The Effect of Education Level and Poverty on Economic Growth in Serdang Bedagai Regency

by Muhammad Fitri Rahmadana

The Effect of Education Level and Poverty on Economic Growth in Serdang Bedagai Regency

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ABSTRACT

Economic growth as a process of increasing output over time is an important indicator to measure the success of a country's development. Economic growth is only influenced by the stock of capital, labor and technology which are exogenous in nature. Economic growth is one indicator of the success of development in an economy. The welfare and progress of an economy is determined by the amount of growth indicated by changes in national output. The existence of a change in output in the economy is a short-term economic analysis. This study aims to analyze how much influence the level of education and poverty has on economic growth in Serdang Bedagai Regency. In measuring and analyzing, time series data were used in the 2008-2019 period. The analysis model used in this study refers to the basic model of multiple linear regression equations with the Engle-Granger Error Correction Model (ECM-EG) method in estimating the short-term relationship between the education level variables, the number of poor people on economic growth. The partial test results can be seen in the estimation obtained through the t test with a significant level $\alpha = 5$ percent. In the short term, the t-statistic and probability for the education level variable t-stat = 0.500677 (prob = 0.6320) indicates that the education level variable has a negative and insignificant effect on economic growth. In the short run, the variable number of poor people with t-stat = 0.668084 and prob = 0. The magnitude of this influence is indicated by the coefficient value of the independent variables, namely: 0.482455 for the economic growth variable, -0.000288 for the human development index variable, 0.091716 for the open unemployment rate variable.

Keywords: Education Level, Number of Poor People, Economic Growth

1. INTRODUCTION

Background

Economic growth in Serdang Bedagai Regency is measured from the PDRB data at constant prices which explain an area to increase or create added value (output) at a certain time. Furthermore, government spending at the regional scale is divided into two types, namely routine expenditures and development expenditures. In general, routine expenditures or development expenditures experience conditions that continue to increase from year to year in the regional budget. This indicates that every year the need for development is enormous. The discussion about government spending is quite interesting for researchers because of the many theories that can be used as references in the discussion.

It is known that the poverty indicator in Serdang Bedagai Regency from 2010 to 2011 decreased by 0.52 percent. In 2012 to 2013 it decreased by 0.40 percent. In 2013 to 2014 it decreased by 0.33 percent. However, in 2014 to 2015 there was an increase of 0.61. Meanwhile, the number of poor people in Serdang Bedagai Regency

was seen from 2010 to 2015. From 2010 to 2011 it decreased by 2,300. In 2011 to 2012 it decreased by 1,000. From 2013 to 2014 it decreased by 3,100. In 2014 to 2015 there was an increase of 3,810 [1].

The development of ADHB per capita GRDP from 2011 to 2015 showed an increase, while the economic growth data for Serdang Bedagai Regency from 2010 to 2011 showed a decrease of 0.1 percent, while 2012 to 2013 showed an increase of 0.3 percent. Meanwhile, from 2013 to 2015 it shows a decline. From 2012 to 2013 it decreased by 0.29 percent, from 2013 to 2014 it decreased by 0.68 percent and from 2014 to 2015 it decreased by 0.7 percent.

Based on 2015 data from BPS North Sumatra, the quality of education for the population in Serdang Bedagai Regency during the period 2010-2015 continues to increase every year, however in certain years it shows that the level of poverty has actually increased. As in 2013, the length of education increased to 8.65 but the percentage of poor people also increased from 9.51 percent to 10.59 percent.

The cause of poverty from an economic perspective is the result of the low quality of human resources [2]. The low quality of human resources is due to low education, low quality of human resources means that their productivity is also low, which in turn is low wages. On the other hand, poverty conditions can be caused by a low degree of health. Low levels of health and nutrition lead to low physical endurance, thinking and initiative. Economic growth theory (Rostow) emphasizes its review of the historical stages of economic growth and the characteristics and conditions of each. These stages are the traditional society stage, the prerequisite take-off stage, the take-off stage, the movement towards maturity stage and finally the high consumption stage [3].

The phenomenon shown by BPS data for Serdang Bedagai Regency (Figure 1) shows that the ADHB GRDP per capita is increasing every year but not with a stable economic growth. Based on this data, it is assumed that something is happening in the economic growth of Serdang Bedagai Regency. Although this statement needs to be supported by more in-depth research, such as the real conditions that underlie the economic growth of Serdang Bedagai Regency. To see more deeply about the effect of education and poverty on economic growth in Serdang Bedagai Regency, it is necessary to conduct a more in-depth study. This becomes the basis for conducting more in-depth research on "The Effect of Education and Poverty Levels on Economic Growth in Serdang Bedagai Regency"

Formulation of the problem

The research problems are formulated as follows:

- Does education affect economic growth in Serdang Bedagai Regency?
- 1.2.2. Does poverty affect economic growth in Serdang Bedagai Regency?
- 1.2.3. Do education and poverty affect economic growth in Serdang Bedagai Regency?

Research purposes

This research aims to:

- Knowing the effect of education on economic growth in Serdang Bedagai Regency.
- Knowing the effect of poverty on economic growth in Serdang Bedagai Regency.
- Knowing the effect of education and poverty on economic growth in Serdang Bedagai Regency.

2. THEORETICAL REVIEW

Economic growth

The basic theory of Neoclassical economic growth emphasizes that there is no influence of the role of government on growth in the form of expenditure or taxes [4]. Economic growth is only influenced by the stock of capital, labor and technology which are exogenous in nature. Economic growth is one indicator of the success of development in an economy. The welfare and progress of an economy is determined by the amount of growth indicated by changes in national output. The existence of a change in output in the economy is a short-term economic analysis.

Poverty

Poverty is a situation or condition experienced by a person or group of people who are unable to carry out their life to a level that is considered human [2]. Meanwhile, according to [5] poverty is a condition of life that refers to a state of deficiency or difficulty in fulfilling life's needs [5].

Level of education

Education level is a long-term process that uses systematic and organized procedures. The managerial workforce learns conceptual and theoretical knowledge for general purposes [6].

The Effect of Education on Economic Growth

Human capital theory explains that the educational process has a positive influence on economic growth. In the 70s, human capital theory came under sharp criticism. The argument put forward is that the level of education does not always match the quality of the job, so that people with high or low education do not have different productivity in handling the same job. The theory of the growth of class or social strata argues that the main function of education is to foster class structures and social imbalances.

The Effect of Poverty on Economic Growth

The theoretical basis of the correlation between per capita income growth and poverty rates is no different from the case of economic growth with inequality in income distribution. Following Kuznets' hypothesis, in the early stages of the development process, the poverty rate tends to increase, and as it approaches the final stage of development the number of poor people gradually decreases. Many other factors besides income growth also affect the level of poverty in a region / country, such as the workforce education degree and economic structure.

The Effect of Education Level on Economic Growth

In Law Number 25 of 2000 concerning the National Development Program (PROPENAS), it is stated that there are three major challenges in the education sector in Indonesia, namely: (1) maintaining the results of educational development that have been achieved, (2) preparing competent human resources and able to compete in the global labor market, (3) in line with the implementation of regional autonomy the national education system is required to make changes and adjustments so that it can realize a more democratic education process, pay attention to diversity, pay attention to the needs of regions and students, and encourage increased community participation.

3. RESEARCH METHODS

This type of research is a descriptive-quantitative approach which basically emphasizes its analysis on numerical data (numbers) processed by statistical methods. The type of data used in this study is secondary data in the form of periodic time series, namely in the observation period from 2010 to 2015. The data source used for this study was obtained from the Central Statistics Agency.

Collecting data in this study is using the documentation method, namely by recording and copying written data related to research problems from both sources of documents / books, newspapers, magazines, the internet and others. The analysis model used in this study refers to the basic model of multiple linear regression equations with the method *Error Correction Model* Engle-Granger (ECM-EG) in estimating the short-term relationship between education variables, poverty levels and economic growth.

Operational Definition of Variables

- The economic growth variable in this study is the development of GDP per capita ADHB and economic growth which includes the Serdang Bedagai location during 2010-2015, sourced from the Indonesian Central Bureau of Statistics.
- The poverty variable in this study is the number of people whose salaries are below the average in Serdang Bedagai during the years 2010-2015 sourced from the Indonesian Central Statistics Agency.
- The education variable in this study is the last level of education in Serdang Bedagai during the years 2010-2015 sourced from the Indonesian Central Bureau of Statistics.

Econometric Assumption Testing

In estimating linear equations using the OLS (Ordinary Least Square) method, the assumptions of OLS must be fulfilled. The purpose of the assumption test is to determine for sure that the regression equation obtained has accuracy in estimation, is unbiased and consistent. carried out in this study is the normality test, multicollinearity test and autocorrelation test.

4. RESEARCH RESULTS AND DISCUSSION

Data Stationarity Test Results (Unit Root Test Results)

Stationary Test

The results of the non-stationarity test of all variables in this study can be seen in table 1 below:

Table 1. Unit Root Test Results at Level

No	Variable	Level	*PP Value*	Prob. *PP*	Conclusion
1	LNPE	Level	-1.234885	0.6181	unstationary
2	LNTP	Level	-2.411611	0.1640	unstationary
3	LNJPM	Level	-1.953279	0.0528	unstationary

Source: Eviews 9.0

Based on table 1 above, none of the variables are stationary at the level. After the unit root test results at the level level are obtained and to find out whether the data is not stationary, then the next step is to perform the data stationarity test. This is to determine whether the data is stationary at the first difference or second difference level. The results of this test can be seen in table 4.2 below.

Table 2. Unit Root Test Results *First Difference*

No	Variable	Level	*PP Value*	Prob. *PP*	Conclusion
1	LNPE	*First Difference*	-2.765224	0.0974	Stasioner
2	LNTP	*First Difference*	-1.659212	0.0901	Stasioner
3	LNJPM	*First Difference*	-5.513062	0.0001	Stasioner

Source: Eviews 9.0 (processed)

Based on the results of the unit root test in table 2, it shows that all the variables are stationary in first differences. This can be seen from the probability obtained is smaller than $\alpha = 0.05$.

Cointegration Test Results

This study uses the Engle-Granger (EG) cointegration test. From the residual value of the multiple linear regression equation, then the Augmented Dickey-Fuller (ADF) stationary test was performed. The basis for decision making is to compare the ADF statistical value with a critical value of $\alpha = 0.05$. If the statistical value is greater than the critical value, the observed variables are otherwise, then the observed variables will not be cointegrated. Judging from the estimation results, the statistical ADF value is obtained-

4.218992> critical value $\alpha = 5\%$ (-2.816740) and the probability value 0.0007 $<\alpha = 0.05$.

Table 3. Cointegration Test Results

Null Hypothesis: D (RES) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag = 2)

	t-Statistic	Prob. *
Augmented Dickey-Fuller statistical test	-4.218992	0.0007
Test critical values: 1% level	-2.816740	
5% level	-1.982344	
10% level	-1.601144	

* MacKinnon (1996) one-sided p-values.
Source: Eviews 9.0 (processed)

The Results of The Research Model Estimation Test

Table 4. Estimation Test Results

Dependent Variable: D(LNPE)
Method: Least Squares
Date: 01/07/21 Time: 19:30
Sample (adjusted): 2009 2019
Included observations: 11 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.005931	0.018603	-0.318826	0.7592
D(LNTP)	-1.189571	2.375926	-0.500677	0.6320
D(LNJPM)	0.159498	0.238739	0.668084	0.5255
RES(-1)	-0.132075	0.064994	-2.032123	0.0817

R-squared	0.394006	Mean dependent var	-0.013421
Adjusted R-squared	0.134294	S.D. dependent var	0.050416
S.E. of regression	0.046908	Akaike info criterion	-3.005948
Sum squared resid	0.015403	Schwarz criterion	-2.861259
Log likelihood	20.53272	Hannan-Quinn criteria	-3.097155
F-statistic	1.517090	Durbin-Watson stat	1.530700
Prob(F-statistic)	0.291843		

Source: Eviews 9.0 (processed)

The results of the estimated output can be represented in equation (4.1) as follows:

$$D (LNPE) = -0.005931 - 1.189571 * D (LNTP) + 0.159498 * D (LNJPM) (4.1)$$

From the estimation results of the ECM model in table 4.3, it can be seen that the value of the speed of adjustment (imbalance correlation coefficient) RES (-1) (Error Corection Term) has a negative coefficient value and is not statistically significant statistically with a probability value of RES (-1) 0.7592 <0.05. Thus, the ECM model used in the study is valid (right) to be selected as an empirical model. The value of the RES (1) coefficient of -0.132075 indicates that there is a difference in the actual value of inflation with the balance value of -0.132075 which will be adjusted. From equation (4.

Econometric Assumption Test Results

Normality Test Results

The results of the normality test show that the JB test result is a probability number of 0.330719 greater than α = 0.05, so H0 is accepted. It can be concluded that the empirical model used has a residual or error term that is normally distributed.

Multicollinearity Test Results

The estimation results of the correlation matrix value indicate that there is no multicollinearity problem in the data. Because the correlation coefficient between the independent variables is 0.9. To be surer, the VIF (Variance Inflation Factor) method can be tested. A model is said to be free of multicollinearity if the VIF value is <10. It is known that the VIF value of the correlation of the independent variables also does not exceed 10. Thus, it is concluded that there is no multicollinearity between the independent variables.

Autocorrelation Test Results

From the comparison of the calculated DW value with the DW table, it can be assumed that the model is located in the area not rejected. For this reason, another formal test is needed, namely the Lagrange Multiplier test (LM Test). From the results of the LM test in table 4.6, it shows that the probability value of Obs * Rsquared is 0.7178, which is greater than α = 0.05. So that the null hypothesis (H0) cannot be rejected. This shows that the estimated model does not contain a partial correlation (autocorrelation) between confounding factors (error term).

Hypothesis Testing Results

Result of Partial Hypothesis Testing (t test)

The partial test results can be seen in the estimates obtained through the t test with a significant level of α = 5 percent. In the short term, the t-statistic and probability value for the education level variable t-stat = -0.500677 (prob = 0.6320) indicates that the education level variable has a negative and insignificant effect on economic growth. In the short term, the variable number of poor people with t-stat = 0.668084 and prob = 0.5255 shows that the JPM variable has a positive and insignificant effect on economic growth.

Test F test Result

In the short term, the estimation results can be seen that the statistical F value of 20.53272 with a statistical probability of 0.291843 is smaller than α = 0.05 which indicates that simultaneously the TP, JPM and error correction term (ECT) variables have a real influence on economic growth.

Estimated Accuracy Test Results

Based on the estimation results, the coefficient of determination (R-Square) in the short-term model is 0.394006, meaning that 39.40% of the variation in changes in economic growth variables in Serdang different regencies can be explained by the variable level of education and the number of poor people. While the remaining 60.6% is explained by variables outside the model (which are not researched).

Research Discussion

This discussion is an interpretation of the regression coefficient of estimation results from the research model. Statistically, the ECM value was not significant. This shows that the equation model (4.1) can lead to equilibrium if there is an imbalance condition. Where the error correction term is negative, the coefficient of economic growth will decrease to return to the equilibrium condition in the next period or make corrections to the imbalance condition in the next period caused by the variables of education level and the number of poor people.

Educational Variables

From the estimation results, it can be seen that in the short term the relationship between economic growth and education is negative and insignificant with a coefficient of -1.189571. The meaning of this value can explain that with a confidence level of 97 percent, every 1 percent increase in education will cause a decrease in the level of education of -1.189571.

Variable Number of Poor Population

From the estimation results, it can be seen that in the short term the relationship between economic growth and the number of poor people is positive and insignificant with a coefficient of 0.159498. The meaning of this value can explain that with a confidence level of 97 percent, every 1 percent increase in the number of poor people will cause a decrease in the number of poor people by 0.159498.

5. CONCLUSIONS AND SUGGESTIONS

Conclusion

The results of this study provide the following conclusions:

- The determinant of the R2 value is 0.39. This means that 61% of the proportion of the independent variables used is able to explain the variation in the dependent variable in the model.
- Education influences economic growth in Serdang Bedagai Regency. The longer the education, the better the effect on economic growth in Serdang Bedagai Regency.
- Poverty affects economic growth in Serdang Bedagai Regency. The lower the poverty, the better the effect on economic growth in Serdang Bedagai Regency
- Education and poverty affect economic growth in Serdang Bedagai Regency. There is a negative relationship between the average length of education and the poverty rate in Serdang Bedagai Regency. This relationship shows that the longer the community's education is, the poverty rate decreases. There is a positive relationship between poverty levels in Serdang Bedagai Regency. This relationship shows that the higher the unemployment rate, the poverty rate will increase.

Suggestion

Based on the results of the above conclusions, the authors make the following suggestions:

- The government needs to increase economic growth by empowering community expertise by providing capital assistance to MSME actors in Serdang Bedagai Regency. With the provision of capital, it is hoped that in addition to increasing economic growth it will also reduce the unemployment rate so that it will reduce the level of poverty in Serdang Bedagai Regency.
- The government needs to establish a 12-year compulsory education policy so that public education in Serdang Bedagai Regency is getting better. Because the increase in the length of education will reduce the level of poverty. in Serdang Bedagai Regency
- For further researchers, it is hoped that they can examine the effect of income inequality that affects poverty. This is because this research has not discussed income inequality

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