or hypothesis taken through the results of this regression, namely:

a. That the variable level of high school education (SMK) has a positive influence on the GRDP of North Sumatra, this is due to the coefficient value of the variable level of high school education (SMK) greater than (<) of α = 5% or 0.05 which is 0.141527. meaning, if the workforce over 15 years who graduated from high school (SMK) is increasing by 1%, the Gross Regional Domestic Product (GRDP) of North Sumatra will also increase by 0.141527%,

b. That the tertiary education level variable (PT) has a positive influence on the North Sumatra GRDP, this is because the PT variable coefficient value is greater than (>) of α = 5% or 0.05 which is 0.850678. meaning, if the workforce over 15 years who graduated from tertiary education is increasing by 1%, the Gross Regional Domestic Product (GRDP) of North Sumatra will also increase by 0.850678%,

DISCUSSION

Effect of Education Level on the Economy of North Sumatra.

Based on the hypothesis testing, it can be seen that the level of education has a positive and not significant effect on the economy of North Sumatra (PDRB of North Sumatra) because that the population aged 15 years and over, including the labor force according to the highest education, namely the level of high school education (SMK) does not greatly affect growth North Sumatra's GRDP is due to the fact that there are still many high school (SMK) graduates in North Sumatra who have not found work. The number of unemployed workers in North Sumatra increased in August 2018, due to the absorption of a smaller workforce compared to the addition of the workforce.

The Central Statistics Agency (BPS) of North Sumatra Province (North Sumatra) noted the unemployment rate in the province increased by 19,000 people or 5.04% over the same period last year, from 377,000 to 396,000 people. The number of the workforce in North Sumatra in August 2018 increased by 381,000 people to 7.12 million people, while the addition of the labor force employed rose 362,000 people to 6.73 million people. Viewed from the level of education, the highest TPT is for Vocational High School (SMK) graduates at 9.65%, followed by the High School level (SMA) by 7.19%. That is, there is an excess supply of labor, especially at the level of vocational and high school education. Vocational School graduates have the highest unemployment rates that have not been accommodated in their work and cannot necessarily be accommodated in employment because there is a lag between the curriculum being studied and the needs of the workforce (sumatera.bisnis.com).

Higher education graduates in North Sumatra have a positive and significant impact on the economy of North Sumatra because industries and companies in North Sumatra use more graduates and college graduates to increase their output and of course will also contribute to North Sumatra's GRDP. This is supported by Rusmini's research (2012) which examines the Relationship between Education Level and Economic Growth in Gresik Regency. The results of this study say the Elementary School Education Level (SD) does not have a significant relationship with economic growth, and for Middle School Education Level (SMP) has a positive and strong relationship with economic growth. For High School Education Level (SMA) has a positive and strong relationship with economic growth. Whereas the Higher Education Level has a positive and very strong relationship with economic growth. The importance of the role of education in regional economic growth in accordance with the opinion of Todaro (2006) states that the Education sector plays a major role in shaping the ability of a developing country to absorb modern technology and develop production capacity to create sustainable growth and development. This research is based on the theory of new economic theories (new growth theory or endogenous growth theory) by Robert Solow. This theory places human capital as a key factor and is considered as the engine of economic growth (engine of growth). Where this shows that human resources that have high quality will increase national output and income, where the quality of education will provide many benefits in accelerating economic growth, namely the management of companies that are developed will be more efficient, mastery of the development of science and technology, increase productivity and improve people's thinking power.

CONCLUSION

Regression / estimation results show that the influence of the education sector influences the economy of North Sumatra by 74.98%. This means that the level of education has a proportion of influence on the economy of North Sumatra of 74.98% while the remaining 25.02% (100% - 74.98%) is influenced by other variables that are not in the regression model. Simultaneously (together) the level of high school education (SMK) and Higher Education (PT) affects the economy of North Sumatra. Partially, the variable level of high school education

(SMK) has a positive and not significant effect on the economy of North Sumatra and the level of education of universities (PT) has a positive and significant effect on the economy of North Sumatra. The suggestion that the writer can give is that the Government should continue to strive to increase GRDP especially in North Sumatra, which in turn can also increase the real income of people in North Sumatra in order to improve their welfare through increasing employment opportunities and opening new industries (companies) so that they can absorb labor more optimally. In order to increase TPT, the government can also provide various educational assistance through scholarships and free education so that more people are able to take high school or even tertiary level education. In maximizing the role of education to improve the economy of North Sumatra, namely by providing skills education in accordance with the world of work to high school and university graduates which can later be directly applied in the world of work so that later it can increase their work productivity.

REFERENCE

Badan Pusat Statistik Sumatera Utara . 2016. Sumut Dalam Angka. Sumut

----------. 2017. Sumut Dalam Angka. Sumut

----------. 2018. Sumut Dalam Angka. Sumut

Mulyadi. 2008. Ekonomi Sumber Daya Manusia dalam Perspektif Pembangunan. Jakarta: PT. Rajawali Pers.

Riswandi. 2009. Hubungan Kausalitas Jangka Panjang Investasi Pendidikan dengan Pertumbuhan Ekonomi: Studi Kasus Provinsi Aceh melalui Analisis Vector Autoregression(VAR).(http://guruindonesia.net/admin/file/f_9235_80_Riswandi_HubunganKausalitasJangkaPanjangInve stasi.doc, diakses tanggal 20 September 2013).

Indrasari, Viki. 2011. Analisis FaktorFaktor Yang Mempengaruhi Pertumbuhan Ekonomi Provinsi Jawa Tengah. (skripsi). Universitas Diponegoro, Semarang.

Rusmini. 2012. Hubungan Tingkat Pendidikan Dengan Pertumbuhan Ekonomi di Kabupaten Gresik. Skripsi dterbitkan. Surabaya: Universitas Negeri Surabaya

Sukirno, Sadono. 2006.MakroEkonomi. Jakarta: Grafindo Persada

Sukirno, Sadono. 2008. MakroEkonomiTeoriPengantarEd isiKetiga. Jakarta: Rajawali Pers

Undang-Undang Republik Indonesia nomor 20 tahun 2003 Tentang Sistem pendidikan nasional

Sukirno, Sadono. 2004. Makroekonomi Teori pengantar. Jakarta: PT. Raja Grafindo persada

Subandi. 2011. “Ekonomi Pembangunan (cetakan kesatu)”. Bandung: Alfabeta

Sukirno, Sadono. 2011. Makro Ekonomi Teori Pengantar, Edisi Ketiga. Jakarta: PT Raja Grafindo Persada.

Todaro, Michael. 2006. Pembangunan Ekonomi di Dunia Ketiga. Edisi Ketiga. Jakarta: Erlangga.

https://sumatra.bisnis.com/read/20181105/533/856696/pengangguran-di-sumut-bertambah-19.000-orang-pada-agustus-2018