Impact of Governance and Government Expenditure on Human Development in Indonesia

A Research Paper presented by:

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(Indonesia)

in partial fulfillment of the requirements for obtaining the degree of

MASTER OF ARTS IN DEVELOPMENT STUDIES

Major:

Governance and Development Policy

(GDP)

Specialization:

Public Policy and Management

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The Hague, The Netherlands
December 2017

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This document represents part of the author's study programme while at the Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

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Dedication Page

This paper is dedicated for my beloved husband *Abi Iswahyudi* and my daughter *Dedek Alana*

Thank you for every support, sacrifice, patience, understanding, and love

I love You both and *Terima Kasih*

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List of Acronyms

AHP	Analytical Hierarchy Procedures
ASEAN	Association South East Asian Nations
CPI	Corruption Perception Index
DAK	*Dana Alokasi Khusus* (Specific Allocation Grants
DAU	*Dana Alokasi Umum* (General Allocation Grants)
DBH	*Dana Bagi Hasil* (Revenue Sharing)
GDP	Gross Domestic Product
GLS	Generalized Least Square
GNI	Gross National Income
GNP	Gross National Product
HDI	Human Development Index
IGI	Indonesia Governance Index
KPK	*Komisi Pemberantasan Korupsi* (Corruption Eradication Commission)
NER	Net Enrolment Ratio
PSG	*Pemantauan Status Gizi* (Nutrition Status Monitoring)
SUSENAS	*Survei Sosial Ekonomi Nasional* (National Social and Economic Survey)
UNDP	United Nations Development Programme
WHO	World Health Organization

Abstract

The purpose of this study is to investigate the impact of governance, health expenditure, and education expenditure on human development by using panel data from 33 provinces in Indonesia in 2008 and 2012. Human Development is measured by Human Development Index (HDI), Governance is measured by Indonesia Governance Index, and Health and Education Expenditure are measured as the percentage of Gross Domestic Product (GDP). Regression and Exploratory Data Analysis (EDA) approach are used to examine the relationship. The results of this study show that governance, health expenditure, and education expenditure impact human development significantly. Governance and health expenditure are found to have positive impact on human development; meanwhile health expenditure is discovered to affect human development in negative direction.

Relevance to Development Studies

Since the introduction of human development approach by UNDP 1990, the focus of development has switch from economic-centre to human-centre development. This switching has been widely accepted in regard to fact that racing toward higher growth failed to improve human-being. Since then, many studies have been conducted in order to explore the factors that could improve human development. Most of studies agree that both economic and institutional aspects are imperative in promoting human development. The investigation in this study will examine the impact of these two aspects on human development achievement in Indonesia by exploring the situation in provincial level. The results will contribute to enrich the research in this field as well contribute to the improvement of government policy, especially for provincial government, in Indonesia in order to increase human development.

Keywords

Indonesia, Human Development, Good Governance, Government Expenditure, Education, Health.

Chapter 1 Introduction

1.1. Background of the Study

In 1990, UNDP came up with a new approach of development called human development which was explained in the first Human Development Report. Human development approach concerns on enhancing human well-being rather than simply focus on enriching the economy in which human beings live (UNDP ca. 2017). Human development focuses on giving freedom to people to live their life as their value. There are three basic dimensions to measure human development which are long and healthy life, knowledge, and decent standard of living (UNDP ca. 2017).

In order to advance human well-being, development practitioners agree that "an expansion of the production of goods and services (economic growth) increases capabilities and choices as well as many freedom and thus makes a vital contribution to human development" (Griffin 1997:4). Therefore, economic growth is interrelated to human development. Sustainable human development is only possible to be achieved as the present of growth; however, high growth does not necessarily lead to high human development (Haq 1995). It could happen in regard to government policy choices (Haq 1995). Build upon country's experiences related to government policy choices, UNDP come up with conclusions that sustainable human development could be achieved in two main conditions which are growth with equal income distribution and well-structure social expenditure. High economic growth accompanied by equitable income distribution is believed as the most effective condition to achieve sustainable human development. Furthermore, well-structured social expenditure by government could lead to sustainable human development albeit the "the absence of good growth or good distribution" (UNDP 1990: 42) (UNDP 1990).

Besides economic growth, many scholars, organizations, policy makers, and development practitioners have been recognized the role of institution as the crucial factor to improve human development. In order to measure quality of institution, the concept of governance is widely accepted. According to UNDP governance refers to the "implementation of economic, political, and administrative authority to direct the affairs of a country in all level" (UNDP 1997). Moreover, the World Bank defines governance as "the traditions and institutions by which authority in a country is exercised" (Kaufmann et al. 2010). UNDP and World Bank agree that governance is highly related to the way of authority exercised in the country; hence, in exercising these authorities government institution plays the major roles. Good governance could make more effective and efficient institutions which will lead to strong and equitable economic and human development since "ineffective institutions usually result in the greatest harm to those who are poor and vulnerable" (UNDESA, UNDP, UNESCO 2012: 3) (UNDESA, UNDP, UNESCO 2012, Acemoglu 2008).

Due to the important role of government in development, this paper aims to study the role of government both in economic and institutional realm in promoting human development. In the economic side, it will focus on investigating the impact of social government expenditure arrangement which are health and education expenditure on human development. Meanwhile, in the institutional side, it will study whether governance contributes on improving human development. Indonesia will be the case study in this paper by considering its good economic

performance in Southeast Asia region and also the significant effort of Indonesian government on improving the quality of government institution.

Indonesia is the largest country in Southeast Asia region with area 1,9 million km^2 and consists of 17,504 islands (Statistics Indonesia 2017). Indonesia is also the country with the most population in the region. Moreover, it is in the rank fourth of most populated countries in the world after China, India, and United States (United States Census Bureau 2017). From 1990 – 2015, Indonesian population was around 40% of total population in all ASEAN countries (UN 2017). Beside the fact that Indonesia is a biggest county in the region, it also shows a good economic performance. Indonesia is considered as one of the big 5 of ASEAN countries with largest economies together with Singapore, Malaysia, Thailand, and Philippines (IMF 2017). Indonesia was one of the ASEAN countries which survived in the global financial crisis in 2008 and 2009. When its neighboring countries such as Singapore, Thailand, Malaysia, and Brunei Darussalam suffered from negative growth due to the financial crisis; Indonesian economy was stable. It still achieved positive and high growth in those period (IMF 2017).

Moreover, in term of human development achievement, Indonesia was categorized in medium level human development where it was in rank 113 of 188 countries in 2015 (UNDP 2016). When compared to other ASEAN 5 countries, Indonesia was in the fourth rank which was right after Thailand and right above Philippines in 2015 as depicted in Table 1.1. Table 1.1 shows that economic growth of Indonesia was below average economic growth of all ASEAN countries; however, compared to other ASEAN 5 countries, Indonesian growth was still higher than Singapore and Thailand. Although Indonesian growth was higher than Singapore and Thailand, the HDI of Indonesia was lower than those two countries. It was due to HDI Indicators values of Singapore and Thailand were far above Indonesia. The biggest gap between Indonesia and Singapore was in life expectancy at birth and GDP per capita. The gap of life expectancy between Indonesia and Singapore was more than 10 years; while the gap of GDP per capita was more than 75,000 US$.

Table 1. 1 Human Development Index and Economic Growth in ASEAN 5 Countries in 2015

Countries	HDI*	Economic Growth (percentage)**	Life Expectancy at Birth (Years)*	Expected Years of Schooling (Years)*	Mean Years of Schooling (Years)*	GDP per capita (US$)**
Singapore	0.925	2.00	82.2	15.4	11.6	87,082
Malaysia	0.789	4.96	74.9	13.1	10.1	26,211
Thailand	0.740	2.82	74.6	13.6	7.9	16,130
Indonesia	**0.689**	**4.79**	**69.1**	**12.9**	**7.9**	**11,149**
Philippines	0.682	5.90	68.3	11.7	9.3	7.282
Average ASEAN countries	*0.698*	*4.82*	*72.7*	*12.5*	*7.8*	*24,603*

*Sources: *United Nation Development Prorgramme (UNDP) 'Human Development Report 2016'; **United Nations (UN) (2017) 'World Population Prospects 2017'.*

Furthermore, in quality of government institution, Indonesia has undergone massive and significant reforms since 1998 after the fall of Soeharto regime, the former President of Indonesia which had been in charge for about 32 years. The reforms were attributed to the severe financial crisis and unstable political condition in 1998. The significant reform has been changed the centralized government to decentralized government in 2001 in accordance with Law 22/1999 on

Local Government. In addition, to improve the quality of service delivery, government bodies have been doing bureaucratic reform intensely since 2010. The grand design of this reform is based on Presidential Regulation 81/2010. The bureaucratic reform has been designed for all government levels, from central to local levels (provinces and regencies). Moreover, in the budgetary system, the reform also paid much attention to education and health sectors. According to Law 20/2003, all government levels, from central to local level, have to allocate 20 percent of its budget to education sector. Furthermore, central government is responsible to spend 5 percent of its budget to health sector while local governments have to allocate 10 percent of its budget as mandated by Law 36/2009 on Health.

Table 1.2 Average Total Government Expenditure and Social Expenditure (Health and Education Expenditure ASEAN 5 countries between 2000 and 2015

HDI Rank among ASEAN countries in 2015	Countries	Total Government Expenditure/GDP (Percentage)	Health Expenditure/GDP (Percentage)	Education Expenditure/GDP (Percentage)
1	Singapore	15.95	1.45	3.12
3	Malaysia	27.22	2.07	5.72
4	Thailand	21.04	4.50	4.35
5	**Indonesia**	**18.04**	**0.99**	**3.16**
7	Philippines	19.34	1.47	3.03
	Average ASEAN Countries	21.88	1.85	3.74

Source: International Monetary Fund (IMF) (2017) 'World Economic Outlook'.

Table 1.2 shows the amount of social expenditure in health and education in Indonesia compares to other ASEAN 5 countries between 2000 and 2015. All types of government expenditures of Indonesia which were total, health, and education expenditures as share of GDP were lower than average expenditure of ASEAN countries. The share of GDP going to public expenditure spent to health sector was only 0.99 percent. It was the lowest percentage among ASEAN 5 countries. Even Philippines which scored lower in HDI than Indonesia spent 0.5 percent higher in education sector than Indonesia did. However, Indonesia still can achieve higher human development among ASEAN countries where Indonesia was positioned in fourth rank. Considering those facts, it is interesting to study further the extent of size of social government expenditure in Indonesia affects human development in the country and how they are interrelated. Moreover, due the massive reforms happening since 1998, it is also interesting to examine whether these efforts contribute to improve quality of government institution which is expected to improve human development.

Some studies have been conducted to investigate the relationship between government expenditure and human development in Indonesia. One of them is studied by Lubis (2015). She investigates the relationship between government spending and human development in 33 provinces in Indonesia from 2002 to 2015. She finds that health, agriculture, and household expenditure show positive impact on human development; while education and infrastructure expenditure are not related significantly to human development. Conversely, the studies exploring the relationship between governance and human development in Indonesia are very limited. As far as the author knowledge, only one study that explore this topic. Rusydi and Rossieta (2014) examine the impact of good governance on human development in Indonesia using panel data in

33 provinces in Indonesia. They use governance index, accountability of government financial report and index of corruption perception to explain human development. They find that good governance has positive impact on human development.

Therefore, this study will enrich the research on the topic of governance as well as budgetary policy in Indonesia. The difference of this study from previous study is, this study will investigate both the impact of governance and social government expenditure which consists of health and education expenditure on human development in Indonesia. It will be the first study in Indonesia that incorporates the expenditures and governance variables in explaining human development. Furthermore, it will specifically investigate the impact of governance and social government expenditure, individually, on human development to obtain more in-depth analysis on their relationships.

1.2. Research question

Primary Research Question**: '**To what extend governance and social government expenditure affect human development in 33 provinces in Indonesia?'

Sub-questions:

i) How is the impact of governance on human development Indonesia?

ii) How is the impact of health expenditure on human development in Indonesia?

iii) How is the impact of education expenditure on human development in Indonesia?

1.3. Scope and Limitation

The investigation in the study uses panel data in 33 provinces in Indonesia by limiting the time coverage with only two years which are 2008 and 2012. The limited time coverage is due to this study relies fully on secondary data resources; therefore, it encounters the limitation of data availability. To measure governance in provincial level, the only data available is Indonesian Governance Index (IGI). Until now, the IGIs have been only issued two times. The first issuance was in 2008, and the latest one was in 2012.

1.4. Organization of the paper

This paper consists of 6 chapters. First chapter explains the background of study which is started by explaining the theoretical framework underlining the study and the study objectives. Then, it is continued by justifying the reason of choosing Indonesia as the case study. After that, research questions are presented as well as the scope and limitation of the study. Finally, it describes the structure of the paper.

Then, second chapter explains the theoretical and analytical framework in the study. Some theories and concepts are defined to support the analysis. It elucidates three main theories and concepts which are human development, governance, and government expenditure. After that, it comes up with the analytical framework by explaining how the theories and concepts are interrelated.

Chapter two is followed by chapter three which is methodology section. This chapter elaborates the data and sources of data in the study. It describes in detail the variables used as well as the method of analysis.

The fourth chapter portrays the background situation in Indonesia related to human development progress, budgetary system as well as governance situation. It also highlights the main important health and education conditions that affect human development achievement. Because of this paper focuses on looking at provincial performance, the elaboration in chapter four mostly depicts the comparison of province's situation.

Next, chapter five presents the study results as well as the analysis and discussion. The first section in chapter five explains the regression results. After that, it discusses the findings by explaining one by one relationship of each interest variables on human development. It also makes use of other data to strengthen the analysis.

Finally, the results of the study are concluded in chapter six.

Chapter 2 Theoretical and Analytical Framework

2.1 Human Development

The thinking about human development is not something new. The concern to consider social arrangement in enhancing human well-being has been discovered since era of Aristotle (384-322). Aristotle argued that "wealth is evidently not the good we are seeking, for it is merely useful and for the sake of something else" (Aristotle, as cited in Haq 1995). In addition, the concern on human well-being in economy was also seen in work of Immanuel Kant, Adam Smith, Robert Malthus, Karl Marx, and John Stuart Mill (Haq 1995). However, for about four decades of development era, development had focused on the racing toward higher economic growth where it continued concentrating on accumulation of commodities and financial wealth (UNDP 1990). However, the race toward high economic growth failed to enhance human well-being and led to the increase of inequality. As explained by UNDP in first Human Development Report 1990, it is highly important to thoroughly looked into relationship between economic and human development. It is attributed for some reasons which were

> many fast-growing developing countries are discovering that their high GNP growth rates have failed to reduce the socioeconomic deprivation of substantial section of their population; industrial nations are realizing that high income is no protection against the rapid spread of such problems; at the same time, some low-income countries have demonstrated that it is possible to achieve high levels of human development if the skilfully use the available means to expand basic human capabilities (UNDP 1990:10).

Because of these reasons, UNDP thought that it was highly imperative to change the focus of development from economic-centre to human-centre development.

In 1990, UNDP introduced a new approach of development that was intended to enhance human well-being. It is called human development approach which was presented in first Human Development Report 1990. "Human development is a process of enlarging people's choices…expanding the richness of human life, rather than simply the richness of the economy in which human beings live" (UNDP 1990). According to UNDP, the three most essential choices are "to lead a long and healthy life, to acquire knowledge, and to have access to resources needed for a decent standard of living…if these essential choices are not available, many other opportunities remain inaccessible" (UNDP 1990). Therefore, human development has three central focuses which are first, *people*-it focuses on enhancing people quality of life; second, *their opportunities*-it gives freedom to people to live as their values by developing their capabilities and creating the environment enabling them to use their capabilities; third, *choices*-it is about giving people more choices or opportunities in life yet not force them to take or use the given opportunities (UNDP 1990).

This approach is developed by economist Mahbub Ul Haq. According to Haq, Human development approach makes people as the centre of development, "whether the people are able to "be" and "do" desirable things in life" (UNDP 1990). In order to "be", people need to fulfil the basic need of human nature consisting of three aspects whether they get enough food, have place to live, and live healthily; meanwhile, "do" refers to how people live their life including whether they can use their right in work and education as well as participate in the community

(UNDP ca. 2017). Hence, UNDP suggested three dimensions which are considered as the most important factors representing these "being" and "doing" to measure human development. These three dimensions are long and healthy life, knowledge, and decent standard of living. Therefore, the objective of human development is to enhance these three foundations of human capabilities. Furthermore, UNDP also states that to enable the achievement of human development, there are four conditions that have to present that are participation in political and community life, environmental sustainability, human securities and rights, and promoting equality and social justice (UNDP ca. 2017).

2.2 Human Development Index

The first Human Development Report 1990 introduced Human Development Index (HDI) as the indicator to measure and monitor the progress of human development achievement. HDI focuses on assessing the development of people's capabilities in the countries. Moreover, this index could be used to see the government policy choices. HDI is developed from some indicators which represent the three dimensions of human development. The indicators and formula used to measure HDI have been evolved over time in order to get better approximation (the evolution is depicted in Table 2.2).

Human Development Indicators

a. Long and healthy life.

Long and healthy life is measured by life expectancy at birth. Life expectancy at birth is defined as

> number of years a new born infant could expect to live if prevailing pattern of age-specific mortality rates at the time of birth were to stay the same throughout the infant's life (UNDP 2010: 224).

The main considerations behind the use of life expectancy at birth as the indicator of long and healthy life are firstly, the "common belief that a long life is valuable in itself" (UNDP 1990). Secondly, the long and healthy life help people to pursue their ambitions and goals in life as their choice. Finally, it is highly related to the other important aspects of human well-being such as nutritional adequacy, good health, and better education (UNDP 1990). This indicator has been used as the proxy of long and healthy life dimension since 1990. UNDP (1990) explains that, life expectancy is highly related to country's income and infant mortality rate. The higher country's income, the higher life expectancy. However, it is highly possible for low income countries to achieve significant increase on life expectancy. This exception applies when health and nutrition status in that countries grow significantly. Therefore, increasing and ensuring people's access to health facilities, clean water and sanitation, adequacy of food and nutrition are essential factors contributing to higher life expectancy. Moreover, the reduction of infant mortality rate contributes to higher life expectancy in countries.

b. Knowledge

The indicators used to measure knowledge dimension have experienced changes over time consisting of adult literacy rate, mean years of schooling, gross enrolment ratio, and expected years of schooling. In the first Human Development Report 1990, adult literacy rate was used as the sole indicator of knowledge by considering that it is the first crucial factor needed by people in learning and accessing education. Then in 1991 to 1993, mean years of schooling was added as

another indicator in addition to adult literacy rate. Currently, mean years of schooling and expected years of schooling are used as the indicators; meanwhile adult literacy rate was dropped due to consideration that it was no longer relevant to explain knowledge dimension. After getting the value of each indicator, then these two indicators are translated into education index (UNDP 1990, 1991, 2016). Mean years of schooling is estimated by "duration of schooling in each level of education" (UNDP 2015) and expected years of schooling is estimated by "enrolment by age at all levels of education and the number of children of school age in the population for each level of education" (UNDP 2015).

c. Decent standard of living.

In order to measure decent standard of living, the data on people's access to some resources are needed such as data on access to land, credit, income and other resources (UNDP 1990). However, due to the limitation of data of those resources, UNDP decided to make use income indicator as the measurement of decent standard of living. The available income indicator is income per capita. Income per capita is better measured by real GDP per capita by considering that it could give better approximation than nominal GDP per capita (UNDP 1990). Another consideration in choosing income indicator is that "indicator should reflect the diminishing returns to transforming income into human capabilities. In other words, people do not need excessive financial resources to ensure decent standard of living. This aspect was taken into account by using logarithm of real GDP per capita for the income indicator" (UNDP 1990: 12). In 2010, UNDP changed GDP per capita indicator to GNI per capita (UNDP 2015).

Calculating Human Development Index

Similar with HDI indicators, HDI formula has been changed over time. The calculation of dimensional index formula has changed from using arithmetic mean to geometric mean since 2010. The use of arithmetic mean depicts that low achievement in one dimensional index can be covered by high achievement of other dimensional indexes. It means that the high HDI values do not necessarily mean that countries achieve high value in all dimensions. While, in geometric mean, the achievement of one dimensional index cannot be covered by achievement of other dimensional indexes. This new formula shows that all HDI dimensions have to get high attention in order to achieve higher human development (Statistics Indonesia, ca.2017).

The calculation of HDI is through two steps. First step is creating the dimension indices. To produces indices, minimum and maximum value of each indicators are required in order to get the scale (the scale of 0 to 1) of indicators. (UNDP 2016).

Table 2.1 Minimum and Maximum amount of each Indicator in Human Development Index

Dimension	Indicators	Minimum	Maximum
Health	Life expectancy at birth (years)	20	85
Education	Expected years of schooling (years)	0	18
	Mean years of schooling (years)	0	15
Standard of living	GDNI per Capita (2011 PPP$)	100	75,000

Source: United Nations Development Programme (2016) 'Human Development Report 2016'.

After getting the minimum and maximum amount, the dimension indices are created by using formula below:

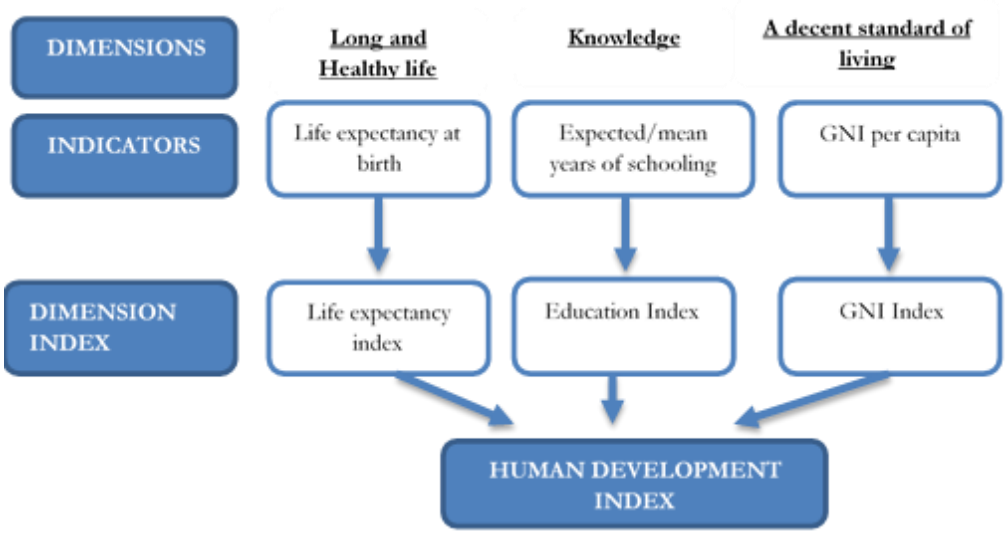
$$Dimensional\ index = \frac{Actual\ value - minumum\ value}{maximum\ value - minimum\ value}$$

The second step is aggregating the thee indexes by using geometric mean with following formula.

$$HDI = (I_{health}, I_{Educarion}, I_{income})^{1/3}$$

The calculation of HDI is depicted in the following diagram:

Diagram 2.1 Calculating Human Development Indices



Source: United Nations Development Programme (2016) 'Human Development Report 2016'.

Table 2.2 The Changes of Human Development Index Measurement from 1990 to 2014

Human Development Report (Year)	Indicators			Maximum and Minimum Values	Dimensional Index Formula	HDI Formula
	Long and Healthy Life	Knowledge	Decent Standard of Living			
1990	Life expectancy at birth	Adult literacy rate	Real GDP per capita PPP $ (log)	Observed	Normalization=$\frac{Maximum\ Value-Actual\ Values}{Maximum\ Value-Minimum\ Value}$ Aggregation of the three dimensional indices: Arithmetic mean	HDI = 1 – *I* *Where I* = Average Deprivation $I=\frac{Ih+Ie+Iy}{3}$
1991-1993		Adult literacy rate Mean years of schooling	Real GDP per capita PPP $ (adjusted)		Aggregation of education indicators: arithmetic mean of un-normalized indicators to produce a measure of educational achievements. The result is then normalized to produce the 'Educational Deprivation Index'	
1994				Fixed	Normalization=$\frac{Maximum\ Value-Actual\ Values}{Maximum\ Value-Minimum\ Value}$ Aggregation of education indicators: Arithmetic mean of normalized indicators to produce the 'Educational Attainment Index'.	HDI = 1 – *I* *Where I* = Achievement Indicators $I=\frac{Ih+Ie+Iy}{3}$
1995-1998		Adult literacy rate Combined gross enrolment ratio		Fixed (Minimum value for income reduced from 1994 value)		
1999-2009			Real GDP per capita PPP $ (log)			
2010-2013		Mean Years of Schooling Expected years of schooling	Real GNI per capita PPP $ (log)	Upper: Observed Lower: Fixed	Aggregation of education indicators: geometric mean of normalized indicators to produce the 'Educational Attainment Index' which is then re-normalized. Aggregation on the three dimensional indices: Geometric mean	HDI = 1 – *I* *Where I* = Achievement Indicators $I=(I_{health}, I_{Educarion}, I_{income})^{1/3}$
2014				Fixed upper and lower value	Aggregation of education indicators: arithmetic mean of normalized indicators to produce the "educational Attainment Index'	

Sources: United Nations Development Programme (UNDP) (2015) 'Occasional Paper, Training Material for Producing National Human Development Report'.

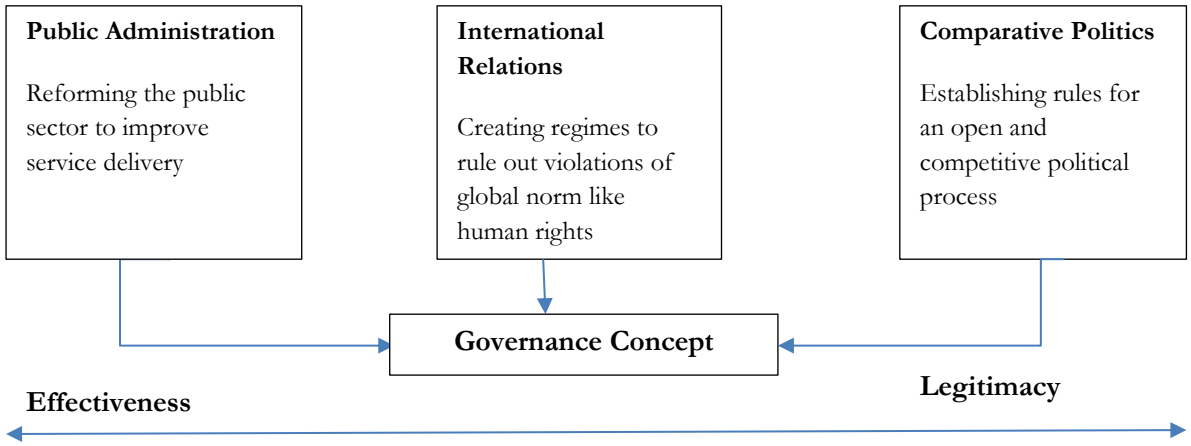
2.3 Governance

Etymologically, the origin of word "governance" is *kubernan* in Greek language which means piloting or steering (Kjaer 2004). In English, it is translated into 'governance' where Oxford dictionary defines it as the synonym of 'government'. Oxford dictionary translates governance as "the action or manner of governing state, organization etc" (Oxford Dictionary, n.d). However, during 1980s, political scientists started distinguishing governance from government (Kjaer 2004). When assessing the literature, term of 'governance' is mostly used in three fields which are public administration and public policy; international relation; and comparative politics (ibid.). Following definitions are the samples of governance definition by three political scientists in those three different fields.

> Governance refers to self-organizing, interorganizational network characterized by interdependence, resource-exchange, rules of the game, and significant autonomy from the state (Rhodes, as cited in Kjaer 2004).
>
> Global governance is conceived to include system of rule at all levels of human activity-from the family to the international organization-in which the pursuit of goals through the exercise of controls has transnational repercussions (Rosenau, as cited in Kjaer 2004).
>
> Governance is the stewardship of formal and informal political rules of the game. Governance refers to those measures that involve setting the rules for the exercise of power and settling conflicts over the rules (Hyden, as cited in Kjaer 2004).

Governance definition by Rhodes refers to public administration field. This field studies the important of good management, organization, function, and accountability of public sector (Kjaer 2004). Moreover, governance is associated with the concept of new public management which is intended to reform public administration (Hyden 2011). Meanwhile, Rosenau refers governance as the important factor in international relation field. Rosenau definition emphasizes on the global interdependency where state plays crucial roles. Finally, Hyden definition refers to comparative politics field engaging in the "systematic comparison of political system" (Almond et al. and Mair, as cited in Kjaer 2004).

Diagram 2.2 Theoretical Origin of Concept of Governance



Source: Hyden (2011) 'Making the State Responsive: Rethinking Governance Theory and Practice' in Making the State Responsive.

Diagram 2.2. shows theoretical origin of governance concept as well as the parameters. In public administration field, effectiveness is the main concern while in comparative politics field "building democratic institutions, promoting social justice and strengthening human rights" (Hyden 2011:5) are the focus with legitimacy as the parameter (Leftwich 1994, Hyden 2011). Meanwhile, the concept of governance in international relation field is placed in between.

The wide range of continuum between effectiveness and legitimacy gives space for this concept to be used in various practices. Hyden explains that "…it (governance) continues to mean different things to different actors" (Hyden 2011:5). Therefore, until recently, there has been no single definition of governance concept. Some of them offer narrow definition referring to one specific concern such as economic, political, or administrative concern. Meanwhile, some of them produce very broad definition covering almost everything. For instance, the definition produced by UNDP 1997 referred governance as "implementation of economic, political, and administrative authority to direct the affairs of a country in all level" (UNDP 1997). This definition covers the aspects of economics, politics, and administration. Moreover, in 2002, the World Bank introduced broader definition of governance including "the process by which government are selected, monitored, and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institution that govern economic and social interactions among them" (World Bank, as cited by Kaufman et al. 2010).

Some other scholars who are prominent in governance discourse also put this concept in various ways. Stoker (1998) defines governance as the interaction between public and private sector which the boundaries of each sector become blur. Acemoglu et al. (2008) describes governance as the broad cluster of institution including political institution, state capacity, and regulation of economic institution. Besides, Fukuyama (2013) emphasizes that governance is more specific to the government capacity in order "to makes and enforces the rule and to delivers the services" Fukuyama (2013).

Regarding to the broader use of governance concept, various organizations have been started using the concept to their programme. For instances, corporations and development banks used governance concept in their program to improve efficiency and enhance transparency and accountability; while bilateral donors and civil activists are more concern on enforcing the rule of law, social justice and human rights. In addition, besides the various meanings on governance concepts itself, the good governance indicators also vary. Table 2.3 summarizes the definition of governance and good governance from some organization and scholars.

Table 2.3 Definition Governance and Good Governance

Source	What is governance	What is good governance
World Bank (1992)	'the process and institutions through which decisions are made and authority in a country is exercised'	Inclusiveness and accountability established in three key areas: 'selection, accountability and replacement of authorities (voice and accountability; stability and lack of violence); efficiency of institution, regulations, resources management (regulatory framework, government effectiveness), respect for institution, laws and interaction among players in civil society, business and politics

Source	What is governance	What is good governance
UNDP (1997)	'the exercise of economic, political and administrative authority to manage a country's affairs at all levels. It comprises the mechanism, processes, and institution through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate differences	Characterised as 'participatory, transparent … accountable … effective and equitable … promotes the rule of law … ensures that political, social and economic priorities are based on broad consensus in society and that the voices of the poorest and the most vulnerable are heard in decision-making over the allocation of development resources
IMF	For IMF purposes, 'limited to economic aspects of governance … in two spheres: improving the management of public resources …; supporting the development and maintenance of a transparent and stable economic and regulatory environment conducive to efficient private sector activities …' (p. 4)	'ensuring the rule of law, improving the efficiency and accountability of the public sector, and tackling corruption' (p. 1)
Kauffmann (2003)	'the exercise of authority through formal and informal traditions and institutions for the common good, thus encompassing: (1) the process of selecting, monitoring, and replacing governments; (2) the capacity to formulate and implement sound policies and deliver public services, and (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them' (p. 5)	Can be measured along six dimensions (voice and external accountability; political stability and lack of violence, crime, and terrorism; government effectiveness; lack of regulatory burden; rule of law; control of corruption) (p. 5)
Hyden et al. (2004)	'The formation and stewardship of the formal and informal rules that regulate the public realm, the arena in which state as well as economic and societal actors interact to make decisions' (p. 16)	Can be measured along five dimensions ('participation, fairness, decency, efficiency, accountability, and transparency') in each of six arenas (civil society, political society, government, bureaucracy, economic society, judiciary)

Source: Grindle (2011) 'Good Enough Governance Revisited'

2.4 Governance, Government Expenditure, and Human Development

> "…economic growth, if it is to enrich human development, requires effective policy management. Conversely, if human development is to be durable, it must be continuously nourished by economic growth. Excessive emphasis on either economic growth or human development imbalance that, in due course, will hamper further progress" (UNDP 1990).

According to UNDP, in the development, economic growth is found to have well-correlation with human development. However, economic growth is not seen as the ends of development anymore, rather than as "the means to the end of human development" (Griffin 1997:4). It does not mean that economic growth becomes less important, but it becomes intermediate objective rather than the final objective of development. Haq (1995) emphasizes that, sustainable human development is impossible without growth; however, high in growth does not automatically lead to higher human development. It highly depends on the policy choices made by countries and also government priorities. It means that countries with the same level of GNP could have different human development achievement. Based on countries experiences, economic growth accompanied by equitable income distribution as well as well-structure government social expenditure are imperative points to achieve high and sustainable human development (UNDP 1990).

There are two types of policies that can be used by government as instruments to increase human development. These two types of policies are 'across-the board meso policies' and 'targeted meso policies' (UNDP 1990). Across-the-board meso policies are policies that ensure equal treatment for all social groups in term of provision of public goods and services such as food, health, and education subsidy. Meanwhile, targeted meso policies more focus on provision of specific public goods and/or services for targeted group of people, for instance giving nutritious food for a group of malnourished children (ibid.). Therefore, to finance the policies, government needs to do budget restructuring in order to get more fiscal space for human development expenditure (ibid.).

Haq (1995) explains that there are four important ratios that could be used sa the guidance for government to allocate its spending in order to increasing human development. All of them are related to government spending priority on social aspects. These four ratios are

> the public expenditure ratio (the percentage of national income that goes into public expenditure earmarked for social services); the social allocation ratio (the percentage of public expenditure earmarked for social services; the social priority ratio (the percentage of social expenditure devoted to human priority concern); and the human expenditure ratio (percentage of national income devoted to human priority concern, obtained by multiplying the first three ratio (Haq 1995: 29).

Accordingly, the difference values of these ratios would result difference human development achievement among countries. According to Ranis et al. (2000) the amount of government budget spent to human development priorities is also influenced by the fiscal capabilities and the other government priorities, such as the tax capabilities, and fiscal space. Moreover, besides the expenditure size, the efficiency of the spending is just as important (Herrera 2005, Prasetyo and Zuhdi 2013). The huge amount of government expenditure without efficiency has been proved to have negative impact on development (Presetyo and Zuhdi 2013).

The choices of government on spending its money and its relation to economic as well as human development have been widely studied. Barro (1991) and Easterly and Rebello (1993) find that government spending has positive relationship with economic growth; however, the effect is not significant. Moreover, contrary results are found by Devarajan et al (1996) and Pritchett (1996). They conclude that public investment influences economic growth in negative direction in group of developing countries. It is attributed to the problem of miss allocation of public spending and the inappropriateness of spending use.

Furthermore, Ranis et al. (2000) study the relationship between economic growth and human development in 76 developing countries between 1960-1992. They find that public expenditure on the human development items such as health and education have significant impact on human development improvement. Gupta et al. (2002) also find that increasing in health and education expenditure is related to increasing access to school and reduction of infant mortality in 50 developing countries. Moreover, besides health and education expenditures, they discover that income per capita, urbanization, literacy rate, and access to clean water and sanitation are also important factors that affect education and health condition in the countries.

Similar results are found by Razmi et al. (2012). They find that, in Iran, primary school completion rates have positive impact on human development while mortality rate and human development are related in negative direction. They also conclude that health expenditure that is directly invested to human capital both for prevention or treatment purposes is proved to reduce mortality and increase life expectancy. In addition, Bloom et al. (2001), Castro-Leal et al. (2000), Qureshi (2009) and Iheoma (2014) prove that both education and health expenditure affect human development in positive direction regardless the level of significance. Moreover, the study of Binder and Georgiadis (2010) suggest that to improve human development, the countries should think "beyond the realm of GDP development policies" (Binder and Georgiadis 2010:29).

Researches on this field were also examined in Indonesia. Lubis (2015) investigates the impact of government spending particularly in health and education sector in 33 provinces in Indonesia from 2002 to 2012. The result shows that both health and education expenditure affect human development in positive direction and health expenditure proves resulting significant effect. Fattah and Muji (2012) and Permata and Tanggulungan (n.d.) conduct similar study in regional level in Indonesia which are in Jeneponto Regency and South Sulawesi Province, respectively. They also find health and education expenditure have significant influence on human development.

Furthermore, in the early of 1990, the view on the important role of institution in development became widespread. Governance has been widely accepted as the measurement of quality of institution. This view states that "poor quality institution is the root cause of economic problem in developing countries" (Chang 2011:473). It emphasizes that the quality of institution plays important role to promote development. Institutions are "the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interactions…in consequence they structure incentives in human exchange, whether political, social, or economic" (Nort 1990:3, as cited by Chang 2011:1). Economic institution is the major cause of differences in economic performance among countries (Acemoglu et al. 2004). Moreover, Acemoglu et al. (2004) argue that economic institution is matter for economic performance as well as distribution of resources.

Furthermore, according to the World Bank (1992), it is imperative to create enabling environment which will help to promote a better economic policy and finally lead to economic development. "Efficient and accountable management by the public sector and a predictable and transparent policy framework are critical to the efficiency of market and governments and hence to economic development" (World Bank 1992:1). Good governance creates an effective and efficient institution and rule that are important for human development and poverty eradication (UNDESA, UNDP, UNESCO 2012), and it is important to determine the success or failure of the country (Acemoglu 2008) since "ineffective institutions usually result in the greatest harm to those who are poor and vulnerable" (UNDESA, UNDP, UNESCO 2012). Furthermore, Uddin and Joya (2007) see good governance as the institutions that are more responsive to the people.

In addition to this, Grindle (2011) argues that *"*Getting good governance calls for improvement that touch virtually all aspects of the public sector-from institutions that set the rules of the game for economic and political interaction, to decision making structures that determine priorities among public problems and allocate resources to respond to them, to organizations that manage administrative system and deliver goods and services to citizens, to human resources that staff government bureaucratic arenas…Not surprisingly, advocating good governance raises a host of questions about what needs to be done, when it needs to be done, and how it needs to be done (Grindle 2004:525-6)". Udin and Joya (2007) also find that economic growth can be achieved through strengthening the governance. Moreover, Charon et al. (2010) point out that good governance has significant impact on GDP per capita, long-term unemployment, and infant mortality rates.

The role of government in development was also studied by Cooray (2009). He investigates the role of government on economic growth by incorporating the size of government (measured by ratio government expenditure to GDP) and quality of government (measured by governance level) in 71 countries. He finds that government expenditure and good governance have significant impact on improvement of economic growth. He also finds that the countries with high governance level grow faster than countries with low governance. This causal relationship is supported by the studies of Pradhan and Sanyal (2011), Turner (2011), Ahmad and Saleem (2014), and Khan (2015) which find good governance is imperative to achieve better economic growth and human development, particularly in developing countries. In addition, Gupta (2002) finds that bad government institution is found as the principal factors contributing to ineffective government spending.

Chapter 3 Data and Analysis Method

3.1 Variables and Sources of Data

Dependent variable in this study is human development which is measured by HDI. For independent variables, this study will focus on examining the impact of three interest variables which are governance index, health expenditure, and education expenditure on HDI. The investigation in this study will cover the data of 33 provinces in Indonesia on year 2008 and 2012. Furthermore, this study highly relies on secondary data resources that are available online. The data are mostly derived from the website of Statistics Indonesia, Ministry of Finance of Indonesia and Kemitraan.

Human development

This paper uses HDI to measure human development. It will use data on HDIs in provincial level provided by Statistics Indonesia. In general, the method used in calculating HDI by Statistics Indonesia is similar with the method used by UNDP. However, there are some adjustments made to match the availability of the data as well as the background situation in provincial level. The noticeable adjustment is in the indicator of decent standard of living dimension. Because of the data on GNI per capita are not available in provincial level, Statistics Indonesia uses the data on adjusted expenditure per capita as the replacement. Moreover, the minimum and maximum values of expenditure per capita are expressed in rupiah. Minimum value is set based on the lowest poverty line among provinces, and the maximum value is set based on projection value of highest expenditure per capita among provinces. Meanwhile, the minimum and maximum values of other indicators are the same as UNDP guideline (Statistics Indonesia ca. 2017). In addition, HDIs in Indonesia are expressed in scale 0 to 100. HDIs are grouped in four categories which are, HDIs below 60 are categorized in low HDI; HDIs between 60 and 70 are categorized in medium HDI, HDIs between 70 and 80 are categorized in high HDI, and HDIs above 80 are categorized in very high HDI.

In regard to the scope of this study only examining HDI in two years, 2008 and 2012, the HDIs in this study are still calculated by HDI calculation method before 2014. The differences between the methodology before and after 2014 used by Statistics Indonesia are depicted in Table 3.1.

Table 3.1 The Comparison of HDI Indicators and Formula by Statistics Indonesia before and after 2014

HDI Dimensions	Indicators	
	Before 2014	**After 2014**
Long and Healthy Life	Life Expectancy at Birth	Life Expectancy at Birth
Knowledge	Adult Literacy Rate	Expected Years of Schooling
	Mean Years of Schooling	Mean Years of Schooling
Decent Standard of Living	Adjusted expenditure per capita	Adjusted expenditure per capita
Aggregation	Arithmetic Mean $HDI = \frac{I\ health + I\ education + I\ income}{3} \times 100$	Geometric Mean $HDI = (I_{health}, I_{Educarion}, I_{income})^{1/3} \times 100$

Source: Statistics Indonesia (ca. 2017) 'Indeks Pembangunan Manusia (Human Development Index)'.

Governance

This paper uses Indonesian Governance Index (IGI) to measure governance level in 33 provinces in Indonesia. IGI is chosen with consideration that IGI is the most comprehensive data that are available to measure governance in provincial level in Indonesia. IGI is provided by Kemitraan (The Partnership for Governance Reform) which is a non-for-profit civil law association managed by UNDP. The definition of governance used by Kemitraan is accordance with the definition by UNDP covering economic, political, and administrative aspects. Kemitraan defines governance as "the process of formulation and implementation of rules among executive and legislative branches and bureaucracy with participation from civil society and economic society" (Kemitraan ca. 2017). Until now, Kemitraan has only published IGI two times. First IGI was published in 2008 and the latest one was published four years later in 2012.

IGI measures six principals of good governance in four governance arenas. The four governance arenas in IGI are government, bureaucracy, civil society, and economic society. Each governance arena is defined as follow:

> *Government* is the policy making bodies which consists of the executive and legislative branches. The executive refers to governor and deputy governor which have overlapping authorities with the provincial legislative body in budgeting and formulating regulatory framework in the province; *Bureaucracy* is the executing body that serves at the same time as a bridge between the government and the public; *Civil Society* constitutes non-governmental, not-for-profit: organizations, voluntary (formal and informal) associations, foundations, labor unions, professional associations, and education and research institutes; *Economic Society* consists of business entities and associations that aim for profit and the protection of business interests through the conduct of economic exchange and production, and advocacy for better business climate (Kemitraan, ca.2017).

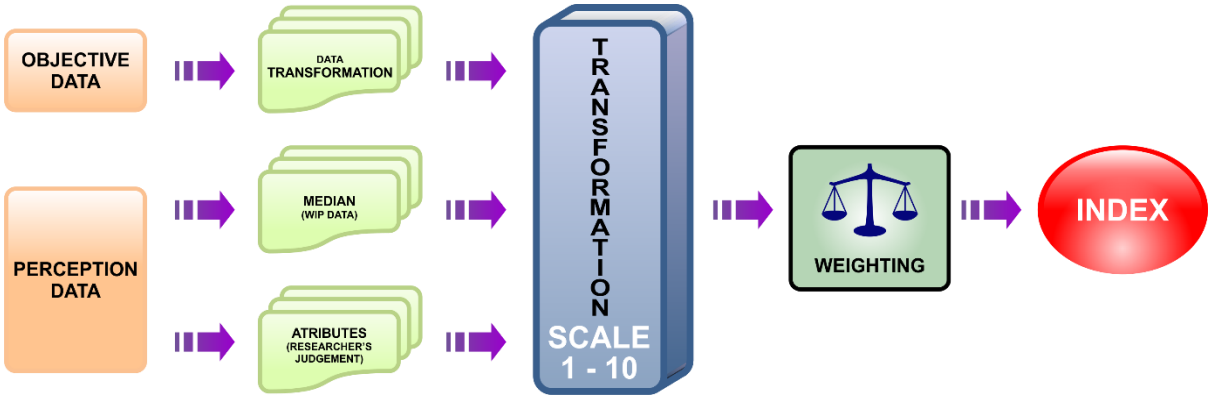
Table 3.2 Definition of Each Governance Principal in Indonesia Governance Index (IGI)

Principal	Description
Participation	"involvement of the stakeholders in the decision-making processes within each arena and sub-arena" (Kemitraan ca.2017).
Fairness	"condition where policies and programs are applied fairly to everyone without consideration that can discriminate his/her status, ethnicity, religious affiliations, or sex" (Kemitraan ca. 2017).
Accountability	"Condition where officials, institutions, and organizations in each arena are held responsible for their action and inaction" (Kemitraan ca. 2017).
Transparency	"Condition where decisions made by officials in state and civil institutions and private organizations in each arena and sub-arena are open to the public to observe, scrutinize and evaluate and where public information is available and accessible" (Kemitraan ca. 2107).
Efficiency	"Condition where policies and programs implemented have utilized the resources – human, financial and time – in an optimal manner" (Kemitraan ca.2017).
Effectiveness	"Where the objectives of policies and programs (output) have been achieved in line with the intended purpose (constitutional mandate –communities that are intelligent, prosperous, just and civilized —becomes the key parameter" (Kemitraan ca. 2017).

Source: Kemitraan (ca. 2017) 'Conceptual Indonesia Governance Index'.

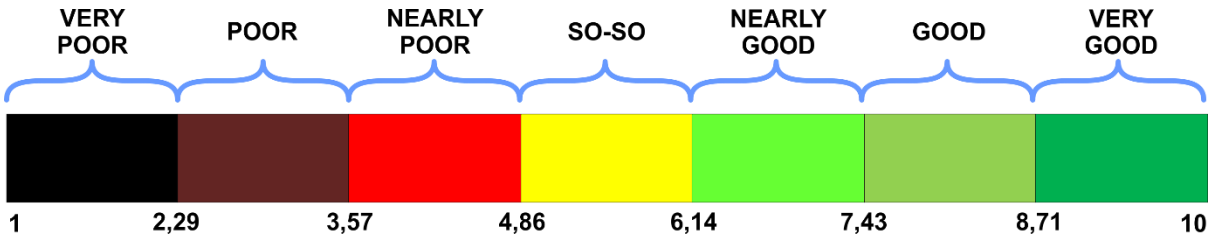
According to Kemitraan (ca. 2017) each governance arena is assessed by its particular functions. Government arena is assessed by its regulatory framework, budgeting process, development coordination, and development monitoring. Bureaucracy is assessed in term of revenue collection process, public services, and economic regulation. Civil society is assessed in term of advocacy and empowerment. Finally, economic society is assessed in term of advancing business interest and climate and promoting local economy activities. The combination of governance arenas, principals, and functions are translated into 89 indicators. Each of them is weighed based on the degree of its contribution on improvement of governance. The weighing method used is Analytical Hierarchy Procedures (AHP)). IGI is scaled from 1 (very poor) to 10 (very good). The indexing process and the IGI's scales are depicted in Picture 3.1 and Picture 3.2, respectively.

Picture 3.1 Indonesian Governance Index Indexing Process



Source: The Image of Kemitraan ('Indexing Process', ca. 2017).

Picture 3.2 Indonesia Governance Index Scale



Source: The Image of Kemitraan ('Index Scale', ca. 2017).

Social Government Expenditure

Social government expenditure in this study refers to health and education expenditures. Health and education expenditures in the provinces are calculated by totalling the spending by the provinces itself and all the spending by regencies and cities within provinces. This expenditure excludes the spending by Central government in regard to the focus of this paper is to look at provincial governments performance in improving human development in the provinces. Both health and education expenditures are measured by its share of GDP. Data on health expenditure and education expenditure are derived from website of Ministry of Finance of Indonesia; meanwhile the data on GDP are taken from website of Statistics Indonesia.

Other Variables and Source of Data

Beside the three interest variables mentioned before, it will use three control variables. The three control variables that theoretically effect human development chosen in this study are GDP per

capita, net enrolment ratio, and infant mortality rate. Data on GDP per capita, net enrolment ratio, and infant mortality rate are derived from website of Statistics Indonesia. Moreover, this paper also makes use of policy documents, laws, regulations, reports, and any publications related to human development, good governance, and government expenditure that are available and accessible online to support the analysis.

3.2 Method of Analysis

This paper uses quantitative analysis approach to answer the research questions. It uses Regression as well as Exploratory Data Analysis (EDA) in the analysis.

3.2.1 Regression

Regression Model

Multiple linear regression is applied to investigate the impact of governance, health expenditure, and education expenditure on HDI in 33 provinces in Indonesia. The econometric model is constructed with panel data of 33 provinces on years 2008 and 2012. According to Wooldridge (2013), the advantage of using panel data is that it "allows us to control for certain unobserved characteristics of individual" (ibid.). Another benefit is panel data "allows us to study the importance of lags in behaviour or the result of decision making. This information can be significant because many economic policies can be expected to have an impact only after some time has passed" (ibid.). Statistics descriptive of all variables in the model is presented in Table 3.3.

Estimated models used in this paper is as follow:

$$\mathbf{HDI_{it} = \alpha + \beta_1 Gov_{it} + \beta_2 Hexpgdp + \beta_3 Edexpgdp + + \beta_4 GDPpc_{it}\ \beta_5 Ner_t + \beta_6 Infmr + error\ term}$$

Where *HDI* stands for Human Development Index; *Gov* stands for governance index; *Hexpgdp* stands for health expenditure to GDP ratio; *Edexpgdp* stands for education expenditure to GDP ratio; *GDPpc* stands for GDP per capita; *Ner* stands for Net enrolment ratio; *Infmr* stands for infant mortality rate. While *'i* stands for province and *t* stands for year.

Table 3.3 Statistics Descriptive of variables in 33 Provinces in Indonesia on 2008 and 2012

Variable	Mean	Std. Dev.	Min	Max
Human Development Index (index)	71.876	3.116	64	78.33
Governance index (index)	5.402	0.679	3.55	6.8
Health Expenditure to GDP ratio (percentage)	0.018	0.015	0.002	0.081
Education Expenditure to GDP ratio	0.049	0.033	0.004	0.152
GDP per capita (in million rupiah)	22.670	21.147	3.882	111.912
Net Enrolment Ratio (percentage)	69.116	5.766	46.85	78.9
Infant Mortality rate (people)	40.848	13.534	19	74

Source: Author's construction based on data of Statistics Indonesia and Ministry of Finance of Indonesia.

Multicollinearity and Heteroscedasticity Test

The best estimator in multiple linear regression is the estimator which fulfils the assumptions of linear regression. The most common violations of assumption in multiple linear regression using cross section data are multicollinearity and heteroscedasticity (Gujarati 2009). In order to get the best result, estimator should free from these assumption violations.

a. Multicollinearity

The present of multicollinearity in regression estimator means that there are "perfect" relationship among explanatory variables (Gujarati 2009). "If multicollinearity is perfect…the regression coefficient of the *X* variables are indeterminate and their standard errors are infinite. If multicollinearity is less than perfect…the regression coefficient, although determinate, possess large standard errors (in relation to the coefficient themselves), which means the coefficients cannot be estimated with great precision or accuracy" (Gujarati 2009: 323). Gujarati (2009) explains, multicollinearity can be detected by doing pair-wise correlation among regressors. The multicollinearity becomes serious problem if the pair-wise correlation between two explanatory variables is more than 0.8. The estimator with high multicollinearity has large variance, covariance, and wide confidence interval resulting the estimation results are not precise and tend to insignificant statistically (ibid.). "Serious multicollinearity will be a problem because we have seen that it leads to large standard error of the estimators… In one situation, however, multicollinearity may not pose a serious problem. This is the case when R^2 is high and the regression coefficient are individually significant as revealed by the higher t value" (Gujarati 2009: 347).

b. Heteroscedasticity

Another assumption of linear regression is estimator needs to be homoscedastic which means that the variance of each disturbance is constant. Heteroscedasticity happens when the disturbance variance is not constant (Gujarati 2009). The estimator with heteroscedasticity is still linear and unbiased; however, the hypothesis testing becomes not reliable leading to wrong conclusion. There are two methods that can be used to detect heteroscedasticity which are informal and formal methods. In the informal method, it could be detected by looking at nature of the problem or using graphical method. While, in formal method, these following tests could be applied namely Park test, Glejser test, Spearman's Rank Correlation test, and White's General Heteroscedasticity test (ibid.).

Heteroscedasticity can be remedied by using some methods. The first one is Generalized Least Square Method (GLS). "GLS is OLS on the transformed variables that satisfy the standard leas-squares assumptions" (Gujarati 2009:372). GLS method results GLS estimator which transforms the disturbance to be homoscedastic; consequently, it can produce estimators that are linear and unbiased (Ibid.) Another remedied method is by correcting standard errors which is known as robustness of standard errors.

3.2.2 Exploratory Data Analysis.

In addition to regression, the other evidences to answer research questions will be get from explanatory data analysis method. This method is used to explain further and strengthen the regression result analysis by looking into the data thoroughly. Exploratory data analysis is "a way of thinking about data analysis and the way of doing it" (Dearling and Hartwig 1979:2). This approach is used to maximizing the data exploration by using two principals which are scepticism and openness (ibid.). "One should be sceptical of measures which summarize data since they can sometimes conceal of even misrepresent what may be the most informative aspects of the data, and one should be open to unanticipated patterns in the data since they can be the most revealing outcomes of the analysis" (ibid.).

Chapter 4 Background Situation in Indonesia

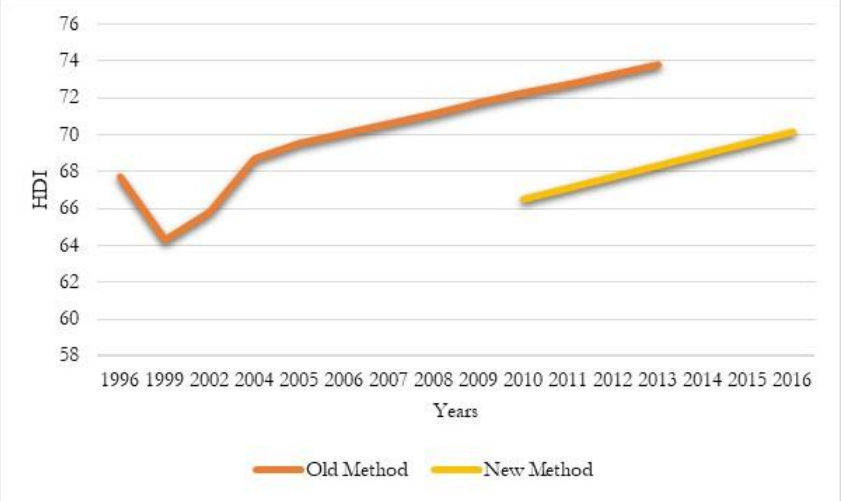
4.1 Human Development Index in Indonesia

HDI is used both by central and local government in Indonesia as an important indicator to measures the achievement of quality of human life as well as to determines the development level in the area. HDI is also used as an important factor to measure the performance of government. Moreover, it is one of the determining factors that affect the amount of transfer payment to each local government (Statistics Indonesia, ca. 2017).

In order to measure achievement of human development in regional level (provinces, regencies, and cities), Indonesia does not use data of HDI from UNDP because HDI provided by UNDP only measure the HDI achievement in national level. Therefore, Indonesia has its own body to measure HDI in regional level which is Statistics Indonesia.

Graph 4.1 depicts the trend of the average provincial HDI in Indonesia from 1996 to 2016. The orange line represents HDI calculated by using the old HDI formula which is the formula used before 2014; meanwhile, the yellow line represents HDI value calculated with the new method (the method after 2014). Due to the changes, the values of HDI generated are slightly difference between the two methods. Overall, it showed increasing trend from 1996 to 2016 except for period 1996 to early 2000. The significant decrease of HDI between 1996 to early 2000 was attributed to the financial crisis happening in that period.

Graph 4.1 Average HDI in provincial level from 1996 to 2016

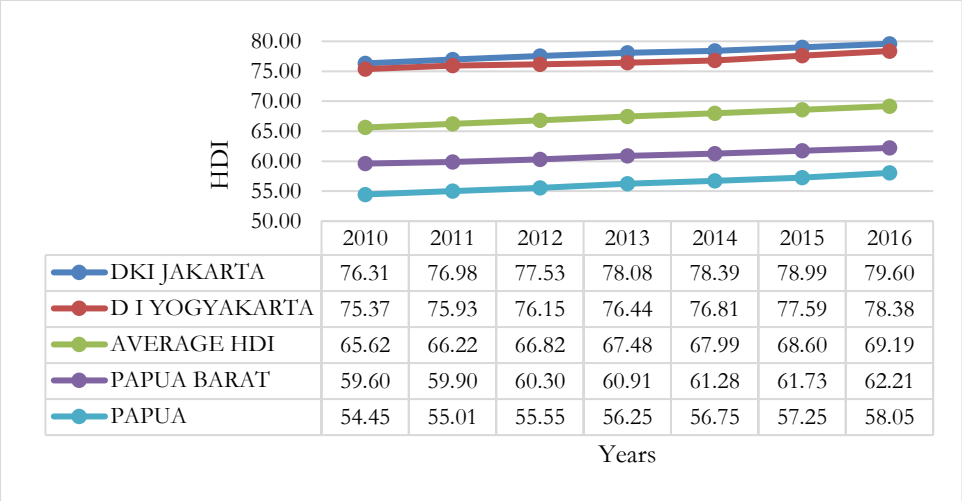


Source: Author's Construction based on data of Statistics Indonesia (ca. 2017) 'Indeks Pembangunan Manusia (Human Development Index)'

Nonetheless, when the indexes are broken down into provincial level, it notices huge disparities among provinces. Graph 4.2 depicts the HDI of two provinces with highest HDI and two provinces with lowest HDI from 2004 to 2013. It shows that, HDI of provinces ranged from 60.60 (lowest HDI in 2004) to 78.59 which was the highest HDI in 2012. The gap between province with highest HDI and the province with lowest HDI was too large which was more than 20 points. DKI Jakarta led with the highest HDI while Papua and Papua Barat were at the bottom.

Even, the gap of HDI between DKI Jakarta and DI Yogyakarta ranged more than 1 points in average.

Graph 4.2 HDI Provinces from 2004 to 2013



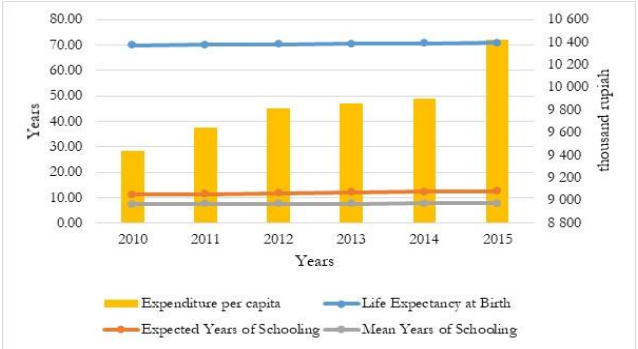
	2010	2011	2012	2013	2014	2015	2016
DKI JAKARTA	76.31	76.98	77.53	78.08	78.39	78.99	79.60
D I YOGYAKARTA	75.37	75.93	76.15	76.44	76.81	77.59	78.38
AVERAGE HDI	65.62	66.22	66.82	67.48	67.99	68.60	69.19
PAPUA BARAT	59.60	59.90	60.30	60.91	61.28	61.73	62.21
PAPUA	54.45	55.01	55.55	56.25	56.75	57.25	58.05

Source: Author's Construction based on data of Statistics Indonesia (ca. 2017 'Indeks Pembangunan Manusia (Human Development Index)'

Moreover, although the HDI values among provinces varied and showed noticeable gap, each province still presented improvement year by year. According to the data of Statistics Indpnesia, despite Papua was in the lowest rank of HDI, its HDI growth in 2016 was the highest among provinces which was at 1.40 percent, followed by Sumatera Selatan and Jawa Timur at 1.16 percent and 1.1 percent, respectively. This growth indicates the effort of Papua government in order to improve human development in its province. The highest contributors of HDI growth in Papua were derived from knowledge and standard of living indicators. Expected years of schooling and mean years of schooling increased 2.82 percent and 2.70 percent, respectively, compare to 2015. While, expenditure per capita increased 2.60 percent from 2015 to 2016. On the other hand, Riau, Kalimantan Barat, and Kepulauan Riau stood in the lowest position of HDI growth which only 0.51 percent, 0.44 percent, and 0.33 percent, respectively (Statistics Indonesia 2017).

Besides the improvement of HDI value, each HDI indicator in all provinces also increased year to year. Graph 4.3 depicts the average changes of all HDI indicators in provinces in Indonesia from 2010 to 2015. Life expectancy at birth, expected years of schooling, and mean years of schooling showed slightly increase from year to year; meanwhile, expenditure per capita showed the significant increase between 2014 and 2015.

Graph 4.3 Average HDI Indicators of provinces in Indonesia between 2010 to 2015

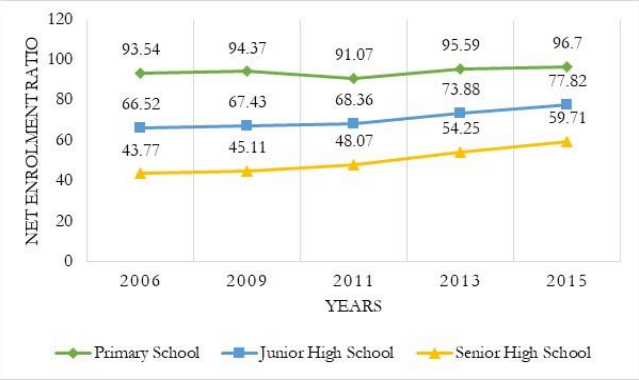


Source: Author's Construction based on data of Statistics Indonesia 2017

4.2 Education in Indonesia

Basic education in Indonesia consists of three levels which are 6 years of primary school (age range 7-12 years), 3 years of junior high school (age range 13-15 years), and 3 years of senior high school (age range 16-18 years). In order to increase the quality of education in Indonesia, several education policies have been issued such as literacy program, free education program for primary to junior high school, etc. One of indicator than can be used to measure equality access of education is net enrolment ratio (NER). As depicted in Graph 4.4, NERs in all level of education showed steady increase between 2006 and 2015. NER in primary school was the highest that achieved 96.7 percent in 2015, followed by NER in junior high school and senior high school.

Graph 4.4 Net Enrolment Ratio in 3 Levels Education from 2006 to 2015

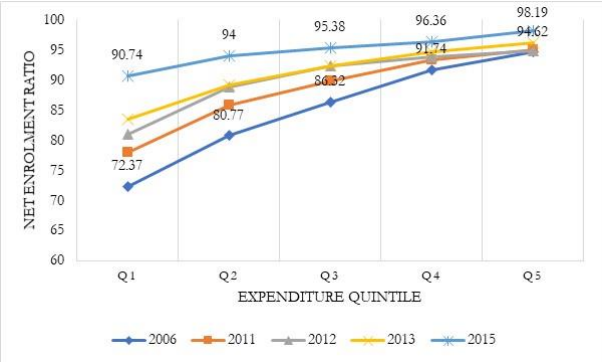


Source: Author's Construction based data of Statistics Indonesia (2013, 2014, 2015, 2016, 2017) "Indeks Pembangunan Manusia (Human Development Index)'.

Statistics Indonesia also reported that the access to education is not equal among provinces. During 2011 to 2015, DI Yogyakarta and Papua provinces were the provinces with the highest and the lowest NER, respectively, in all age ranges. NERs of DI Yogyakarta in age range 7-12 years and 13-15 years were almost 100 percent between 2011 and 2015; meanwhile, the highest ratio in Papua was only at the 80 percent in 2015. In addition, the gap was also depicted in age range 16-18 years where DI Yogyakarta led in approximately 25 percent than Papua from 2011 to 2015. Moreover, the majority of provinces in the lowest enrolment ratio are located in eastern part of Indonesia (Statistics Indonesia 2016).

Moreover, besides unequal access to education among province, the access to formal education has not been equal for all income group as depicted in Graph 4.5. The people which were in the lowest 20% income group has the lowest enrolment ratio as depicted in Graph 4.5. The huge gap between first quintile of income group and fifth quintile of income group was captured in 2006 which was 22.25 percent. However, the first quintile of income group showed the highest increase of NER at 18.74 percent from 72.27 in 2006 to 90.74 in 2015. While, in the fifth quintile, the figures only increased slightly below 4 percent in 9 years. Consequently, it narrowed down the gaps of NER among the three education levels. This progress indicates that there is an improvement regarding the government effort to ensure equal access to education for all society.

Graph 4.5 Enrolment Ratio in Age Range 13-15 years based on Group of Income between 2006 and 2015



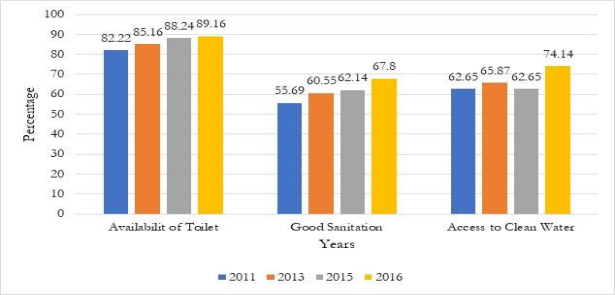
Source: Author's Construction based data of Statistics Indonesia (2013, 2014, 2015, 2016, 2017) "Indeks Pembangunan Manusia (Human Development Index)'.

Despite a good progress of enrolment ratios in all provinces, education in Indonesia still encounters the problem of high dropout rate especially for students in senior high school. According to Statistics Indonesia (2013), the major problem is education cost attributed to fact that the free education program is only intended for primary and junior high school students. Furthermore, dropout rate in rural area is higher than in urban area. In term of disparities among provinces, again, the provinces in eastern Indonesia have higher dropout rate (Statistics Indonesia 2013).

4.3 Health in Indonesia

The degree of health condition is highly related the existence of healthy living environment. Several indicators of healthy living environment are toilet availability, good sanitation, and clean water. Based on data of SUSENAS 2016 as compiled by Statistics Indonesia in Graph 4.6, 88.26 percent of households in Indonesia had toilet. This figure increased 3.1 percent compare to 2013. The other indicator is access to good sanitation. A good sanitation is highly important to prevent the spreading out of infectious diseases. In 2016, only 67.80 percent of households had access to good sanitation; while the remaining 33.2 percent of households had not got adequate access to good sanitation. Similar with sanitation, the access of household to health and clean water was limited. Only 74.14 percent of households had the access to health and clean water; however, this figure increased significantly at 11.49 percent compare to 2015. Overall, the data indicate that the living environment in Indonesia has not been yet categorized as healthy (Statistics Indonesia 2016, 2017).

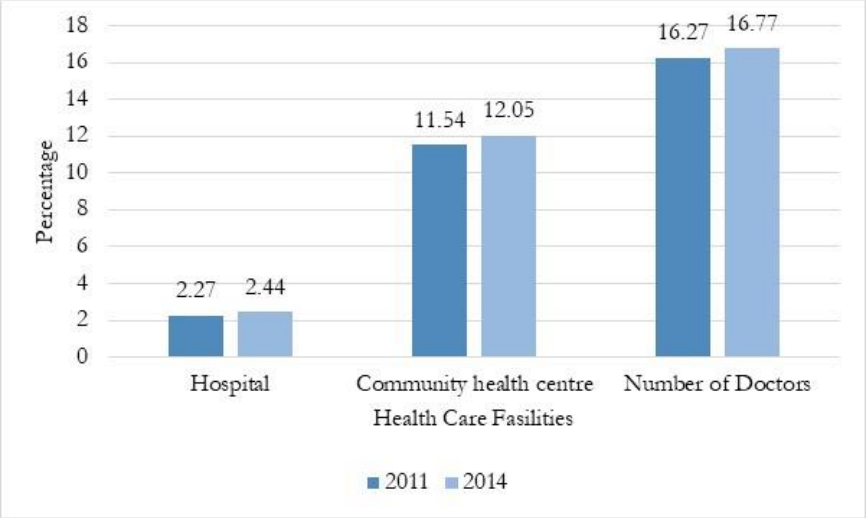
Graph 4.6 Healthy Living Environment Indicators between 2011 and 2016



Source: Author's Construction based data of Statistics Indonesia (2016, 2017) "Indeks Pembangunan Manusia (Human Development Index)'

Moreover, the availability of health care facilities is also crucial in determining health status in the areas. The availability of health care facilities is guaranteed by Law 36/2009 about Health. However, the number of available health facilities are very limited and the distribution among villages, districts, and provinces is uneven. Graph 4.7 depicts that only 2.27 percent of villages had hospital in 2011, and three years later it only increased 0.17 points to 2.44 percent. Moreover, only approximately 12 percent of villages were equipped with community health centre and only about 16 percent village had doctors which were not necessarily sufficient in number for related villages.

Graph 4.7 Percentage of Village based on Health Care Facilities in 2011 and 2014



Source: Author's Construction based of data of Ministry of Health (2017)

In addition, according to the Indonesian health profile 2016, the gap of availability of community health centres between the capital city of Indonesia (DKI Jakarta) and the other provinces showed great imbalance. In DKI Jakarta, ratio of community health centre per district was 7.73 which was the highest ratio among province in 2016; meanwhile, the ratio in Bali which was placed in second rank was only 2.11 percent. Moreover, in rest of provinces, there was only 1 community health centre per districts in average. Even, in Papua, Papua Barat, and Kalimantan Utara, the ratios were below 1 which were at 0.70, 0.69, and 0.98, respectively. It means that there are some districts which had no health centres (Ministry of Health 2017).

Furthermore, another important health factor is nutrition, especially children nutrition. According to World Health Organization (WHO), Indonesia is one of the countries with highest case of malnourished children especially in the eastern area of Indonesia (WHO 2016). Children nutrition can be measured by three indexes which are bodyweight per age index, height per weight index, and bodyweight per height index. The data of PSG (Pemantauan Status Gizi-Nutrition Status Monitoring) 2016 on children under 5 years shows that 17.8 percent of children under 5 years were categorized in undernutrition status. This figure only decreases slightly from 2015 as much as 1 percent. The province with highest number of undernourished children was Nusa Tenggara Timur with 28.2 percent. Moreover, the disparity between Western and Eastern part of Indonesia was also captured in health sector based on data of PSG 2016. The 10 provinces with the highest children undernutrition status were the provinces located in eastern Indonesia. They are Nusa Tenggara Timur, Kalimantan Barat, Sulawesi Selatan, Sulawesi Barat Kalimantan Tengah, Sulawesi Tengah, Maluku, Papua Barat, Gorontalo, and Kalimantan Selatan. Surprisingly, DKI Jakarta was

positioned in 11th place of the highest children undernutrition status at 13.6 percent. It is in contrary with DKI Jakarta's achievement in other aspects such as economic and education. Meanwhile, the lowest cases of malnourished children were found in Sulawesi Utara, Bengkulu, and Bali which were at 7.2%, 8.7%, and 9.1%, respectively (Ministry of Health 2017).

In order to improve children nutritional status, government has issued the program called supplementary feeding program for children categorized as *Wasting*. *Wasting* is measured based on the ratio of bodyweight per height. However, not all children categorized as wasting could get supplementary food depending on the degree of wasting. Data of Ministry of Health 2016 showed that, in 2016, only 36.8 percent wasting children got supplementary food. This number was far below the target which was at 75 percent (Ministry of Health 2017).

4.4 Fiscal Decentralization and Social Government Expenditure in Indonesia

Since the financial and political crisis in 1998, the budgeting system in Indonesia has been transformed significantly. The first transformation is the issuance of new legal frameworks which are intended to achieve more effective and efficient budgeting, and improve transparency and accountability. Several new legal frameworks issued to support new budgeting system are Law 17/2003 on The State Finance; Law 1/2004 on The State Treasury; Law 25/2004 on The State Planning; Law 23/2014 on The Local Government (the third change on local government law which replaced the earlier law in 1999 and 2004); Law 33/2004 of The Fiscal Balance; and Law 15/2004 on the State Audit.

Another the major significant transformation is the "massive fiscal decentralization and the empowerment of local government" (Blondal et al. 2009). Decentralization in Indonesia was started in 2001 where this new system transfers political autonomy significant government functions from central government- especially in education, health, and infrastructure development-to 32 provinces (in 2001) more than 400 regencies and cities (later provinces, regencies, and cities will be called local governments) by only taking one year preparation. "Decentralization meant that those regional offices no longer reported to the respective ministries and agencies, but to the newly elected regional governments themselves" (Blondal et al. 2009). Decentralization system is intended to improve development in the local government by making government closer to people consequently it could boost both economic and human development.

Although local governments possess their autonomy to manage their areas, limited and unequal fiscal resources among provinces become the major issue in ensuring equal development. Therefore, to fulfil the fiscal requirements and equality, fiscal resources in local governments highly depend on central government transfer. This transfer mechanism is regulated in Law 33/2004 on Fiscal Balance. According to Law 33/2004, there are there types of transfer which are:

a. Revenue sharing (Dana Bagi Hasil-DBH)
   DBH is the sharing revenue from property tax, personal income tax, and natural resources revenue between central and local government. The share of revenue of each local government depends on the size of revenue generated from the province.

b. General allocation grants (Dana Alokasi Umum-DAU)
   DAU is the transfer from central to local government in form of block grants. The calculation of DAU is based on two major components. First one is based on the number of all civil servant salaries in the local government. The other component is fiscal capacity and fiscal need of local government. The amount that will be transfer depends on some indicators such as population, human development index, etc. Nevertheless, the used of this grant is not determined by central government. The grant can be used for any government functions.

a. Specific allocation grant (Dana Alokasi Khusus-DAK)
   DAK is the grant from central government to specific local government and for specific purposes. The purpose of this grant should match with national priority. Moreover, DAK is requested by local government to central government by providing the detail fund needed as well as the clear purposes.

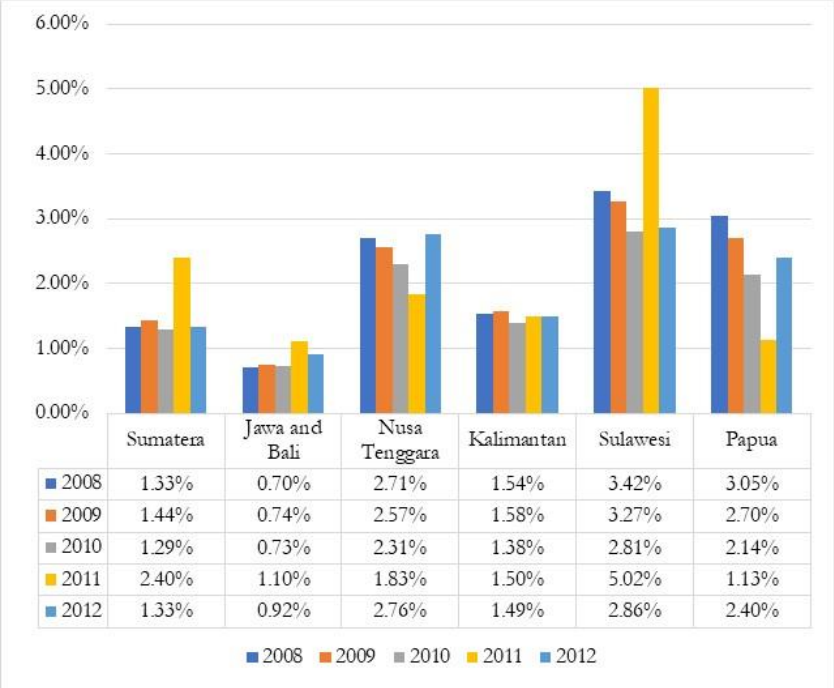
Law 33/2004 also regulates the division of authority between central and local government in all transferred government functions. In general, in education sector, central government is responsible to manage high education and to stipulate national education curriculum; meanwhile, local governments are responsible to manage education sector from pre-school to secondary education. In health sector, central government is responsible on managing health functions that are related to national or cross provinces arrangement.

Moreover, in order to improve health and education sector, the amount of health and education expenditures that have to be spent by both central and local government is formally regulated in Law. Law 20/2003 on National Education System states that central and local government should spend at least 20% from its budget to education sector. Meanwhile, for health expenditure, Law 36/2009 on Health mandates central government to spend 5% of its budget to health sector while local governments need to spend 10% of its budget. The trend of health and education expenditure are depicted in Graph 4.8 and Graph 4.9. respectively.

Graph 4.8 shows that, the islands which are located in east part of Indonesia-Nusa Tenggara, Kalimantan, Sulawesi, and Papua- spent higher health expenditure to GDP ratio between 2008 ad 2012. The highest health expenditure was spent by Sulawesi island which was in range 2.8 to 3.4 percent of its GDP between 2008 and 2012, followed by Papua and Nusa Tenggara Island spending 3.05 percent and 2.75 percent, respectively, at the highest point. Meanwhile, the ratio in Jawa Bali Island was in the lowest position which was only 0.84 percent in average from 2008 and 2012 followed by Sumatera island at approximately 1.5 percent in average in that period. Overall, the trend of health expenditure in all islands fluctuated in these 5 years period. However, the ratios in Jawa Bali Island and Kalimantan depicted steady fluctuation compare to other three islands.

Similar trend was also depicted in education expenditure to GDP ratio (see Graph 4.9). The ratios fluctuated over years in all islands. Nusa Tenggara and Sulawesi Island led with the average education expenditure to GDP ratio in range 5.91 to 9.18 percent and 7.41 to 13.69 percent, respectively, between 2008 and 2012. The highest ratios were still dominated by the islands in eastern Indonesia.

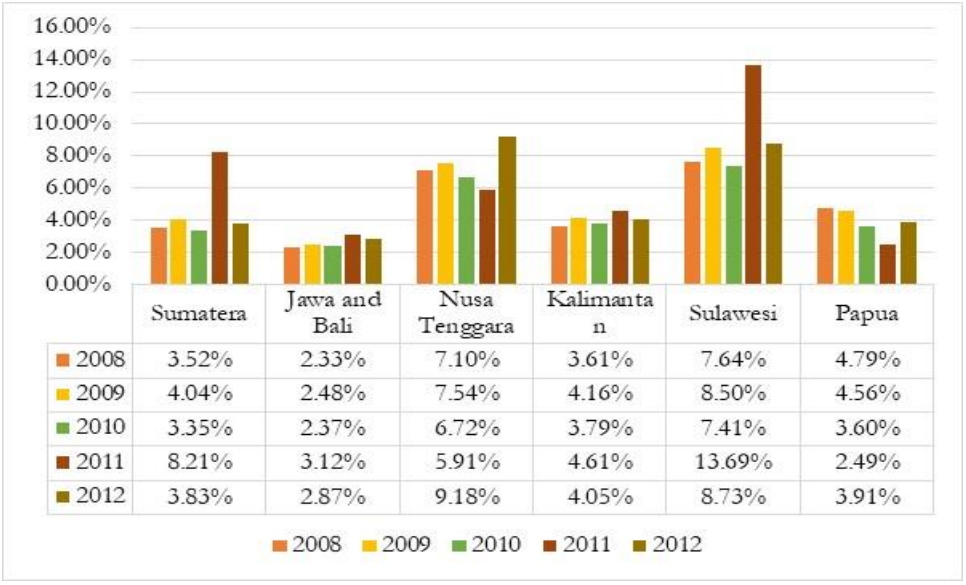
Graph 4.8 Trend of Health Expenditure to GDP Ratio based on 5 Biggest Island from 2008 to 2012



	Sumatera	Jawa and Bali	Nusa Tenggara	Kalimantan	Sulawesi	Papua
2008	1.33%	0.70%	2.71%	1.54%	3.42%	3.05%
2009	1.44%	0.74%	2.57%	1.58%	3.27%	2.70%
2010	1.29%	0.73%	2.31%	1.38%	2.81%	2.14%
2011	2.40%	1.10%	1.83%	1.50%	5.02%	1.13%
2012	1.33%	0.92%	2.76%	1.49%	2.86%	2.40%

Source: Author's Construction based on data of Ministry of Finance of Indonesia (2008, 2009, 2010, 2011, 2012)

Graph 4.9 Trend of Education Expenditure to GDP ratio based on 5 Biggest Island from 2008 to 2012



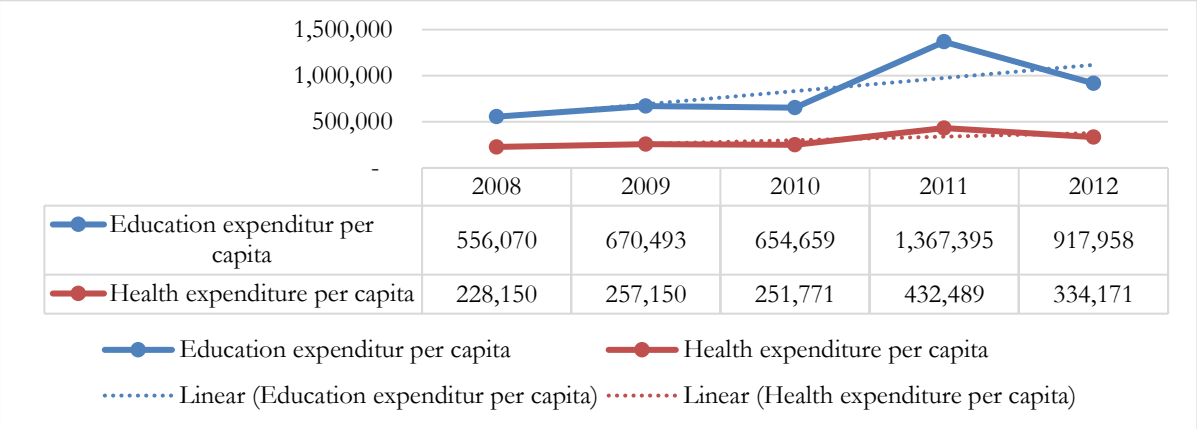
	Sumatera	Jawa and Bali	Nusa Tenggara	Kalimantan	Sulawesi	Papua
2008	3.52%	2.33%	7.10%	3.61%	7.64%	4.79%
2009	4.04%	2.48%	7.54%	4.16%	8.50%	4.56%
2010	3.35%	2.37%	6.72%	3.79%	7.41%	3.60%
2011	8.21%	3.12%	5.91%	4.61%	13.69%	2.49%
2012	3.83%	2.87%	9.18%	4.05%	8.73%	3.91%

Source: Author's Construction based on data of Ministry of Finance of Indonesia (2008, 2009, 2010, 2011, 2012)

Additionally, looking at the per capita expenditure, Graph 4.10 shows that the average amount of per capita expenditure on health and education increased from 2008 to 2012. However, health expenditure per capita only showed slight increase which was only approximately 100 thousand rupiah in for 5 years. Meanwhile, the increase of per capita expenditure in health sector was much higher than health expenditure at more than 300 thousand from 2008 to 2012. These figures could explain the pattern of government priority in Indonesia. Education sector has been getting higher

attention from the government than health sector. It is attributed to the fact that the higher increase in budget allocation to education sector than health sector in these 5 years period. The difference increment of budget allocated in these two sectors is highly related to the existing education and health condition. As described before in Section 4.3 and Section 4.4, the performance of education sector in Indonesia was better than health sector. In 5 years, NER increased significantly in all provinces; meanwhile, health condition did not significant changes over years. The availability of health care facilities and good water and sanitation were very limited. Other than that, the nutritional status in the most of provinces is still low with the higher case of children malnutrition.

Graph 4.10 The Trend of Average Health and Education Expenditure per Capita in 33 Provinces in Indonesia in between 2008 and 2012



*Source: Author's Construction based on data of Ministry of Finance of Indonesia (2008, 2009, 2010, 2011, 2012)*the expenditures are expressed in Indonesian Rupiah (IDR)*

4.5 Governance in Indonesia

After financial and political crisis in 1998 in Indonesia, Indonesia has undergone massive reform in almost all governmental aspects. Indonesian political aspect has transformed from centralized government to decentralized government. Decentralization in Indonesia is based on Law 22/ 2009 on Local Government. The law states that local governments have the authority in all governmental aspects except in the field foreign politics, defence, justice, religion, national monetary and fiscal, and religion.

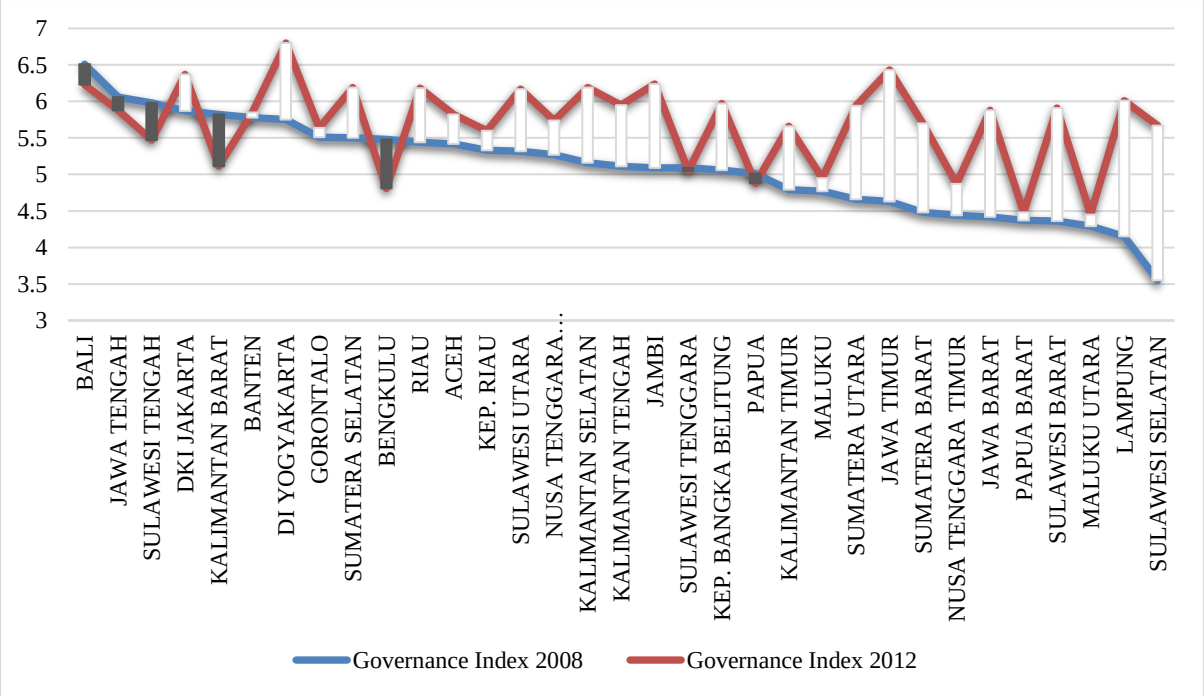
In addition, the election mechanism has changes substantially. President as well as local government leaders (Governors and Regents) are selected directly by the society, not through parliament anymore. This mechanism of presidential election complies with the Indonesian Constitution year 1945, Law 31/ 2002 about political party, Law 12/2003 about the detail process of the election, and Law 23/2003 about the election of president and vice president; meanwhile, the legal basis of the election of local government leaders are Law 32/2004 and Law 22/2007. The first local government leader election was held in 2005.

This reform also concerns on corruption eradication in order to improve accountability and government effectiveness. It is proved by the establishment of Corruption Eradication Commission in 2002 which is based on the Law number 30 year 2002 about KPK (Komisi

Pemberantasan Korupsi/Corruption eradication commission). KPK is an independent organization which is free of intervention from any party. The establishment of KPK is attributed to the fact that in that period Indonesia was one of the most corrupt countries. The Corruption Perception Index (CPI) of Indonesia in 2000 scored 17 of 100 which range 0 for highly corrupt to 100 for highly clean. Currently, although the corruption level is still high, in 2016 CPI of Indonesia has achieved scored 37 which positioned in Indonesia in rank 90 of 176 countries[1] (Transparency International 2017).

The other significant reforms are depicted in the freedom of speak and massive bureaucratic reform. Although the freedom of speak is guaranteed in Indonesian Constitution, it was bridled in Soeharto era. Then, in 1999, government supported the legal basis of media freedom in Law 40/1999 on Press. Furthermore, formally bureaucratic reform has been started since 2010 based on Presidential Regulation 81/2010. This reform was initially initiated by Ministry of Finance of Indonesia in 2007. Until now, all government bodies still on progress to conduct reform in all governmental aspects.

Graph 4.11 Governance index of provinces in 2008 and 2012



Source: Kemitraan (ca.2017) 'Indonesia Governance Index'

The massive reform contributes to the improvement of governance condition in all provinces in in Indonesia. Graph 4.11 shows governance indexes measured by Kemitraan in 33 provinces in Indonesia in 2008 and 2012. In average, most of the provinces showed significant increase from 2008 to 2012 especially in Jawa Timur, Jawa Barat, Sulawesi Barat, Lampung, and Sulawesi Selatan. Only 5 provinces showed the declining trend which were Bali, Jawa Tengah, Sulawesi Tengah, Kalimantan Barat and Bengkulu. This graph also explains that the provinces with low governance index in 2008 showed higher increase in 2012 such as Sulawesi Selatan. In 2008, Sulawesi Selatan was in the lowest rank; however, it could manage to increase its governance index in 2012 to the

[1] the first rank indicates the cleanest country.

similar point with Bali and Jawa Tengah which were placed in first and second rank of highest HDI in 2008.

Chapter 5 Findings and Analysis

5.1 Regression Result

Before doing further analysis, it is necessary to determine which estimation techniques giving the best result. Therefore, Hausman test is run to choose the best technique. The result of Hausman test (see Appendix 1-Hausman Test) shows that Prob>chi2 value is 14.11 percent (more than 5% significance level) which means that it accepts null hypothesis. The acceptance of null hypothesis indicates that random effect model is accepted as the best model to estimate the results rather than fixed effect model. Hence, the analysis in this paper will make use random effect regression result.

After recognizing the best technique to estimate the results, it is important to test whether the estimator is BLUE (best linear unbiased estimator) satisfying linear regression assumptions. Two important assumption tests for panel data set are test of heteroscedasticity and multicollinearity. Since, random effect model is chosen, heteroscedasticity is not necessary to be tested. It is because the STATA's command syntax "xtreg" that is used to produce random effect regression result has been generated by GLS method. GLS method has already resulted estimator that is BLUE which is capable to transform variance of each disturbance to be homoscedastic "that satisfy the standard least-square assumptions" (Gujarati 2009:372) (Gujarati 2009).

Although the estimator is already BLUE, it is also essential to detect the present of multicollinearity in the model. The present of multicollinearity in the model could makes "precise estimation difficult…and more coefficient tends to be statistically insignificant" (Gujarati 2009: 327). After looking at pair-wise correlation among regressors, the result depicts that the correlation between two variables which are education expenditure to GDP ratio and health expenditure to GDP ratio is more than 0.8 (see Appendix 1-Multicollinearity Test). It indicates that high multicollinearity presents in the model. One of the method that can be used to remedy the present of multicollinearity is by removing one of correlated variable. Since, these two variables are interest variables in this research, this option cannot be executed. Therefore, the best option regarding this problem is 'do nothing'. According to Gujarati, although the model cannot estimate "regression coefficient with greater precision, a linear combination of them can be estimated relatively efficiently" (Gujarati 2009:324).

After detecting and remedying the assumption violations in the model, then random effect regression results in Table 5.1 are eligible to be used in analysis. Table 5.1 shows the regression results with random effect model that are generated using STATA. Governance index, health expenditure, and education expenditure are regressed by controlling the effect of GDP per capita, net enrolment ratio, and infant mortality rate.

Table 5. 1 Regression Result of Governance, Health Expenditure, and Education Expenditure on Human Development Index in 33 Provinces in Indonesia on 2008 and 2012

Variables	(1) *Without Social Expenditure*	(2) *Without Governance*	(3) *Include both governance and social expenditure*
Governance Index	0.640**	-	0.537**
	(0.276)		(0.241)
Health Expenditure to GDP ratio	-	-89.18***	-81.37***
		(27.98)	(26.75)
Education Expenditure to GDP ratio	-	40.29***	37.05***
		(12.92)	(12.49)
GDP per capita	0.0554***	0.0606***	0.0544***
	(0.0129)	(0.0133)	(0.0131)
Net Enrolment ratio	0.182***	0.206***	0.174***
	(0.0475)	(0.0433)	(0.0440)
Infant mortality rate	-0.0313**	-0.0303**	-0.0211
	(0.0159)	(0.0143)	(0.0138)
Constant	55.83***	57.22***	56.27***
	(3.387)	(3.227)	(3.120)
Observations	66	66	66
R-squared	0.603	0.653	0.708
Number of province	33	33	33

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Model (1) estimates the effect of governance on HDI without considering the effect of health and education expenditure. The result shows that governance significantly affects HDI in positive direction. The increase of 1 points of governance index is expected to increase 0.640 points of HDI. While model (2) estimates the health and education expenditure on HDI without present of governance. It shows that both health and education expenditure affect HDI significantly in 1 percent level of significance. Education expenditure influences HDI in positive direction; meanwhile, health expenditure is found to affect HDI on negative direction. Table 5.2 shows that the increase of 1 percent of education expenditure to GDP is expected to increase HDI at 40.29 points. Meanwhile, the increase of 1 percent of health expenditure is potentially to reduce HDI value 89.18 points.

Moreover, model (3) combines both governance and social expenditures in one model. It can be seen that R-squared in model (3) is quite high at 0.708 which is higher than R-squared in model (1) and (2). It means that 70.8 percent of HDI could be explained by this model. The higher R-squared in model (3) also indicates that the level of governance together with health and education expenditure are better in explaining HDI rather than when the variables are regressed individually. This result is supported by study of Baldacci et al. (2008). They investigate the impact of social spending on economic growth in 118 developing countries. They find that health and education expenditure contribute to the increase of growth when it is accompanied by strong governance. Moreover, it is in line with the study of Cooray (2009) which concludes that both size and quality of government are imperative in achieving development goal. Furthermore, the results in model (3) show that, governance and education expenditure influence HDI in positive direction. The impact of governance on HDI is found statistically significant where the increase of 1 points of governance contributes to the increase of HDI as much as 0.537 points. Meanwhile, education

expenditure is significant in 99 percent confidence level on improving HDI. While education expenditure is found to have positive impact on HDI, health expenditure impact is in the contrary direction. The rise of 1 percent of health expenditure significantly impacts on reducing HDI by 81.37 points. Moreover, the impact of two control variables which are GDP per capita and net enrolment ratio on HDI are positively significant; meanwhile infant mortality rate affect HDI in negative direction, regardless the level of significance.

Moreover, Table 5.2 captures the regression result when independent variables are regressed with lagged HDI. Model (2) and model (3) describe the result of all explanatory variables which are regressed on lag a year HDI and lag two years HDI, respectively. It is intended to see whether governance condition, health expenditure, and education expenditure in current year have better impact on HDI in the following year by considering that some policies are expected to have an impact after some time has passed. Similar procedures had been done to choose the best estimation technique. Hausman test result (see Appendix 1) in this new data shows that in model (2) random effect model is still accepted as the best estimator; meanwhile in model (3) fixed effect model is chosen. The same procedures are also done to detect and remedy the problem of multicollinearity and heteroscedasticity.

The results show that the direction and the significance between all explanatory variables and lagged HDI in model (2) are similar with model (1). Governance, health expenditure, and education expenditure are still proved to impact HDI significantly. Meanwhile, in model (3) the effects of governance and health expenditure on HDI are no longer significant meaning that the impact of current governance level as well as health expenditure on the HDI decrease significantly in the next. It also indicates that governance condition and expenditure on health sector in current year have more impact on HDI in that year as well as a year after. Moreover, education expenditure is found to impact HDI in 1 percent level of significant in model (2). Meanwhile, the result in model (3) shows that it still impacts HDI significantly yet its significance level decreases to 10%.

Table 5.2 Regression Result on Governance, Health Expenditure, and Education Expenditure on lagged HDI

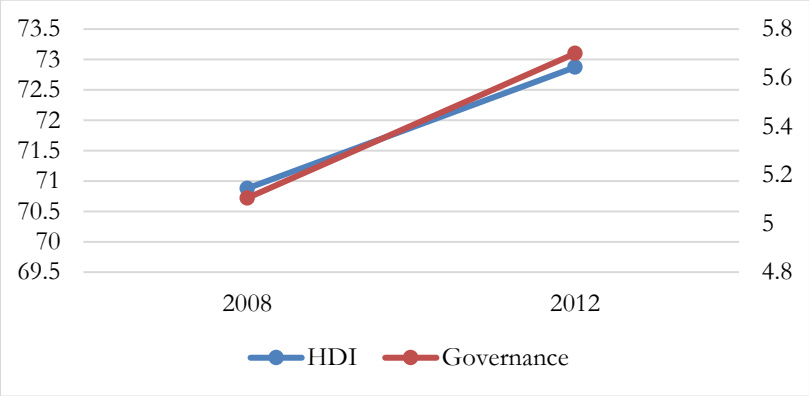
	(1)	**(2)**	**(3)**
Variables	**hdi**	**hdilagged1**	**hdilagged2**
Governance Index	0.537**	0.504**	1.019
	(0.241)	(0.242)	(0.320)
Health Expenditure to GDP ratio	-81.37***	-80.28***	-100.2
	(26.75)	(26.84)	(39.56)
Education Expenditure to GDP ratio	37.05***	36.14***	46.76*
	(12.49)	(12.50)	(4.635)
GDP Per capita	0.0544***	0.0518***	0.0662*
	(0.0131)	(0.0131)	(0.00904)
Net Enrolment ratio	0.174***	0.184***	0.379**
	(0.0440)	(0.0440)	(0.0109)
Infant mortality rate	-0.0211	-0.0218	-0.0882*
	(0.0138)	(0.0139)	(0.00987)
Constant	56.27***	56.41***	36.75**
	(3.120)	(3.120)	(1.282)

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

5.2 Discussion

Based on the regression result, governance is found to has positive impact on HDI, regardless the level significance. The trend of HDI and governance in Indonesia can been seen in Graph 5.1. It shows that the increase in governance was in line with the increase in HDI from 2008 to 2012.

Graph 5.1 HDI and Governance Index in Indonesia in 2008 and 2012



Source: Author's construction based on data of Statistics Indonesia

This result supports the finding of Charon et al. (2010) which find that good governance in the countries increases GDP per capita and contributes to higher human development. Moreover, this result is in accordance with the view of Acemoglu et al. (2004), Gupta (2002), and Herrera (2005) which explain that governance improves effectivity and efficiency of government on delivering public goods and services. Therefore, the effective and efficient government institutions lead to the improvement of economic performance as well as human well-being. As emphasized by Prasetyo and Zuhdi (2013) the more efficient countries spend its money; the higher contribution of those spending on human development. Moreover, Haq argues that the

> greater efficiency should not be confused with indifference to economic growth or to the mobilization of additional resources. Additional resources are needed because all the essential human development cannot be financed without more money. But the best argument for mobilizing more resources is to spend existing resources well (Haq 1995: 30).

In addition, good governance is more responsible to people because good governance makes government, private sector and civil society work together in carrying out the public work; hence, the programs and policies generated will be more pro-society and accommodate society need well (Stoker 1998, Udin and Joya 2007).

Moreover, when the data are broken-down into provincial level, the improvement of governance levels in the provinces contribute to the improvement of HDI levels as depicted in Table 5.3. Table 5.3 lists the cross-tabulation between governance levels and HDI levels of 33 provinces in 2008 and 2012. The list of provinces in each category can been seen in Appendix 2. Table 5.3 depicts nine combinations of governance levels and HDI levels. The combination sequence that will be mentioned in the following analysis is started by governance level then followed by HDI level.

Overall, the number of provinces categorized in low-medium, low-high, and medium-medium, showed noticeable decline from 2008 to 2012; meanwhile, the number of provinces in medium-high and high-high categories increased. It indicates that all the provinces showed good progress

toward better governance and higher HDI. The number of provinces in high-high category rose significantly from only one province in 2008 to nine provinces in 2012. The additional of eight provinces in this category in 2012 were categorized in medium-high in 2008. The eight provinces managed to increase their governance levels while maintained their HDI levels. The other significant change is captured in the category medium-medium which is from seven provinces in 2008 to three provinces in 2012. From these seven provinces, two of them could maintained their status in the category, four of them maintained their governance levels and increased their HDI levels, and another one showed very good progress by increasing both its governance and HDI to high level.

Moreover, another noticeable change is in low-high category where the number of provinces in this category decreased from seven provinces in 2008 to two provinces in 2012. All provinces (seven) grouped in this category in 2008 successfully increased their governance level from low to medium level and kept maintaining their HDI in high level in 2012. It means that this category was filled by other provinces in 2012. Those provinces are Papua and Bengkulu. In 2008, Papua was in low-medium category. Papua afforded to increase its HDI level in 2012; however, it did not show improvement in governance condition. Besides, Bengkulu showed the impairment of governance level from medium to low level from 2008 to 2012; however, its HDI value increased from 72.14 to 73.99 points which was still in high level HDI. According to the data of Kemitraan (ca. 2017), the main factors contributing to the decrease of Bengkulu's governance level were the significant decrease in government accountability, transparency, effectiveness, and efficiency (see Appendix 3). Despite the decrease of governance level, the other aspects that influence HDI improved, such as the increase of health and education expenditure, increase of student's enrolment ratio, and decrease of infant mortality rate as well poverty rate (Statistics Indonesia ca. 2017); therefore, Bengkulu still could increase its HDI in those periods. The situation in Bengkulu explains that the other variables beside governance give more impact on increasing HDI in Bengkulu.

Table 5.3 Cross-tabulation between Governance Level and HDI Level of 33 Provinces in Indonesia in 2008 and 2012

	HDI			
	2008		**2012**	
Governance	Medium	High	Medium	High
Low	4	**7**	1	2
Medium	7	14	3	18
High	0	1	0	9

Source: Author computation based data of Kemitraan and Statistics Indonesia.

Furthermore, in the government expenditure side, education expenditure is found to influence HDI significantly in positive direction. This finding strengthens the result of the most of studies in this field which conclude that high education expenditure contributes to the improvement of human development. It is in line with the findings of Qureshi (2009). Qureshi studies the role of public social expenditure on human development in Pakistan and he finds that education expenditure is not only found could improve HDI indicators, but also increase economic indicators simultaneously. Moreover, Iheoma (2014) also finds similar result by doing the study in

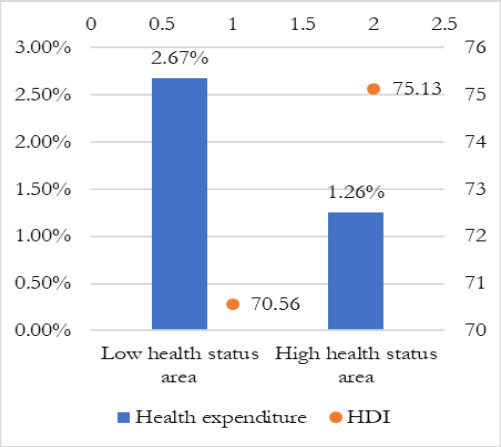
20 Sub-Saharan Africa countries. His study finds that the primary, secondary, and tertiary education expenditure are discovered explaining HDI in positive direction. The result also proves the theory of human development by UNDP and Mahbub ul Haq which explain that well-structured social expenditures is important factors to achieve sustainable human development.

On the contrary, health expenditure is found to affect HDI significantly in negative direction. Moreover, when considering the lag of HDI as depicted in Table 5.2, the result still shows negative direction. This result is in the opposite to human development theory by UNDP and Mahbub ul Haq as well as the majority of studies in the field. One of the study as opposed to the result of this study is the study of Baldacci et al. (2004). They do the research by using data in 120 developing countries between 1975 and 2000 and find significant and positive relationship between both health and education expenditure on the improvement of health and education condition in the countries which at the end lead to improvement of economic growth.

However, this result could be explained with two main reasons, regardless the limited time coverage in this study. First, it is related to the effectiveness and efficiency of health expenditure. Beside the size of health expenditure, it is important to recognize that the amount of health expenditure cannot describe the degree of spending effectiveness and efficiency. The problems related to the effectiveness and efficiency of government spending are studied by Devarajan et al. (1996) and Pritchett (1996). They found that public investment influences economic growth in negative direction in group of developing countries. It attributed to the problem of miss allocation of public spending and the inappropriateness of spending use. It is also supported by the study of Carrin and Politi (1995) and Filmer and Pritchett (1997). They find that the public health expenditure does not significantly improve health status in the country due to efficiency problem. Moreover, Castro-Leal et al. (2000) investigate the performance of public spending on health sector in Africa. They find that the existing problem of effectiveness and efficiency of health spending is when the spending does not address the right problem. They suggest giving more attention on getting rid of the constrains that prevent this fund to target right problem rather than simply refine spending allocation.

Another reason is related to the degree of health status in the area. In Indonesia, the provinces with lower health status tend to spend higher ratio of health expenditure compare to those which are already in good health status. One of indicators that can be used to assess health status is infant mortality rate. High infant mortality rate means low health status in the area, vice versa. In Graph 5.2, low health status area refers to the ten provinces with highest infant mortality rate while the high health status area refers to the ten provinces with lowest infant mortality rate. Graph 5.2 presents the comparison between HDI and health expenditure in provinces which were classified in low health status and high health status in 2012. As presented in Graph 5.2, health expenditure in low health status area was higher than the health expenditure in high health status area. On the contrary, HDI in low health status area was much lower compare to HDI in high health status area. The lists of provinces which were in these two categories in 2012 were depicted in Table 5.4. All of the provinces in low health status category were located in the eastern Indonesia while the provinces with high health status were mostly located in western Indonesia. This condition also points the uneven development among regions.

Graph 5.2 HDI and Health Expenditure to GDP Ratio Comparison between Province with Low and High Health Status in 2012



Source: Author's construction based on data of Statistics Indonesia.

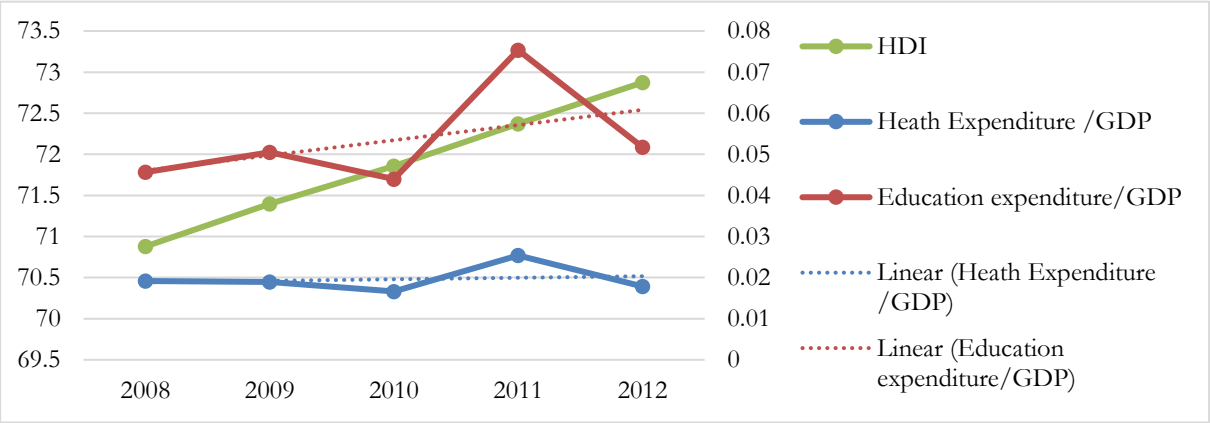
Table 5.4 List of Provinces in Low Health Status Area and High Health Status Area in 2012

Provinces in Low Health Status Area	Provinces in High Health Status Area
Papua Barat	Kalimantan Timur
Gorontalo	DKI Jakarta
Maluku Utara	Riau
Sulawesi Barat	Sulawesi Selatan
Sulawesi Tengah	DI Yogyakarta
Nusa Tenggara Barat	Kep. Bangka Belitung
Papua	Sumatera Barat
Kalimantan Tengah	Bali
Aceh	Bengkulu
Nusa Tenggara Timur	Sumatera Selatan

Source: Statistics Indonesia (n.d) 'Infant Mortality Rate'.

Moreover, when looking at the trend of health and education expenditure against HDI in 2008 to 2012 as depicted in Graph 5.3, it could support the result of the most studies. This trend could be explained that the increase of health and education expenditure contributed to the increase of HDI, regardless the size of changes.

Graph 5.3 Trend of Average HDI, Health Expenditure, and Education Expenditure from 2008 to 2012 in all Provinces



Source: Author's construction based on data of Statistics Indonesia and Ministry of Finance of Indonesia.

Additionally, Haq (1995) emphasizes that the difference amount in public expenditure allocation to social sectors among governments could contribute to difference in HDI achievement although they have similar GDP. These cases also found among provinces in Indonesia. Table 5.5 and Table 5.6 capture the situation in Sulawesi Tengah and Sulawesi Utara which have similar size of GDP but different in HDI.

Table 5.5 shows that although the size of GDP in these two provinces were similar, the slight difference on education expenditure contributed to the huge gap in HDI achievement. In 2008, the small difference on education expenditure to GDP ratio by only 0.6 percent resulted Sulawesi Utara led in HDI on approximately 5 points. Moreover, in 2012, Sulawesi Tengah increased its education expenditure ratio almost 1 percent; consequently, the HDI value increased for about 2 points. Meanwhile, Sulawesi Utara only increased 0.3 percent of its education expenditure in 2012 contributing to the slight increase in HDI value at 1 points. In addition, the increases of HDI in Sulawesi Tengah and Sulawesi Utara were also highly related to the amount of education expenditure per capita in those provinces. Table 5.5 also presents that education expenditure per capita in both provinces increased significantly in 2012 at approximately two times compare to the expenditure in 2008. It indicates that, beside the total of education expenditure itself, the expenditure spent for each people was also imperative on increasing human development.

Table 5.5 Education Expenditure and HDI in Sulawesi Tengah and Sulawesi Utara in 2008 and 2012

Provinces	2008			2012		
	Education Expenditure to GDP ratio (percentage)	Education Expenditure per capita (thousand rupiah)	HDI (index)	Education Expenditure to GDP ratio (percentage)	Education Expenditure per capita (thousand rupiah)	HDI (index)
Sulawesi Tengah	4.47	504,563	70.09	5.37	1,001,767	72.14
Sulawesi Utara	5.07	655,294	75.16	5.40	1,091,544	76.95

Source: Authors' Construction based on data of Statistics Indonesia and Ministry of Finance of Indonesia

Besides, Table 5.6 describes the comparison between Sulawesi Tengah and Sulawesi Utara in term of health expenditure. This table shows negative relationship between health expenditure and HDI. Although Sulawesi Tengah had lower HDI than Sulawesi Utara both in 2008 and 2012, the health expenditures in Sulawesi Tengah were higher Sulawesi Utara both in term of ratio of health expenditure to GDP and health expenditure per capita. This situation in these two provinces explains the regression result in this study where health expenditure is found to has negative impact on HDI. Moreover, it is also related to the list provinces in table 5.4. As captured in table 5.4, Sulawesi Tengah was one of the provinces in low health status area which means that it tends to spend higher health expenditure in order to improve health status in the province.

Table 5.6 Health Expenditure and HDI in Sulawesi Tengah and Sulawesi Utara in 2008 and 2012

Provinces	2008			2012		
	Health Expenditure to GDP ratio (percentage)	Health Expenditure per capita (thousand rupiah)	HDI (index)	Health Expenditure to GDP ratio (percentage)	Health Expenditure per capita (thousand rupiah)	HDI (index)
Sulawesi Tengah	1.90	214,972	70.09	1.68	315,236	72.14
Sulawesi Utara	1.49	192,172	75.16	1.51	306,593	76.95

Source: Authors' Construction based on data of Statistics Indonesia and Ministry of Finance of Indonesia.

Chapter 6 Conclusion

In accordance with the objective of the study, this paper has investigated the role of government both in economic as well as institutional aspects on improving human development in 33 provinces in Indonesia on two years, 2008 and 2012. In economic side, it tried to answer the question whether the size of social government expenditures which consists of health and education expenditure affect human development. Moreover, in the institutional side, it chose to see the impact of governance in promoting human development. This study found that governance, health expenditure, and education expenditure were proved to have significant impact on human development in Indonesia.

Governance was found to affect HDI significantly in positive direction which means that the increase of governance contributes to the rise of HDI. This result was in accordance with many studies in this field which state that good governance is the important factor to make government institution become more effective, efficient, transparent, and accountable in delivering goods and services to the people which lead to the increase of country's economic performance as well as human well- being. This study found that the increase of 1 points governance index contributes to the increase of HDI at 0.537 points which statistically significance in 99% confidence level.

In the expenditure side, this study concluded that education expenditure impacts HDI significantly. The increase of 1 percent of education expenditure to GDP ratio proved to increase HDI as much as 37.05 points. This finding supports the most of researches which study the contribution of social expenditure on human development, such as the study of Razmi et al. (2012), Bloom et al. (2001), Castro-Leal et al. (2000), and Qureshi (2009). They find that the bigger amount that is spent by the government on social sector such as health and education could increase human development. Moreover, it found that the amount that is spent to education sector in current year has the better impact on enhancing HDI in the same year and in the one year and the effect in the next two years tends to decrease.

On the contrary, health expenditure was found to has negative impact on HDI meaning that the increase of health expenditure impacts on decreasing of HDI. This result was in opposite site of majority of study. The increase of 1 percent health expenditure to GDP ratio leads to the decline of HDI at 81.37 points. However, this result is explainable in two main reasons. The first one is related to the effectiveness and efficiency of the health spending. The amount of total expenditure cannot explain how effective and efficient the money is spent. It means that the huge amount of social spending does not necessarily mean that it is spent effectively. Ineffective and inefficient spending could hinder development; therefore, in order to make sure the effectiveness and efficiency of the spending, it is imperative to eliminate the hindrance impeding the spending to target the right problem (Castro-Leal et al. 2000, Prasetyo and Zuhdi 2013). Furthermore, another reason that explains this negative relationship is related to the health status in the provinces. This study found interesting fact that, the provinces with low health status which are mostly had low HDI tends to spend higher health expenditure compare to the provinces which have been already in high health status.

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Appendix 1 Regression Result

a. Regression Result Main Model

Random Effect

```
. xtreg hdi gov hexpgdp edexpgdp gdppc ner infmr

Random-effects GLS regression                   Number of obs     =         66
Group variable: province                        Number of groups  =         33

R-sq:                                           Obs per group:
     within  = 0.7086                                         min =          2
     between = 0.6468                                         avg =        2.0
     overall = 0.6441                                         max =          2

                                                Wald chi2(6)      =     118.72
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.0000
```

hdi	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gov	.5371224	.2411269	2.23	0.026	.0645224	1.009722
hexpgdp	-81.37389	26.75079	-3.04	0.002	-133.8045	-28.9433
edexpgdp	37.05349	12.48847	2.97	0.003	12.57654	61.53044
gdppc	.0544484	.0131333	4.15	0.000	.0287077	.0801891
ner	.1740692	.0440406	3.95	0.000	.0877512	.2603873
infmr	-.0210628	.0138444	-1.52	0.128	-.0481974	.0060718
_cons	56.26958	3.120184	18.03	0.000	50.15413	62.38503
sigma_u	1.7047068					
sigma_e	.71262245					
rho	.85124424	(fraction of variance due to u_i)				

Fixed Effect

```
. xtreg hdi gov hexpgdp edexpgdp gdppc ner infmr, fe

Fixed-effects (within) regression               Number of obs     =         66
Group variable: province                        Number of groups  =         33

R-sq:                                           Obs per group:
     within  = 0.7956                                         min =          2
     between = 0.0002                                         avg =        2.0
     overall = 0.0092                                         max =          2

                                                F(6,27)           =      17.52
corr(u_i, Xb)  = -0.5656                        Prob > F          =     0.0000
```

hdi	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gov	.5841697	.2375752	2.46	0.021	.0967056	1.071634
hexpgdp	-26.89806	31.37011	-0.86	0.399	-91.26421	37.46809
edexpgdp	90.46144	19.31718	4.68	0.000	50.82587	130.097
gdppc	.0498826	.015815	3.15	0.004	.0174329	.0823324
ner	.1580725	.0502076	3.15	0.004	.055055	.26109
infmr	.0177932	.0153533	1.16	0.257	-.0137092	.0492957
_cons	52.02905	3.594799	14.47	0.000	44.65313	59.40497
sigma_u	3.7488384					
sigma_e	.71262245					
rho	.96512539	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(32, 27) = 11.90                     Prob > F = 0.0000
```

Hausman Test Result

```
. hausman fe re
```

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
gov	.5841697	.5371224	.0470473	.
hexpgdp	-26.89806	-81.37389	54.47584	16.38532
edexpgdp	90.46144	37.05349	53.40796	14.73742
gdppc	.0498826	.0544484	-.0045658	.0088109
ner	.1580725	.1740692	-.0159968	.0241087
infmr	.0177932	-.0210628	.038856	.0066376

```
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:  Ho:  difference in coefficients not systematic

          chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                  =        9.63
        Prob>chi2 =      0.1411
        (V_b-V_B is not positive definite)
```

Multicollinearity Test

```
. corr hdi gov gdppc hexpgdp edexpgdp ner infmr
(obs=66)
```

	hdi	gov	gdppc	hexpgdp	edexpgdp	ner	infmr
hdi	1.0000						
gov	0.4758	1.0000					
gdppc	0.5512	0.2328	1.0000				
hexpgdp	-0.4544	-0.4170	-0.4469	1.0000			
edexpgdp	-0.3697	-0.3093	-0.5321	0.9082	1.0000		
ner	0.5897	0.3684	0.2187	-0.2316	-0.1652	1.0000	
infmr	-0.6268	-0.3991	-0.3816	0.4502	0.4362	-0.4125	1.0000

b. Regression result: dependent variable "lagged 1 year of hdi"

Random Effect

```
. xtreg hdilagged1 gov hexpgdp edexpgdp gdppc ner infmr

Random-effects GLS regression                   Number of obs     =         66
Group variable: province                        Number of groups  =         33

R-sq:                                           Obs per group:
     within  = 0.6959                                         min =          2
     between = 0.6550                                         avg =        2.0
     overall = 0.6508                                         max =          2

                                                Wald chi2(6)      =     116.57
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.0000
```

hdilagged1	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gov	.5036432	.242445	2.08	0.038	.0284597	.9788267
hexpgdp	-80.28365	26.83835	-2.99	0.003	-132.8859	-27.68144
edexpgdp	36.14453	12.49767	2.89	0.004	11.64955	60.63951
gdppc	.051793	.0130869	3.96	0.000	.0261431	.077443
ner	.1836365	.0439563	4.18	0.000	.0974838	.2697892
infmr	-.0218437	.013912	-1.57	0.116	-.0491108	.0054233
_cons	56.41373	3.119743	18.08	0.000	50.29915	62.52832
sigma_u	1.6537426					
sigma_e	.71434835					
rho	.84275234	(fraction of variance due to u_i)				

Hausman Test

```
. hausman fe re
```

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
gov	.5442053	.5036432	.0405621	.
hexpgdp	-22.90668	-80.28365	57.37697	16.38777
edexpgdp	92.61422	36.14453	56.46969	14.79092
gdppc	.0465753	.051793	-.0052177	.0089476
ner	.1719477	.1836365	-.0116888	.0245127
infmr	.0188756	-.0218437	.0407193	.0065822

```
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

  Test:  Ho:  difference in coefficients not systematic

              chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =       10.89
            Prob>chi2 =      0.0917
            (V_b-V_B is not positive definite)
```

c. Regression result: dependent variable "lagged 2 year of hdi"

Robust Fixed Effect

```
. areg hdilagged2 gov hexpgdp edexpgdp gdppc ner infmr, cluster (year) absorb (year) robus
> t

Linear regression, absorbing indicators         Number of obs     =         66
                                                F(   1,      1)   =          .
                                                Prob > F          =          .
                                                R-squared         =     0.7935
                                                Adj R-squared     =     0.7686
                                                Root MSE          =     2.0498

                                  (Std. Err. adjusted for 2 clusters in year)
------------------------------------------------------------------------------
             |               Robust
hdilagged2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         gov |     1.01938    .319906     3.19   0.194    -3.045411    5.084171
     hexpgdp |    -100.216   39.55944    -2.53   0.239    -602.8663    402.4344
   edexpgdp |     46.76004   4.634892    10.09   0.063    -12.13184    105.6519
       gdppc |       .06616   .0090409     7.32   0.086    -.0487151    .1810352
         ner |     .3790772   .0109017    34.77   0.018     .2405585    .5175958
       infmr |    -.0882169    .009869    -8.94   0.071    -.2136148     .037181
       _cons |     36.74805   1.282333    28.66   0.022     20.45447    53.04163
-------------+----------------------------------------------------------------
        year |    absorbed                                     (2 categories)
```

Hausman Test

```
. hausman fe re

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          S.E.
-------------+----------------------------------------------------------------
         gov |    .5120105     .4283368       .0836737               .
     hexpgdp |   -30.42841    -108.9509       78.52254        10.95927
   edexpgdp |    120.1065     41.75827       78.34826        15.66648
       gdppc |    .0593843     .0618296      -.0024454        .0081794
         ner |    .1962934     .3061407      -.1098473        .0176564
       infmr |    .0134445    -.0415171       .0549616               .
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       62.93
                Prob>chi2 =      0.0000
                (V_b-V_B is not positive definite)
```

Heteroscedasticity test

```
. xttest3

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (33)  =    1.7e+29
Prob>chi2 =      0.0000
```

Appendix 2 Human Development Levels and Governance Levels of 33 Provinces in Indonesia in 2008 and 2012

Provinces	HDI Levels		Governance Levels	
	2008	2012	2008	2012
Aceh	high	high	medium	medium
Sumatera Utara	high	high	low	medium
Sumatera Barat	high	high	low	medium
Riau	high	high	medium	high
Jambi	high	high	medium	high
Sumatera Selatan	high	high	medium	high
Bengkulu	high	high	medium	low
Lampung	high	high	low	medium
Kep. Bangka Belitung	high	high	medium	medium
Kep. Riau	high	high	medium	medium
DKI Jakarta	high	high	medium	high
Jawa Barat	high	high	low	medium
Jawa Tengah	high	high	medium	medium
DI Yogyakarta	high	high	medium	high
Jawa Timur	high	high	medium	high
Banten	medium	high	medium	medium
Bali	high	high	high	high
Nusa Tenggara Barat	medium	medium	medium	medium
Nusa Tenggara Timur	medium	medium	low	medium
Kalimantan Barat	medium	high	medium	medium
Kalimantan Tengah	high	high	medium	medium
Kalimantan Selatan	medium	high	medium	high
Kalimantan Timur	high	high	low	medium
Sulawesi Utara	high	high	medium	high
Sulawesi Tengah	high	high	medium	medium
Sulawesi Selatan	high	high	low	medium
Sulawesi Tenggara	medium	high	medium	medium
Gorontalo	medium	high	medium	medium
Sulawesi Barat	medium	high	low	medium
Maluku	high	high	low	medium
Maluku Utara	medium	medium	low	low
Papua Barat	medium	high	low	low
Papua	medium	medium	medium	medium

Source: Author's construction based on data of Statistics Indonesia (ca. 2017) and Kemitraan (ca. 2017).

Appendix 3 Governance Principals Values in Government Arena of 33 Provinces in 2008 and 2012

Governance Principals Value in 2008

Provinces	Participation	Fairness	Accountability	Transparency	Efficiency	Effectiveness
Sulawesi tenggara	5.91	2.5	7.78	5.13	6.11	5.88
Sulawesi selatan	4.66	1.25	5.82	2.41	4.42	6.76
Sulawesi tengah	6.3	1.73	8.31	3.59	5.51	6.99
Sulawesi utara	5.5	2.84	7.24	3.21	6.18	6.94
Kalimantan timur	3.71	2.01	6.71	5.82	6.35	7.88
Kalimantan selatan	5.91	1.6	5.4	4.32	6.04	6.48
Kalimantan tengah	4.19	1.67	3.97	1.97	5.32	6.85
Kalimantan barat	6.3	1.59	7.8	7.32	5.38	6.33
Nusa tenggara timur	4.11	2.18	5.78	2.21	4.93	7.44
Nusa tenggara barat	5.49	4.1	4.66	5.76	4.67	6.8
Bali	4.25	9.06	6.19	8.04	3.24	7.75
Banten	4.99	1.13	6.79	8.4	4.75	6.19
Jawa timur	5.91	1.29	7.65	3.84	1.23	6.44
Di Yogyakarta	5.91	1.85	5.32	6.93	6.5	6.94
Jawa tengah	6.99	1.39	8.09	8.91	5	6.96
Jawa barat	3.92	1.4	5.39	3.29	3.24	5.81
Dki Jakarta	4.66	1.66	8.74	7.25	4.88	8.3
Kepulauan bangka belitung	4.26	1.39	7.58	1.97	6.13	6.41
Kepulauan riau	5.09	1.37	8.66	2.78	5.27	5.75
Lampung	5.91	1.44	5.88	4.93	4.37	7.21
Bengkulu	6.3	2.02	7.75	4.53	6.14	7.64
Sumatera selatan	5.06	2.39	6.71	4.4	4.38	7.63
Jambi	3.71	5.19	5.55	3.84	5.43	6.61
Riau	4.11	1.36	6.57	1.97	4.22	6.29
Sumatera barat	3.78	1.43	5.84	2.74	5.63	6.12
Sumatera utara	5.06	1.49	5.61	1.48	2.21	6.13
Aceh	5.07	1.39	7.49	5.2	6.37	6.52
Gorontalo	5.49	1.43	8.91	5.82	7.36	6.06
Sulawesi barat	4.65	1.41	6.89	2.78	2.88	6.83
Maluku	5.91	1.53	6.74	2.78	4.5	4.67
Maluku utara	2.5	1.59	5.74	1.93	4.75	7.27
Papua barat	5.5	2.31	5.39	2.78	3.4	4.4
Papua	5.28	2.3	7.95	2.33	5.39	4.01

Source: Kemitraan (ca. 2017) 'IGI 2012 Government Arena'.

Governance Principals Value in 2012

Provinces	Participation	Fairness	Accountability	Transparency	Efficiency	Effectiveness
Aceh	4.92	8.28	3.79	3.39	9.05	5.76
Sumatera Utara	6.4	2.35	6.52	3.74	7.91	4.95
Sumatera Barat	5.93	3.19	6.32	3.74	7.23	5.56
Riau	5.43	3.38	4.34	6.79	7.9	5.49
Jambi	6.48	3.59	5.86	6.32	7.51	6.79
Sumatera Selatan	6.48	2.49	4.91	4.01	8.37	6.11
Bengkulu	4.99	3.19	3.98	2.99	5.01	4.79
Lampung	5.57	3.05	6.01	4.49	7.89	7.56
Kep. Bangka Belitung	6.57	5.54	6.33	5.57	7.88	6.49
Kep. Riau	5.55	5.9	5.1	3.76	8.19	4.56
DKI Jakarta	5.07	9.6	7.49	6.04	6.47	4.15
Jawa Barat	5.07	2.41	5.73	5.68	8.68	5.7
Jawa Tengah	5.43	2.54	5.17	5.25	8.61	5.96
DI Yogyakarta	6.4	2.94	8.37	7.97	6.7	5.88
Jawa Timur	6.1	3.06	5.73	5.14	8.43	6.4
Banten	6.1	2.94	7.52	2.99	7.69	4.64
Bali	6.57	5.43	5.04	7.85	7.81	4.83
Nusa Tenggara Barat	5.75	2.37	5.6	6.04	6.97	4.96
Nusa Tenggara Timur	6.1	1.84	4.72	2.97	5.8	4.96
Kalimantan Barat	5.75	2.91	4.95	4.55	7.64	4.62
Kalimantan Tengah	6.57	4.61	5.97	3.66	7.74	5.27
Kalimantan Selatan	6.4	6.08	6.38	4.92	7.66	4.73
Kalimantan Timur	5.76	6.93	4.91	2.48	9.25	4.42
Sulawesi Utara	6.57	3.2	6.19	4.04	6.25	6.04
Sulawesi Tengah	5.8	3.28	6.11	3.76	6.97	6.21
Sulawesi Selatan	6.4	2.92	5.8	5.2	5.44	6.06
Sulawesi Tenggara	5.43	3.93	4.89	4.01	6.65	4.67
Gorontalo	6.57	3.21	5.48	5.29	6.5	5.67
Sulawesi Barat	6.57	3.21	5.41	6.73	7.18	6.37
Maluku	6.26	2.41	5.15	2.88	8.96	7.97
Maluku Utara	4.75	3.6	4.18	2.71	5.69	4.41
Papua Barat	4.77	5.04	2.46	2.59	9.4	4.63
Papua	5.35	2.93	3.43	3.74	8.49	4.52

Source: Kemitraan (ca. 2017) 'IGI 2012 Government Arena'.