ANALYSIS OF HUMAN DEVELOPMENT INDEX IN THE HIGHLANDS REGION OF NORTH SUMATERA PROVINCE INDONESIA

Bonaraja Purba

Universitas Negeri Medan
E-mail: bonarajapurba@gmail.com

Abstract

This study aims to analyze the Human Development Index (HDI) in the Highlands Region of North Sumatera Province Indonesia to see the effect of government expenditures on education and health, as well as the number of poor people on the HDI. The data used are secondary data, namely the allocation of government expenditures in education and health, as well as the number of poor people in 9 districts in the North Sumatera Province in the region of 2012-2017 and subsequently processed using the panel method. The results showed that government and health expenditure, and the number of poor people had a positive effect on HDI. Education and health sector expenditure has a very large effect on HDI, this indicates that expenditure for this sector has been optimal both from its use and allocation.

Keywords: *Human Development Index , Government Expenditures for Education and Health, Poor Population.*

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A. Introduction

The central theme in each program for achieving development is about the position of human resources. The *Millennium Development Goals* (MDG's) are known, which are the result of the agreement of world leaders at the 2000 Summit. The MDG is the commitment of the international community, especially for developing countries, to the vision of development. This vision strongly places social and economic development in a sustainable manner. In the Indonesian state for the past few years many policies have been taken by the government aimed at improving social and economic conditions. This policy is in accordance with the recommendations of the *United Nations Development Program* (UNDP) in the book " *The Economics of Democracy: Financing Human Development in Indonesia"* (BPS, 2007) by emphasizing the importance of more adequate aspects of financing for the poor to improve their quality of life. UNDP explicitly suggests that Indonesia needs to give a higher priority to investment in human development efforts and how to finance it.

The success of development, especially human development can be partially assessed by seeing how much the most fundamental problems in the community can be overcome. These problems include poverty, unemployment, illiteracy, food security, and the enforcement of democracy. However, the problem is that the achievements of human development are partially varied where certain aspects of development are successful and some other aspects of development fail and then the question arises how to assess the success of human development as a whole.

There are several ways to measure the success or performance of a country or region in the field of human development, one of which is the Human Development Index (HDI). HDI is a composite index that covers three very basic areas of human development in terms of physical and non-physical qualities of the population. The 3 indicators are: health indicators, education level, and economic indicators. Physical quality is reflected in life expectancy, while non-physical quality is reflected in the length of the average school-going population and literacy rates, and

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considers the economic capacity of real per capita expenditure. The North Sumatera Province Highlands Region is administratively divided into 8 regencies and 1 city, with the large number of districts / cities certainly will give a varied picture of human development.

Referring to Law No. 20 of 2003 which states that education funds in addition to educator salaries and official education fees are allocated a minimum of 20 percent of the National Budget of Revenue and Expenditure in the education sector and at least 20 percent of the Regional Budget. Developed countries can be seen from the high level of education of their people because of the availability of supportive and adequate education services. The dominant role of the government in the education market not only reflects the problem of government interests but also the special economic aspects of the education sector, because the characteristics that exist in the education sector are as follows (Achsanah in Rica Amanda, 2010): (1) education expenditure as an investment; (2) externalities; (3) education expenditures and their implications for public policy; and (4) *education rate of return.*

Some economists assume that health is an economic phenomenon, whether it is judged from stock or as an investment. So that health phenomena become variables that can later be considered as factors of production to increase the value added of goods and services, or as a target of the goals to be achieved by both individuals, households and society, which is known as welfare goals. Therefore, health is considered as capital and has a positive rate of return both for individuals and for the community.

Funds for health as regulated in Law No. 36 of 2009 state that the government health budget is allocated a minimum of 5 percent of the state budget excluding salaries, while the provincial and regency / municipal health budgets are allocated a minimum of 10 percent of the regional budget excluding salaries, because the government should be able to provide adequate public services in order to improve the quality of human development which can further improve the HDI.

As an effort to realize a high quality population area, the local government uses its Regional Budget to finance development in these

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sectors. More specifically the local government must be able to allocate regional expenditure through development expenditures in supporting sectors to increase the HDI, for example reflected in the realization of regional expenditure in the education and health sectors. Apart from the budget side, the socio-economic conditions of the community can also affect the HDI if the number of poor people in a high area will reduce the HDI. This happens because poor people have limitations in accessing their needs, including fulfilling needs in the education and health sectors. Therefore the implication will be to reduce HDI.

Formulation of the problem

Based on the background, the problem is formulated as follows: (1) How big is the influence of government expenditures on education and health on HDI in the Highlands Region of North Sumatera Province in 2012-2017; and (2) How much influence the number of poor people has on HDI in the Highlands Region of North Sumatera Province in 2012-2017.

Research purposes

The objectives of this study are: (1) to analyze the effect of government expenditures in education and health on HDI in the Highlands Region of North Sumatera Province in 2012-2017; and (2) to analyze the influence of the number of poor people on HDI in the Highlands Region of North Sumatera Province in 2012-2017.

B. Method
Types and Data Sources

Secondary data used in econometric analysis in this study is panel data which includes time series starting from the period 2012-2017 and cross section data covering 9 districts in the Highlands Region of North Sumatera Province. The focus of this study is on the allocation of government expenditure in education and health and the number of poor people in order to see the effect on the HDI. The data obtained comes from the publication of the North Sumatera Statistics Agency.

Research model

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The model of equations that will be estimated based on theory and the hypothesis that HDI is influenced by government expenditures on education and health, and the ratio of the number of poor people. Then the model used is a mathematical function as follows:

$$HDI_{it} = \alpha_0 + \alpha_1 GEH_{it} + \alpha_2 PNP_{it} + \varepsilon_{it}$$

where: HDI is human development index; GEH is government expenditures in education and health (IDR billion); JPM is proportion of the number of poor people (percent); ε_{it} is Error term; α_0 is constants; and α_1, α_2 are regression coefficient.

C. Research Finding
Research Results

Based on the data in Table 1 that in 2012 the highest HDI was obtained by Pematang Siantar at 74.51, followed by Toba Samosir at 71.89, and the lowest HDI obtained by West Pakpak at 63.88.Furthermore, in 2017 the highest HDI was still obtained by Pematang Siantar at 77.54, followed by Toba Samosir at 73.87 and the lowest HDI still obtained by West Pakpak at 66.25. Overall there has been a trend towards an increase in HDI in the period 2012-2017 in Highlands region of North Sumatera.

Table 1
HDI Districts in the 2012-2017 Highlands Region

No.	Districts	2012	2013	2014	2015	2016	2017
1	North Tapanuli	69.83	70.5	70.7	71.32	71.96	72.38
2	Toba Samosir	71.89	72.36	72.79	73.4	73.61	73.87
3	Simalungun	69.79	70.28	70.89	71.24	71.48	71.83
4	Dairi	66.95	67.15	67.91	69	69.61	70.38
5	Karo	71.4	71.62	71.84	72.69	73.29	73.53
6	Humbang Hasudutan	64.54	64.92	65.59	66.03	66.56	67.3
7	West Pakpak	63.88	64.73	65.06	65.53	65.81	66.25
8	Samosir	66.31	66.8	67.8	68.43	68.82	69.43
9	Pematang Siantar	74.51	75.05	75.83	76.34	76.9	77.54

Based on the data in Table 2 that in 2012 the highest government expenditures in education and health were obtained by Simalungun at

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14.36, followed by Pematang Siantar at 14.29, and the lowest was obtained by West Pakpak at 13.01. Furthermore, in 2017 the highest government expenditures in education and health were still obtained by Simalungun at 14.75, followed by Pematang Siantar at 14.71, and the lowest from West Pakpak at 13.30. Overall there has been an increasing trend government expenditures in education and health in the period 2012-2017 in Highlands region of North Sumatera.

Table 2

Government Expenditures in Education and Health in
Highlands Region of North Sumatera

No.	Districts	2012	2013	2014	2015	2016	2017
1	North Tapanuli	13.52	13.59	13.55	13.59	13.66	13.72
2	Toba Samosir	14.13	14.19	14.33	14.32	14.41	14.48
3	Simalungun	14.36	14.45	14.51	14.54	14.66	14.75
4	Dairi	13.58	13.66	13.93	13.94	14.01	14.07
5	Karo	13.73	13.79	13.94	13.97	14.07	14.17
6	Humbang Hasudutan	13.89	14.00	14.14	14.20	14.29	14.34
7	West Pakpak	13.01	13.11	13.12	13.13	13.21	13.30
8	Samosir	13.49	13.66	13.48	13.49	13.57	13.63
9	Pematang Siantar	14.29	14.40	14.44	14.52	14.65	14.71

Based on the data in Table 3 that in 2012 the highest ratio of the number of poor people was Samosir at 15.17 percent, followed by West Pakpak at 14.2 percent, and the lowest was obtained by Dairi at 9.28 percent. Furthermore in 2017 the highest ratio of the number of poor people was still obtained by Samosir at 14.72 percent, followed by North Tapanuli at 11.35 percent, and the lowest was obtained by Dairi at 8.87 percent. Overall there is a downward trend in the ratio of the number of poor people in the period 2012-2017 in the North Sumatera Highlands region.

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Table 3

Ratio of the Number of Poor Population in the 2012-2017

Highlands Region (in percent)

No.	Districts	2012	2013	2014	2015	2016	2017
1	North Tapanuli	11.55	11.68	11.06	11.41	11.25	11.35
2	Toba Samosir	9.43	9.54	9.23	10.21	10.08	10.19
3	Simalungun	9.97	10.45	10.20	10.96	10.81	10.65
4	Dairi	9.28	8.68	8.40	9.09	8.90	8.87
5	Karo	9.93	9.79	9.20	9.68	9.81	9.97
6	Humbang Hasudutan	9.73	10.00	9.44	9.85	9.78	9.85
7	West Pakpak	12.40	11.28	10.55	11.26	10.72	10.53
8	Samosir	15.17	14.01	13.20	14.11	14.40	14.72
9	Pematang Siantar	10.79	10.93	10.35	10.47	9.99	10.10

Model Selection

According to Agus, Widarjono (2005) that in determining the best model between common effect model and fixed effect model, it is done by comparing the results of the largest Adjusted R-squared equation and the smallest Sum squared resid .

Table 4

Model Selection Results

Model	Adjusted R Square	Sum Square Resid	Information	Model Selection Results
Common Effect	0.422722	358,8948	0.422722 < 0.976468	Fixed Effect Model
Fixed Effect	0.976468	12,33511	358,8948 > 12,33511	

Source: Data processed

Based on the data in Table 4 it can be shown that the Adjusted R-squared value in the Fixed Effect > Adjusted R-squared model on the Common Effect model. The Sum squared resid value in the Fixed Effect < Sum

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squared resid model on the Common Effect model. Thus it is concluded that the best model to estimate is the Fixed Effect model .

Estimated Fixed Effect Model Results

Table 5

Estimated Results With Fixed Effect Model

Variable	Regression Coefficient	Standard Error	t - Statistics	Probability
PPK	6,147847	0.566923	10,84423	0.0000
JPM	-0.095075	0.185588	-0,512291	0.6111
R^2	0.980908			
Adjusted R^2	0.976468			
DW-test	1.101890			
N	162			

Source: Data processed

D. Discussion

Based on the results of multiple linear regression estimation, it shows that government expenditures on education and health (PPK) issued by districts in the North Sumatera Province Region have a positive and significant effect on HDI in the Highlands of North Sumatera Province in 2012-2017. This is in accordance with the hypothesis that the variable government expenditure in education and health has a positive and significant effect on the HDI. The value of the variable coefficient is 0.0042 which means that every time there is a 1 percent increase in government expenditures on education and health, it will increase the HDI by 6.147847 percent. This shows that the magnitude of the influence of this variable is very large, this shows that almost all district governments have allocated sufficient education and health funds from the APBD so that they have a considerable influence on the HDI.

The number of poor people (JPM) has a negative though not significant effect on HDI. The coefficient of -0.095075 indicates that if the number of poor people falls by 1 percent, the HDI will increase by

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0.095075 percent. This is in accordance with the hypothesis which shows that if the number of poor people falls, it will increase the HDI.

E. Conclusion

Based on the results of multiple linear regression estimation, it shows that: (1) government and health expenditures allocated by district governments in the North Sumatera Province Region have a positive and significant effect on HDI in 2012-2017. This is in accordance with the theory which states that the amount of government expenditure in education will have a positive and significant effect; (2) the number of poor people has a negative influence on HDI in the Highlands of North Sumatera Province in 2012-2017. This is in accordance with the theory which states that if the number of poor people decreases, it will increase the HDI.

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