



Article

Investigating the Effect of Government Spending on the Human Development Index in Simalungun Regency, Indonesia

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Abstract: This research aims to analyze the effect of government spending on health, education, and infrastructure on affecting the human development index (HDI) in Simalungun Regency partially and simultaneously. This research uses multiple linear regression analysis models. Sources of data used in the form of secondary data obtained from the publication data of the Central Statistics Indonesia (BPS) and data Regional Development Planning Agency (BAPPEDA) Simalungun Regency with the period 2003-2020. Partially, the variables of government spending in the health, education, and infrastructure sectors have a positive and no significant effect on the human development index in Simalungun Regency. Meanwhile, simultaneously, government spending variables in the health, education, and health sectors have a significant effect on HDI in Simalungun Regency. And then Government spending in the infrastructure sector has the most dominant effect on HDI in Simalungun Regency compared in health and education. The coefficient of determination (R²) explains the variables of the health sector, the education sector, and the infrastructure sector can explain the variation of the HDI variable by 0.750 or 75.0%. While the rest is explained by other variables do not study in this investigation.

Keywords: government spending; human development index; public policy; Simalungun regency.



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1. Introduction

One of the main capital for a country to become a developed country is to have quality human resources (Damanik et al., 2021). Human development is a very important thing for developing countries to catch up with developed countries. On the other hand, the Sustainable Development Goals program is echoed by many countries in the world, one of which is the obligation for countries in the world to participate in achieving 17 (seventeen) programs in 2030 later. One indicator that describes human development in a country is the Human Development Index (HDI). Human development is an indicator reflecting the welfare of countries as humans are the main factor and the target of a nation's development (United Nations Development Programme, 1990). The human development approach focuses on the human as the development agents (Fukuda-Parr, 2003) since human resources play a central role that determining the

national welfare (Manuelli, 2015). Development that focuses on human development is different from economic development within a narrow context that only targets economic development. Instead, human development emphasizes more on the improvement of life quality and freedom for the people (Sen, 1999).

Human Development Index (HDI) prepared as one of the alternative indicators, in addition to national income per capita, to assess the success of the construction carried out by a State. Hopefully, by the Human Development Index (HDI) and the transfer of authority from the central government to the local government human resource quality can be increased. So it can affect economic growth in the region. Human development is more than economic growth, more than just an increase in income, and more than just commodity production processes and capital accumulation (Asmita & Ruslan, 2017). The APBD contains the regional revenue and expenditure policies in one fiscal year. Revenue from local revenues, both from within and from outside the region itself, will serve as the basis for direct and indirect learning of various regional programs and activities. The indirect expenditure policy is intended to finance regional expenditure policies to finance regional salaries and routine expenditures, while the direct expenditure is intended to finance regional development capital expenditures that directly affect the real community/sector.

To produce quality human resources, education is an important thing and for this reason, improving the quality of human resources absolutely must be done. Because with human resources absolutely must be done. Because quality human resources can provide a multiplier effect on the development of a country, especially the development of the economy. In general, the level of education and health can represent the quality of the workforce with education, a person will increase his skills, and with health, a person will be stronger and clearer in his thinking at work. Government spending on education, health, and infrastructure is an investment in increasing HDI, the effect of development on these three sectors cannot have a direct impact but takes several periods to feel the impact.

Simalungun Regency is one of 33 regencies/cities in North Sumatra Province. Simalungun Regency with an area of 4,386.6 km² contain a population of 817.720 people in 2020. Simalungun Regency is one of the largest districts in North Sumatra Province, consisting of 32 sub-districts. The Simalungun Regency Government's budget in 2021 will reach 2.3 trillion rupiahs. This value has increased every year which is used for Simalungun Regency government spending in one year. In Figure 1 we can see the development of the Human Development Index in Indonesia, North Sumatra, and Simalungun Regency in 2016-2020, where the Simalungun Regency Human Development Index is still above the average Human Development Index of North Sumatra and Indonesia Provinces. The HDI of Simalungun Regency in 2020 is ranked 11th out of 33 regencies/cities in the Province of North Sumatra. This is an achievement for the Simalungun Regency Government in improving its human development.

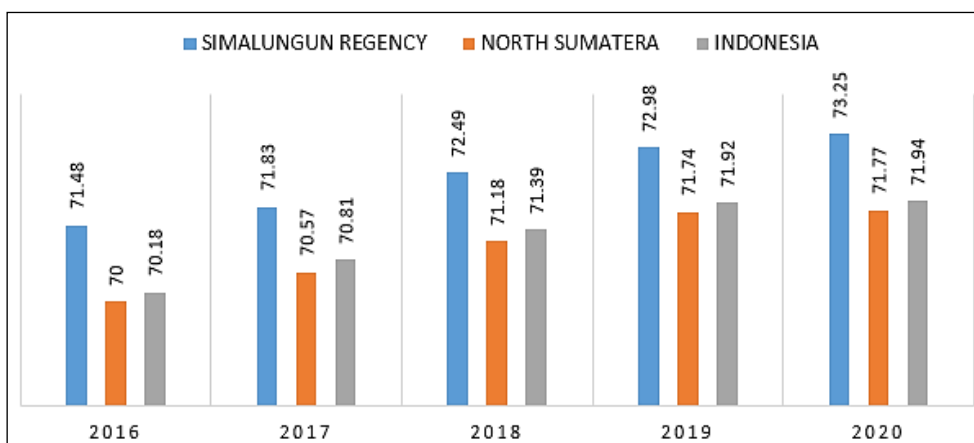


Figure 1. The Comparison Between National Human Development Index, North Sumatera Province, and Simalungun Regency in 2016-2020.

Several theoretical analysis has been conducted related to government spending which resulted in two different views about the influence of government spending on the Human Development Index (HDI). The first view states that there is a positive influence between government spending and HDI as stated by Craigwell et al. (2012); Razmi et al. (2012); Safitri (2016) in which it is stated that a higher budget for health care has a positive and significant influence on the improvement of HDI. Meanwhile, Astri et al. (2013); Wijayanto (2014) and Sanggelorang et al. (2015) found that higher budget for education sector has a significant influence on HDI. Similarly, Fattah & Muji (2012) and Edeme (2014) stated that government spending on education, health care, and infrastructure significantly influences the HDI. The second belief sees no significant influence of government spending on the HDI, such as a study conducted by Prasetyo & Zuhdi (2013) on the efficiency of government spending for health, education, transfer, and a subsidiary in which it is found that government spending does not always efficiently improve the human development. The purpose of this study

is to analyze the effect of government spending in the health, education, and infrastructure sectors on the human development index in Simalungun Regency partially and simultaneously, and also see which sector has a more dominant influence on HDI.

2. Literature Review

2.1. Human Development Index

The Human Development Index (HDI) is a composite index that is also an indicator that can describe the development of human development in a measurable and representative way. The Human Development Index (HDI) is a comparative measure of life expectancy, education, and living standards for all countries. HDI is used as an indicator to assess the quality aspects of development and to classify whether all countries including developed countries, developing countries, or underdeveloped countries, and also to measure the effect of economic policies on quality of life. According to United Nations Development Programme (1990), the HDI measures human development achievements based on several basic components of quality of life. As a means of measuring the quality of life, HDI is built through a basic three-dimensional approach. The dimensions are as follows:

- a. A long and healthy life
- b. Knowledge
- c. Decent standard of living

These three dimensions have a very broad understanding because they are related to many factors. In its first report, the United Nations Development Program measured the health dimension by using life expectancy at birth. Furthermore, to measure the dimension of knowledge, literacy rates are used. As for measuring the dimensions of a decent standard of living, the indicator of Gross Domestic Product (GDP) per capita is used.

2.2. Government Expenditure

According to Reguna (2020), Government expenditure is part of fiscal policy, namely an action by the government to regulate the course of the economy by determining the number of government revenues and expenditures each year, which is reflected in the National State Budget (APBN) document. and the Regional Revenue and Expenditure Budget (APBD) for the region or region. The purpose of this fiscal policy is to stabilize prices, output levels, as well as employment opportunities, and spur or encourage economic growth. According to Mongan (2019), Government spending in the health sector Government investment in the health sector can be in the form of budget allocations to finance the procurement and maintenance of physical and non-physical facilities for the health sector. The government builds public facilities and infrastructure so that people have easy access to services in the health sector. With the ease of public access to health services, the community's basic needs for health can be met so that the quality of people's lives will increase. By optimizing government spending, in this case especially spending for health purposes, better health quality can be produced so that high productivity will be easier to achieve.

Government spending on the health sector is used to see its achievement of the first HDI dimension, namely a healthy life and a long life. Examples of government spending on the health sector are increasing nutrition for pregnant and lactating mothers, improving JKN (Jaminan Kesehatan Negara) services such as BPJS cards (Badan Penyelenggara Jaminan Sosial Kesehatan), building hospitals, and promoting healthy lifestyles. When access to health has been fulfilled by government subsidies, it will be able to make each individual live a decent and long life according to the first dimension of HDI. Government spending on education will affect the growth of education, namely by increasing the number of students who can complete their schooling to a high level. The greater the level of knowledge and expertise possessed by the community, the easier it will be for everyone to work, master, realize and obtain results at the level of technological progress that supports the economy and the nation's life. A nation deserves to increase investment in learning and health to be able to achieve good development (Reguna, 2020).

Development in the field of education aims to educate the nation's life. It has been recognized that the development of human resources in a country will determine the character of economic and social development because humans are active actors who can accumulate capital, exploit various resources, and carry out various economic, social, and political activities that are very important for social development. Thus, improving the education of a nation becomes very important for the development of the country. According to Safitri (2016), infrastructure is a means provided for the implementation of development. These facilities are formed in various forms including transportation, communication and transportation, electricity, and so on. Human development depends on the availability of infrastructure to support investment in human resources which is nothing but the improvement and development of the quality of human capital itself. Basic infrastructure includes sectors that have public characteristics and basic interests for other economies, cannot be traded, and cannot be separated, both technically and specifically. For example highways, railroads, seaports, dams, and so on. While complementary infrastructures such as gas, electricity, telephone, and drinking water supply. The difference between basic and complementary infrastructure is not always the same and can change over time.

3. Materials and Methods

This study applied a quantitative approach by analyzing secondary data related to government spending and functions of health, education, and infrastructure facilities in Simalungun Regency. This study also obtained the data on the government spending in health, education, and infrastructure in Simalungun Regency from the Central Bureau of Statistics (BPS) and Regional Development Planning Agency (Bappeda). The data analysis technique is descriptive analysis and multiple linear regression analysis with the ordinary least square model, where the functions are as follows:

$$HDI = f(\text{Health, Education, Infrastructure})$$

Then the functional is transformed into a regression model as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_t \tag{1}$$

Where:

- Y = Human Development Index
- α = Constant
- β₁, β₃ = Regression coefficients
- X₁ = Government spending on health (rupiah)
- X₂ = Government spending on education (rupiah)
- X₃ = Government spending on infrastructure (rupiah)
- e_t = error terms

Furthermore, the results of these calculations carried out classical assumption testing, hypothesis testing, and discussion. The data needed in this study include 1) Data on Human Development Index in Simalungun Regency, 2) government spending on health, education, and infrastructure in Simalungun Regency. The method used in this research data collection is through documentation. Documentation is a method of collecting data based on documents, literature studies, scientific journals, and other written reports related to government expenditure and the human development index.

4. Results

The use of the Ordinary Least Square (OLS) assumption in estimating a multiple regression requires the fulfillment of several assumptions, namely the classical assumption: Gauss-Markov (Ariefianto, 2012). The normality test is one part of the data analysis test, meaning that before carrying out the actual analysis, the research data must be tested for the normality of the distribution. In this normality test, the researcher uses the Eviews 10 program to detect normality by looking at the histogram graph. Under the condition: If the probability value > 0.05 then the distribution is normal. It can be seen in Figure 2. So, this result is normally distributed.

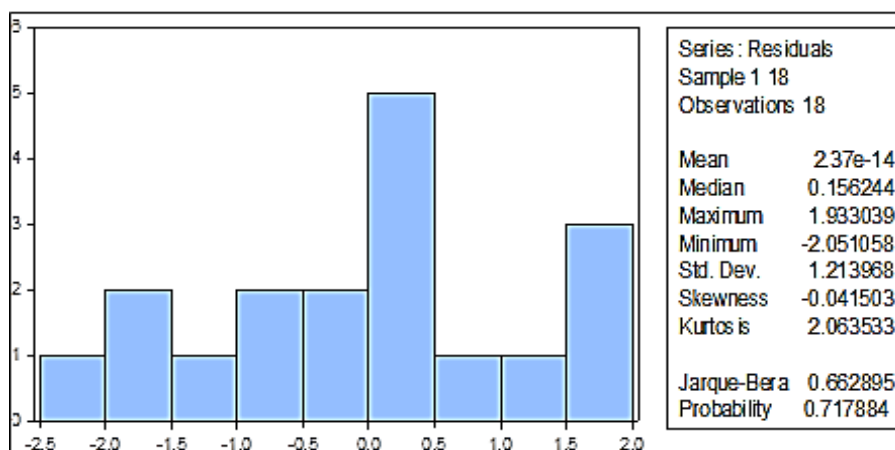


Figure 2. The Result of Normality Test

Further, this study tests the existence of multicollinearity by looking at the correlation coefficient between the independent variables, namely if the correlation coefficient between the independent variables > 0.8 then multicollinearity occurs.

Table 1. The Result of Multicollinearity

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	2.906.253	29232.79	NA
X1	0.213800	1.343.255	1.281.309
X2	0.224182	1.402.831	2.393.123
X3	4.621.669	31413,64	2.762.997

Table 1 displays the tolerance value for VIF (Variance Inflation Factor) for variables X1, X2, X3 is (1.28, 2.38, and 2.76) or more than > 0.08. Therefore, as the basis for the decision above, the results of this study do not show any symptoms of multicollinearity. In addition, the heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residual of one observation to another observation. If the answer variance is fixed, then it is called homoscedasticity and if it is different it is called heteroscedasticity. This study uses the provisions of If Prob. Chi-Square (in Table Ob*R-squared) > 0.05 then there is no heteroscedasticity problem in this study, the following data are presented in the Table 2 below.

Table 2. The Result of Heteroskedasticity using White Test

	Heteroskedasticity Test		
F-statistic	7.197.401	Prob. F(5,198)	0.0039
Obs*R-squared	1.556.681	Prob.Chi-Square(8)	0.049
Scaled explained SS	5.007.623	Prob. Chi-Square(8)	0.7568

Table 2 shows the R-squared value is > 0.05, so in this research, there is no heteroscedasticity problem. Besides that, the autocorrelation test to determine whether there is a correlation of variables in the prediction model with changes in time.

Table 3. The Result of Autocorrelation using Durbin-Watson

R-squared	0.750219	Mean dependent var	7.090.667
Adjusted R-squared	0.332299	S.D. dependent var	1.637.106
S.E. of regression	1.337.728	Akaike info criterion	3.612.952
Sum squared resid	2.505.322	Schwarz criterion	Log-likelihood
Log likelihood	-2.851.657	Hannan-Quinn criteria.	3.640.235
F-statistic	3.820.172	Durbin-Watson stat	2.153.263
Prob(F-statistic)	0.034346		

Thus, the DW value of 2.153 is greater than the upper limit (du) = 1.169 and less than (4-du) = 2.831. so it can be concluded that there is no autocorrelation (see Table 3). Hypothesis testing in this study was carried out using three tests, namely, Partial Test (t-Test), F Test, and Determination Coefficient (R2). The results of the three tests, A partial test (t-test) is used to determine whether the independent variables partially have a significant effect or not on the dependent variable. The degree of probability used is < 0.05.

Table 4. Result of Hypothesis Testing

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.909.094	5.390.067	-1.281.606	0.2208
X1	0.044123	0.462386	0.095426	0.9253
X2	0.563148	0.473478	1.189.386	0.2541
X3	5.883.276	2.149.807	2.736.653	0.0161
R-squared	0.750219	Mean7 dependent var		7.090.667
Adjusted R-squared	0.332299	S.D. dependent var		1.637.106
S.E. of regression	1.337.728	Akaike info criterion		3.612.952
Sum squared resid	2.505.322	Log-likelihood		
Log likelihood	-2.851.657	Schwarz criterion		

F-statistic	3.820.172	Hannan-Quinn criteria.	3.640.235
Prob(F-statistic)	0.034346	Durbin-Watson stat	2.153.263

Table 4 shows the value of t Statistic and the value in the distribution table with a level of = 5%, df (n-k) = 15, and the value of t table = 1.753. So the independent variable (health, education, and infrastructure) has no significant effect on the dependent variable (Human Development Index). Simultaneous Test (f test) is used to determine whether the independent variables simultaneously have a significant effect or not on the dependent variable. The degree of probability used is < 0.05. The results of the coefficient of determination explain how much the ability of the regression model to explain independent variation affects the dependent variable, the larger the R-Squared result, the better because this identifies the better the Independent variable in running the dependent variable. Based on the results from Table 5, it can be seen that the value of the R Squared is 0.750 indicating that the ability of the regression model to explain the variation of health, education, and infrastructure variables on the Human Development Index (IPM) variable is 75%. while the remaining 25% is explained by other variables not examined in this study.

5. Discussion

The results of this study indicate that the variable in the Health Sector Government Expenditure has a positive effect on the Human Development Index (HDI) in Simalungun Regency. Because the health budget is an important part of efforts to develop the quality of human life and the fulfillment of health needs by the government is one of the government's obligations to meet the basic needs of the population. In this case, the results of this study are in line with previous research conducted by Reguna (2020) with research results showing that the Health Sector Government Expenditure on the Human Development Index in the Provinces of East Java and South Sulawesi also has a positive and significant effect. The variable on the Education Sector Government Expenditure has a positive effect on the Human Development Index (HDI) in Simalungun Regency. This proves that the education budget is one of the mental funds for a country and education is an absolute factor determining the quality of human resources which will then contribute to the country's development.

The results of this study are supported by previous research conducted by (Mongan, 2019) with research results showing that the percentage of government spending on education from GRDP has a positive and significant effect on HDI in Indonesia. This shows that government spending on education can build a good education facility and system. The variable on government spending in the infrastructure sector has a positive effect on the Human Development Index (IPM) in Simalungun Regency. This proves that government spending on infrastructure is an investment in human development. When the government issues a development budget for the infrastructure sector, it takes a lot of time and funds, as well as mature policies because every development must be able to improve the quality of people's lives. In this case, this is in line with the results of previous research conducted by Safitri (2016) which makes government spending in the infrastructure sector an independent variable with research results showing that Government Expenditures in the Infrastructure Sector have a positive and significant impact on the Human Development Index in 23 districts/cities in the Aceh Province.

6. Conclusions

In conclusion, this study indicates that the government expenditure in the health, education, and infrastructure sectors have a positive and not significant effect on the human development index in Simalungun Regency. Meanwhile, simultaneously, government expenditure variables in the health, education, and health sectors have a significant effect on HDI in Simalungun Regency. And then Government spending in the infrastructure sector has the most dominant effect on HDI in Simalungun Regency compared in health and education. The coefficient of determination (R^2) explains the variables of the health sector, the education sector, and the infrastructure sector can explain the variation of the HDI variable by 0.750 or 75.0%. While the rest is explained by other variables outside this research.

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References

- Asmita, F., & Ruslan, D. (2017). Analysis of factors affecting the human development index in north sumatra province. *IOSR Journal of Business and Management*, 19(10), 27–36.
- Astri, M., Nikensari, S. I., & Kuncara, H. (2013). Pengaruh pengeluaran pemerintah daerah pada sektor pendidikan dan kesehatan terhadap indeks pembangunan manusia di Indonesia. *Jurnal Pendidikan Ekonomi Dan Bisnis*, 1(1), 77–102. <https://doi.org/10.21009/JPEB.001.1.5>
- Craigwell, R., Bynoe, D., & Lowe, S. (2012). The effectiveness of government expenditure on education and health care in the Caribbean. *International Journal of Development Issues*, 11(1), 4–18. <https://doi.org/10.1108/14468951211213831>
- Damanik, D., Purba, E., & Hutabarat, A. S. (2021). The Effect of Population and Human Development Index on Economic Growth Pematangsiantar City. *Budapest International Research and Critics Institute: Humanities and Social Sciences*, 4(3), 3658–3668. <https://doi.org/10.33258/birci.v4i3.2134>
- Edeme, R. K. (2014). Analyzing the effects of sectoral public spending on human development in nigeria: evidence from panel data. *IOSR Journal of Humanities and Social Science*, 19(9), 1–13. <https://doi.org/10.9790/0837-19960113>
- Fattah, S., & Muji, A. (2012). Local government expenditure allocation toward human development index at jeneponto regency, South Sulawesi, Indonesia. *IOSR Journal of Humanities and Social Science*, 5(6), 40–50.
- Fukuda-Parr, S. (2003). The human development paradigm: operationalizing Sen's ideas on capabilities. *Feminist Economics*, 9(2–3), 301–317. <https://doi.org/10.1080/1354570022000077980>
- Manuelli, R. E. (2015). Human capital and development. *Federal Reserve Bank of St. Louis Review*, 97(3), 197–216. <https://doi.org/10.20955/r.2015.197-216>
- Mongan, J. J. S. (2019). Pengaruh Pengeluaran Pemerintah Bidang Pendidikan dan Kesehatan terhadap Indeks Pembangunan Manusia di Indonesia. *Jurnal Perbendaharaan, Keuangan Negara Dan Kebijakan Publik*, 4(2), 163–176. <https://doi.org/10.33105/itrev.v4i2.122>
- Prasetyo, A. D., & Zuhdi, U. (2013). The government expenditure efficiency towards the human development. *Procedia Economics and Finance*, 5, 615–622. [https://doi.org/10.1016/S2212-5671\(13\)00072-5](https://doi.org/10.1016/S2212-5671(13)00072-5)
- Razmi, M. J., Abbasian, E., & Mohammadi, S. (2012). Investigating the effect of government health expenditure on HDI in Iran. *Journal of Knowledge Management, Economics and Information Technology*, 2(5), 1–13.
- Reguna, F. (2020). *Pengaruh Pengeluaran Pemerintah Pada Sektor Pendidikan Dan Sektor Kesehatan Terhadap Indeks Pembangunan Manusia Provinsi Sulawesi Selatan*. Program Gelar Sarjana.
- Safitri, I. (2016). Pengaruh pengeluaran pemerintah sektor kesehatan, pendidikan, dan infrastruktur terhadap indeks pembangunan manusia di Provinsi Aceh. *Jurnal Ilmiah Mahasiswa Ekonomi Pembangunan*, 1(1), 66–76.
- Sanggalorang, S., Rumat, V., & Siwu, H. (2015). Pengaruh pengeluaran pemerintah di sektor pendidikan dan kesehatan terhadap Indeks Pembangunan Manusia di Sulawesi Utara. *Jurnal Berkala Ilmiah Efisiensi*, 15(3), 193–208.
- Sen, A. (1999). *Development as Freedom (First)*. New York: Random House, Inc.
- United Nations Development Programme. (1990). *Human Development Report 1990*. Oxford University Press for the U.N.D.P.
- Wijayanto, A. (2014). *Analisis Pengaruh Pengeluaran Kesehatan dan Pendidikan serta PDRB terhadap Indeks Pembangunan Manusia (Studi terhadap Kabupaten/Kota di Jawa Timur)*. Universitas Brawijaya.