

## Analysis of Factors Affecting the Human Development Index in North Sumatra Province

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**Abstract:** This research aims to analyze the influence of economic growth, percentage of poor population, government expenditure of education, health expenditure of government, and income distribution inequality affecting human development index (HDI) in North Sumatera Province. This research uses panel data analysis model through fixed effect model approach. Sources of data used in the form of secondary data obtained from the publication data of the Central Statistics Indonesia (BPS) and data Ministry of Finance with the period 2009-2013, with data between 33 districts/cities. The results of this study indicate that of the five variables suspected to affect HDI in the Province of North Sumatra, assuming *ceteris paribus* condition that: Economic growth has a significant positive effect on HDI due to the increase of economic growth of 0,000000293. The percentage of poor people does not affect to the HDI. Government expenditures in the field of education have no effect on HDI. Government expenditures in the field of health have a significant positive effect on HDI and income inequality has no effect.

**Key words :** HDI, Economic Growth, IW, Education Fund, Health Fund and Percentage of the poor, Fixed Effects Model, North Sumatera Province

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### I. Introduction

Human development is defined as a process for the expansion of more choices to the population through empowerment efforts that prioritize the improvement of basic human capacity to fully participate in all areas of development.

Human development is more than economic growth, more than just an increase in income and more than just commodity production processes and capital accumulation. The reasons why human development needs attention are: First, many developing countries including Indonesia that achieved economic growth, but failed to reduce the socio-economic and poverty gap. Second, many developed countries with high income levels do not succeed in reducing social problems, such as: drug abuse, AIDS, alcohol, homelessness, and domestic violence. Third, some low-income countries can achieve high levels of human development because they are able to wisely use all the resources to develop basic human capabilities.

In the case of North Sumatra Province, publication data (BPS, 2013) shows that the human development index in North Sumatra Province has not increased. In contrast, the human development index (HDI) is declining. More and more poor people. In recent years, seen in the following table:

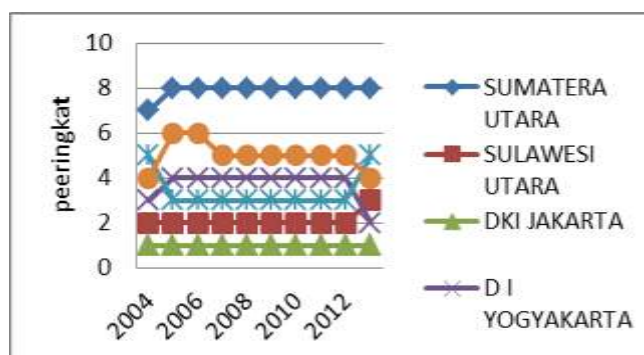
**Table 1.1. Human Development Index of North Sumatra Province**

Year	HDI
2004	71,42
2005	72,03
2006	72,46
2007	72,78
2008	73,29
2009	73,80
2010	74,19
2011	74,65
2012	75,13
2013	75,55

Source: BPS North Sumatra Province, in 2013 (processed data)

The performance achievement of human development index in North Sumatera Province have an increasing trend in absolute. But the increase was not strong enough to lift the relative position of the human

development index in North Sumatra Province to the level expected nationally. When compared with the Provinces of DKI Jakarta, North Sulawesi, Riau, D.I Yogyakarta, East Kalimantan, North Sumatra are still slightly left behind. The position of North Sumatra moved downhill and remained from 7th place in 2004 to 8th from 2005 to 2013. This is certainly a problem to the local government of North Sumatra Province, so there needs to be continuous efforts to boost the ranking of human development index (HDI). The province of North Sumatra with good natural resources can certainly follow other provinces that have the same natural resources as the better human development index (HDI) of course. This can be seen through Graph 1.1 National Human Development Index Ranking.



Source: BPS, 2013 (processed data)

**Figure 1.1** National Human Development Index graph (2004-2013).

This achievement still looks far from the targeted position. In fact, this achievement is getting worse because other dimensions of regional development have shown quite impressive performance, such as economic growth and poverty reduction. According to UNDP, the human development index is influenced by several factors, among others, economic growth, inequality of income distribution and government spending.

## II. Literature Review

### 2.1 Definition of Human Development

The definition of human development according to UNDP (United Nations Development Program) is a process to expand the choices for the residents. When referring to these terms, then the residents have become the ultimate goal of development, while the development effort is a means (principal means) for that purpose. To ensure the achievement of human development goals, four main things to note is productivity, equity, sustainability, empowerment (UNDP, 1995). In sum, the four basic points contain the following principles: productivity, equity, sustainability and empowerment.

### 2.2 Human Development Index

According to UNDP (2013) the human development index (HDI) is a comparative measurement of life expectancy, literacy, education and living standards for all countries around the world. HDI is used to classify whether a country is a developed country, a developing country or an underdeveloped country and also to measure the influence of economic policy on quality of life.

#### 2.2.1 Measurement of Human Development Index

In the human development index there are three composition indicators used to measure the size of the human development index of a country, namely:

1. The level of health is measured by life expectancy at birth (infant mortality rate).
2. The level of education is measured by literacy rates (with weights two-thirds) and the average length of school (weighing one-third).
3. The standard of living is measured by the level of per capita expenditure per year.

The general formula used to calculate the Mathematical Development Index by Maipita (2013) is as follows:

$$HDI = \sqrt[3]{(I_{life})(I_{edu})(I_{income})}$$

Where:

*I<sub>life</sub>* = Life expectancy index,

*I<sub>edu</sub>* = Education index (education index)

*Income* =Income index

### 2.2.2 IPM Components

#### 1. Life expectancy index

The life expectancy index indicates the number of years of life expected to be enjoyed by residents of a region. By incorporating a variable number of births and deaths every year are expected to reflect the average length of healthy living and community life.

#### 2. Education Index

The calculation of education index (IP) includes two indicators: school expectations and average school length (MYS). The population used is the population aged 15 years and over because in fact that the existing age population who quit school.

#### 3. Decent Living Index

To measure the dimensions of decent living standards (purchasing power), UNDP uses an indicator known as the real per capita GDP adjusted. For the calculation of human development index (HDI) of sub-national (provincial or district/city) does not use per capita GDP because per capita GRDP only measures the production of a region and does not reflect the real purchasing power of the community which is the concern of human development index (HDI).

The systematic calculation of williamson index is as follows:

$$IW = \frac{\sqrt{\sum(Y_i - Y)^2 f_i/n}}{Y}$$

Where:

IW = Williamson Index

Y<sub>i</sub> = GRDP per capita in district/city i

Y = GRDP per capita in Province

f<sub>i</sub> = Population in district/city i

n = Population in Province

### III. Research Methods

The types of data used in this research is secondary data on economic growth variables, percentage of poor population, government spending on education, government expenditures on health and income distribution inequality allegedly affecting human development index in North Sumatra Province. The spatial coverage of the study is all regencies or municipalities in North Sumatera Province, 33 districts or municipalities, with 5 year data series from 2009-2013 with total data of 165 data panels which is a combination of spatial and time series data. which are quantitative data.

#### 3.1 Data Analysis Techniques

By analyzing data obtained to know how big influence of independent variables to dependent variable using econometric model by regressing existing variables by using regression model of panel data. as follows:

$$\text{Log}(IPM_{it}) = \beta_0 + \beta_1 \log(X_{1it}) + \beta_2 \log(X_{2it}) + \beta_3 \log(X_{3it}) + \beta_4 \log(X_{4it}) + \beta_5 \log(X_{5it}) + v_{it} \dots\dots\dots (3.1)$$

By explanation:

Y = Human development index (percent)

β<sub>0</sub> = Intercept

X<sub>1</sub> = Economic growth (percent)

X<sub>2</sub> = Percentage of poor population (percent)

X<sub>3</sub> = Government spending on education (billions)

X<sub>4</sub> = Government health expenditures (billions)

X<sub>5</sub> = Inequality income distribution (percent)

β<sub>1</sub>, β<sub>2</sub>, β<sub>3</sub>, β<sub>4</sub>, β<sub>5</sub> = Regression coefficients

v<sub>it</sub> = Terms of error

### IV. Result And Discussion Result

#### 4.1 Estimation Results of Data Panel Regression Human Development Index (HDI) in North Sumatra Province and Variable Affecting it

**Table. 4.1 Descriptive Statistics of HDI Variables**

	IPM?	PDRB?	DP?	DK?	IW?	PK?
Mean	73.5970	3860331	20684.10	5641.314	0.057162	13.66564
Median	73.8400	1805194	19089.10	5413.480	0.032300	11.60000

Maximum	78.6000	4330395	58894.22	16409.60	0.588800	35.00000
Minimum	65.9600	154420.2	0.000000	0.000000	0.000000	4.710000
Jarque-Bera	10.7254	2771.858	19.99552	47.26999	2933.043	142.6188
Probability	0.00468	0,000000	0,000046	0,000000	0,000000	0,000000
Observations	165	165	165	165	165	165

Source: Output  
Eviews 6.0

Result Data Panel

Normality tests can be used to determine whether residuals have been normally distributed. With the hypothesis H0: the residual distribution has been normally distributed can be seen through the probability of Jarque Berra and the significant level of 95% ( $\alpha = 5\%$ ), then from table 4.7 it can be explained that the PDRB, PK, DP, DK and IW variables have been distributed normally (do not reject H0).

#### 4.2 Test Specification Model of Panel Data Regression

**Table 4.2 The statistical results of chow test (likelihood test)**

Effect Test	Statistic	d.f.	Prob
Cross-section F	81.459111	(32,127)	0.00.0
Cross-section Chi – square	506.421482	32	

Source: Secondary data, processed with eviews 6.0.

CHOW results show that the probability (p-value) cross-section F and Chi Square = 0.0000, error significance ( $\alpha = 0.05$ ) so that H0 is rejected and H1 is accepted so that between pooled least square model and fixed effect model then according to test result chow above model used is fixed effect model.

#### 4.3 Regression Panel Data Estimation Result with Fixed Effect Model Method

Interpretation of Asahan Regency

HDI ASA=  $-2.051609 + 79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Asahan HDI will increase by 79.06%

Interpretation of Batu Bara Regency

HDI BAT=  $-3.755042 + 79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then the Batu Bara HDI will increase by 77.36%

Interpretation of Binjai Regency

HDI BIN=  $0.532075 + 79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Binjai HDI will increase by 81.65%

Interpretation of Dairi Regency

HDI DAI=  $-1.727164 + 79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then the Dairi HDI will increase by 79.39%

Interpretation of Deli Serdang Regency

HDI DEL=  $-5.830924 + 79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then HDI Deli Serdang will increase by 75.28%

Interpretation of Gunung Sitoli Regency

HDI GGS=  $9.344289 + 79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Gunung Sitoli HDI will increase by 90.46%

Interpretation of Humbanghasundutan Regency

HDI HUM=  $-1.955941+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then HDI Humbanghasundutan will increase by 79.16%

Interpretation of Labuhan Batu Regency

HDI LAB=  $-0.830574+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Labuhanbatu's HDI will increase by 80.28%

Interpretation of South Labuhanbatu Regency

HDI LBS=  $1.711192+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then South Labuhanbatu IPM will increase by 82.83%

Interpretation of North Labuhanbatu Regency

HDI LBU=  $0.019748+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then North Labuhanbatu HDI will increase by 81.13%

Interpretation of Langkat Regency

HDI LKT=  $-2.468940+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Langkat HDI will increase by 78.65%

Interpretation of Mandailing Natal Regency

HDI MAN=  $-3.049870+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then the Mandailing Natal HDI will increase by 78.06%

Interpretation of Medan Regency

HDI MED=  $-9.005434+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then the Medan HDI will increase by 72.11%

Interpretation of Nias Regency

HDI NIA=  $-0.495240+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then the Nias HDI will increase by 80.62%

Interpretation of West Nias Regency

HDI NIB=  $2.921653+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables such as GRDP, DK, DP, IW, and PK are assumed to be zero then HDI West Nias will increase by 84.04%

Interpretation of South Nias Regency

HDI NIS=  $-1.943535+79.24095 + 2.95E-07$  PDRB +  $1.55E-06$  DP +  $4.27E-06$  DK +  $2.388922$  IW -  $0.515262$  PK

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then South Nias HDI will increase by 79.17%

Interpretation of North Nias Regency

$$\text{HDI NIU} = 4.671733 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then North Nias HDI will increase by 85.79%

Interpretation of Padang Lawas Regency

$$\text{HDI PAL} = -1.865119 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then HDI Padang Lawas will increase by 79.25%

Interpretation of Padang Sidempuan Regency

$$\text{HDI PDS} = 0.940420 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then HDI Padang Sidempuan will increase by 82.05%

Interpretation of Pematang Siantar Regency

$$\text{HDI PEM} = 3.803417 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then HDI Pematang Siantar will increase by 84.92%

Interpretation of North Padang Lawas Regency

$$\text{HDI PLU} = -1.066975 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables such as GDP, DK, DP, IW, and PK are assumed to be zero then the HDI of North Padang Lawas will increase by 80.05%

Interpretation of Pakpak Dairi Regency

$$\text{HDI KDP} = -1.353835 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Pakpak Dairi's HDI will increase by 79.76%

Interpretation of Samosir Regency

$$\text{HDI SAM} = 2.509956 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then HDI Samosir will increase by 83.62%

Interpretation of Serdang Bedagai Regency

$$\text{HDI SER} = -2.038982 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then HDI Serdang Bedagai will increase by 79.08%

Interpretation of Sibolga Regency

$$\text{HDI SIB} = 3.038960 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Sibolga's HDI will increase by 84.15%

Interpretation of Simalungun Regency

$$\text{HDI SIM} = -1.753437 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

if such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Simalungun's HDI will increase by 79.36%

**Interpretation of Tebing Tinggi Regency**

$$\text{HDI TBT} = 3.869059 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables such as GDP, DK, DP, IW, and PK are assumed to be zero then HDI Tebing Tinggi will increase by 84.98%

**Interpretation of Tanjung Balai Regency**

$$\text{HDI TJG} = 2.960748 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables such as GRDP, DK, DP, IW, and PK are assumed to be zero then Tanjung Balai HDI will increase by 84.08%

**Interpretation of Tanah Karo Regency**

$$\text{HDI TNK} = 0.834380 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Tanah Karo HDI will increase by 81.95%

**Interpretation of Toba Regency**

$$\text{HDI TOB} = 2.251155 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then Toba HDI will increase by 83.37%

**Interpretation of South Tapanuli Regency**

$$\text{HDI TPS} = 0.484953 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then South Tapanuli HDI will increase by 81.60%

**Interpretation of Central Tapanuli Regency**

$$\text{IPM TPT} = 0.120870 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables as GDP, DK, DP, IW, and PK are assumed to be zero then the Central Tapanuli IPM will increase by 81.24%

**Interpretation of Tapanuli Utara Regency**

$$\text{HDI TPU} = 1.178012 + 79.24095 + 2.95\text{E-}07 \text{ PDRB} + 1.55\text{E-}06 \text{ DP} + 4.27\text{E-}06 \text{ DK} + 2.388922 \text{ IW} - 0.515262 \text{ PK}$$

If such variables such as GRDP, DK, DP, IW, and PK are assumed to be zero then North Tapanuli HDI will increase by 82.30. %

**4.4 Economic Interpretation**

**Table 4.3 Table Relationship of Independent Variables (PDRB, DP, DK, IW, PK) to the dependent variable (HDI) in North Sumatra Province**

Variabel	relationship found	Signifikansi
<i>Coefficient</i>	Positif (+)	Significant
<i>Product Domestic Regional Bruto (PDRB)</i>	Positif (+)	Significant
education fund	Positif (+)	not significant
health fund	Positif (+)	not significant
Inequality of Income Distribution (IW)	Positif (+)	not significant
Percentage of Poor People (PK)	Negatif (-)	Significant

**Economic Interpretation**

From the estimation result of human development index model (HDI), obtained:

- The economic regression coefficient of 2.95E-07 which means an increase of 1% economic growth will increase the human development index (HDI) by 0,0000295%. And vice versa. The results of this research

are consistent with the hypothesis and previous research which suggest that economic growth has a positive effect on the human development index (HDI) in Indonesia. This research is also in accordance with Cobb-Douglas theory, which says that the achievement of economic growth is inseparable from the quality of human capital.

- The percentage coefficient of the poor is -0.515262 which means a decrease in percentage of poor people by 1% will increase the index of human development by 51.52% and vice versa. This result is in accordance with the hypothesis and previous research by Todaro (2000) which says that human development is the goal of development itself. Human development plays a key role in shaping a country's ability to absorb modern technology and to develop its capacity to create sustainable growth and development.
- Lanjouw, and friends (2001) stated that development in Indonesia is synonymous with poverty reduction. Investments in education and health will be more meaningful to the poor than non-poor, because for the poor the main asset is energy. The existence of cheap educational and health facilities will greatly help to increase productivity, and in turn increase revenue.
- The government's education expenditure coefficient of 1.55E-06 means that an increase in the increase in government spending in the education sector by 1% will increase the human development index by 0.000155% and vice versa.
- This result is consistent with previous research by Maryani (2010) which analyzed the impact of government spending on education, health spending on health, and the number of poor people on HDI. The allocation of government spending on education, the allocation of public health spending, and the number of poor people. The results show that government expenditures in education, public health expenditure, and the number of poor people have a positive effect on HDI. Although the positive effect of government expenditure on education and health still has little effect on HDI it indicates that the expenditure for the field is not optimal either from its use and its allocation.
- The Government's health expenditure coefficient of 4.27E-06 means that an increase in the Government's health expenditure increase of 1% will increase the human development index by 0.000427% and vice versa.
- This result is consistent with previous research by Maryani (2010) which analyzed the impact of government spending on education, health spending on health, and the number of poor people on HDI. allocation of government expenditures in education, allocation of public health expenditures, and the number of poor people. The results show that government expenditures in education, public health expenditure, and the number of poor people have a positive effect on HDI. Although the positive effect of government expenditure on education and health still has little effect on HDI it indicates that the expenditure for the field is not optimal either from its use and its allocation.
- Inequality income distribution coefficient of 2.388922 which means an increase to increase inequality income distribution by 1% will reduce the human development index of 238% and vice versa. The results of this study are consistent with the hypothesis of Alesina and Rodric in Meier and Rauch (2000) found that uneven distribution of income adversely affects economic growth that will ultimately adversely affect human development.

## **V. Conclusions And Suggestions**

### **5.1. Conclusion**

Based on the results of analysis and discussion that have been raised, it can be presented some conclusions are as follows:

1. The influence of economic growth (GRDP) on the human development index (HDI) in North Sumatra Province, can be said to have a positive and significant effect. It can be seen from result of regression test turns out to have value sig = 0,0000 <0,05, because sign value less than 0,05 means there is positive and significant influence. Thus the hypothesis is proved.
2. The influence of the percentage of poor people, on the index of human development (HDI) in North Sumatra Province has a significant effect. From the result of regression test known that sig value = 0.000 <0,05 means there is negative and significant influence with HDI.
3. Government spending on education has a positive and significant impact on HDI. This can be seen from the results of partial test for government spending in the education sector has a value of sig = 0.6970 > 0.05, means no effect. Thus the hypothesis is not proven.
4. Government expenditure in the health sector has a positive effect on HDI having sig value 0,5131 <0,05, because sig value = 0,7238 > 0,05 means no effect. Thus the hypothesis is not proven.
5. The effect of income distribution inequality to HDI which shows sig value = 0.1657 > 0,05 means no effect. Thus the hypothesis is not proven.



## 5.2. Suggestions

The suggestions that the author can provide in connection with the results of this study are as follows:

1. The government needs to pay attention to the issue of economic growth. Economic growth should be combined with the equity of the results. Equity of opportunity must be available to everyone, women and men to be empowered.
2. The government needs to pay attention to issues related to poverty reduction with increasing community productivity through investment in education and health so that the human development index can be further improved.
3. The government needs to pay attention to issues related to government spending in the education sector by budgeting more budget in the education sector because it is a crucial sector to improve the human development index.
4. The government needs to pay attention to issues related to government expenditures in the health sector by continuing to hold the construction of public facilities, especially in the health sector, such as the construction of hospitals and puskesmas. as well as improving the quality of nutrition and nutrition for the poor and posyandu especially in rural and disadvantaged areas.
5. The government needs to pay attention to issues related to the distribution of income, where the income distribution must be evenly distributed in the community to improve the level of labor productivity.

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