THE IMPACT OF GOVERNMENT EXPENDITURE, HUMAN DEVELOPMENT INDEX (HDI), WORKER AND INVESTMENT ON INDONESIA'S PROVINCIAL GROSS REGIONAL DOMESTIC PRODUCT (GRDP)

A THESIS

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DECLARATION OF AUTHENTICITY

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Yogyakarta, December 3th, 2019

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ABSTRACT

This study aims to analyze the impact of government spending, Human Development Index (HDI), worker and investment on Gross Regional Domestic Product (GRDP) in Indonesia. The data used in this study are secondary data for each province taken from the central statistical agency (BPS) and the directorate general of financial balance (DPJK). The analysis used in this research is panel data analysis with fixed effect model as the best model to describe the relationship between dependent and independent variables. The data used are data from thirty-four Provinces in Indonesia in the period 2013-2018. The results of the analysis show that individually government spending, HDI, and investment have a significant positive effect on Gross Regional Domestic Product (GRDP), with the greatest effect on human resources. Meanwhile, worker does not have a significant effect on Gross Regional Domestic Product (GRDP) in Indonesia.

Keywords: Gross Regional Domestic Product (GRDP), Economic growth, HDI, investment, human resources, government.

ABSTRAK

Penelitian ini bertujuan untuk menganalisis dampak pengeluaran pemerintah, indeks pembangunan manusia (IPM), pekerja dan investasi terhadap produk domestik regional bruto (PDRB) di Indonesia. Data yang digunakan dalam penelitian ini adalah data sekunder setiap provinsi yang diambil dari Badan Pusat Statistik (BPS) dan Direktorat Jendral Perimbangan Keuangan (DPJK). Analisis yang digunakan dalam penelitian ini adalah analisis data panel dengan model fixed effect sebagai model terbaik untuk mendeskripsikan hubungan antara variable dependen dan independen. Data yang digunakan adalah data dari tiga puluh empat Provinsi di Indonesia pada periode 2013-2018. Hasil analisis menunjukkan bahwa secara individu pengeluaran pemerintah, IPM, dan investasi berpengaruh positif signifikan terhadap Produk Domestik Regional Bruto (PDRB), dengan pengaruh terbesar dimiliki oleh IPM. Sementara itu, tenaga kerja tidak berpengaruh signifikan terhadap Produk Domestik Regional Bruto (PDRB) di Indonesia.

Kata kunci: Produk Domestik Regional Bruto (PDRB), Pertumbuhan ekonomi, IPM, Investasi, pemerintah.

CHAPTER I
INTRODUCTION

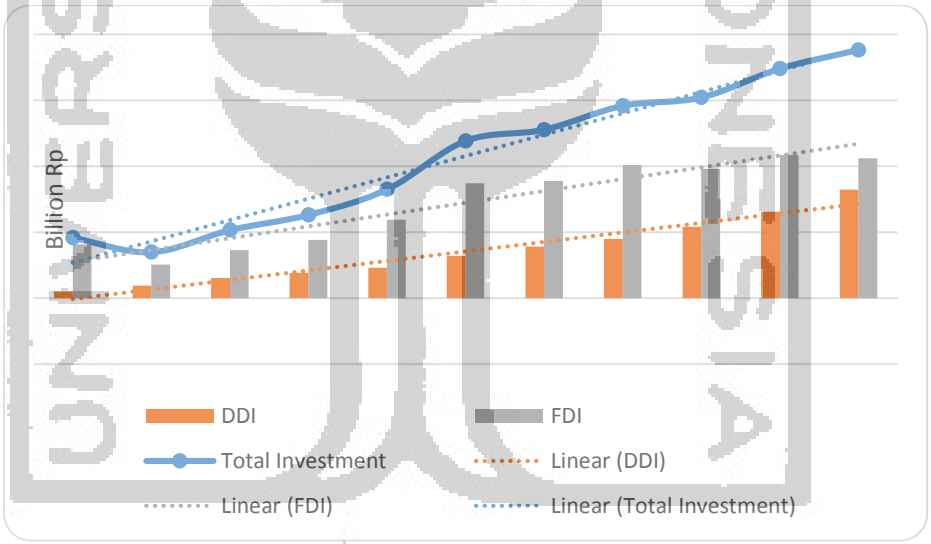
1.1. Background

The government is responsible for the prosperity of the people who live in a country, one of the indicators of prosperity is economic growth which is calculated through a country's Gross Domestic Product (GDP). Economic growth can be said as a process of growth of goods and services that occur in society. A high income for a certain period in the region indicates that the people's economy is getting better and more prosperous.

Regional income growth has a good impact on the economy as seen from the increase in regional income or Gross Regional Domestic Product (GRDP). Consequently, the government is always competing to maintain and even improve these indicators in order to achieve the goals of the national economy, also each region must be able to achieve the Gross Regional Domestic Product (GRDP) target that has been set together and solve problems in its improvement. Therefore, local governments are required to utilize the resources they have both humans and nature.

In achieving this goal the government must be active in collaborating and intervening economic activities. In fact, there are a number of non-economic components which are driving and inhibiting the economy. In the theory of income that is believed by the Keynesians to say the balance of income is Y = C + G + I + (XM), where the indicator Y is income, C is consumption, G is government expenditure, I is investment and (EM) is net exports or exports (X) minus imports (M). The intended investments are both domestic and foreign that are considered to

be able to open employment opportunities or expand existing businesses can make a major contribution to the economy. Indonesia itself is a good investment destination for foreign countries because it has enormous potential to generate profits. As a tropical country which is located on the equator, Indonesia has abundant natural resources both in sea and land. Additionaly, Indonesia's population is also the fourth largest in the world, making Indonesia have a vast and growing domestic market, investment in Indonesia be the right investment destination. Therefore, many investors still make Indonesia as the main investment destination. The following table shows the realization of Foreign Direct Investment (FDI) and Domestic Direct Investment (DDI) in Indonesia.

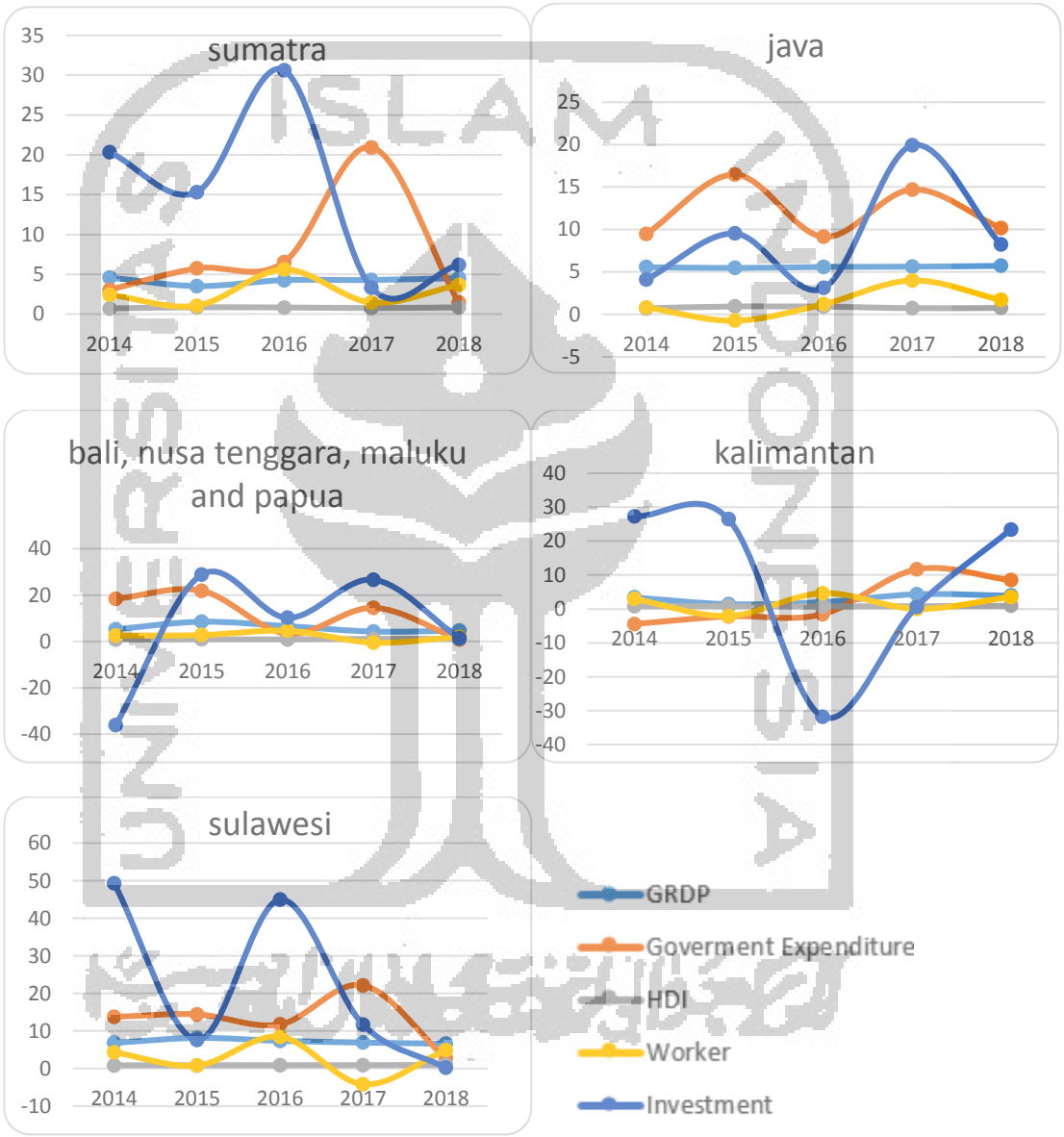


Source: Badan Pusat Statistik processed, 2019

Graph 1.1. : Investment in Indonesia (Billion Rp)

Based on Graph 1.1. the amount of investment in Indonesia has experienced a drastic decline in 2009 after the monetary crisis, while the Foreign Direct Investment (FDI) fluctuates, the Domestic Direct Investment (DDI) consistently increases in the following years. On the whole, first, Indonesia’s investment is very dependent on FDI. Second, the difference between FDI and DDI is getting smaller.

Third, inversely proportional to a very positive linear of investment, the Gross Domestic Product (GDP) shows a negative linear. Futhermore, whether the amount of investment in Indonesia will be able to drive the growth of regional income in Indonesia can be explained by the following graph:



Source: Badan Pusat Statistik processed, 2019

Graph 1.2. : Growth of Gross Regional Domestic Product (GDRP), Government Expenditure, HDI, Worker and Investment based on the island. (Percent %)

Graph 1.2. shows that Indonesia's Investment experiences large fluctuations in each year, and the focus of investment in the last 5 years only occurred in Java, and Papua, Southeast Nusa Tenggara, Maluku, and Papua which have positive trends, while other islands have negative trends. Besides, other variables, namely the government expenditure, only Kalimantan and Sumatra islands have a positive trend. At the same time, a significant decrease occurred in the groups of Bali, Southeast Nusa Tenggara, Maluku and Papua. Though, almost all workers in the islands of Indonesia experienced positive fluctuations but it is not significantly in line with the population growth which around 1.3% each year. In 2016, there was a drastic decrease in investment growth on two islands in Indonesia, especially in Kalimantan which experienced a 31.7 percent investment decline, after a 27.2 percent increase in the previous year, due to the investment position in Kalimantan which was dominated by Foreign Direct. Investment (FDI), as seen in 2015 FDI controlled 80.1 percent of total investment, when in 2016 FDI declined to 51.08 percent the total investment also experienced a sharp decline.

Of all the variables, only HDI has experienced stagnant growth, strangely the growth in income of each province seems to be very dependent on HDI that remains on stable growth, as stated by Durlauf et al (2004) that human capital plays an important role in economic growth and macroeconomic performance in East Asia and South-east Asia. When compared with 9 other ASEAN countries, Indonesia's HDI index is as follows:

Table 1.1. : Human Development Index (HDI) Record in ASEAN Countries

Country	1990	2000	2010	2011	2012	2013	2014	2015	2016	2017
Singapore	71,8	81,9	90,9	91,4	92	92,3	92,8	92,9	93	93,2
Malaysia	64,3	72,5	77,2	77,8	78,1	78,5	79	79,5	79,9	80,2
Indonesia	52,8	60,6	66,1	66,9	67,5	68,1	68,3	68,6	69,1	69,4
Brunei Darussalam	78,2	81,9	84,2	84,6	85,2	85,3	85,3	85,2	85,2	85,3
Lao People's Democratic Republic	40	46,6	54,6	55,8	56,9	57,9	58,6	59,3	59,8	60,1
Vietnam	47,5	57,9	65,4	66,4	67	67,5	67,8	68,4	68,9	69,4
Thailand	57,4	64,9	72,4	72,7	73,1	72,8	73,5	74,1	74,8	75,5
Philippines	58,6	62,4	66,5	67	67,7	68,5	68,9	69,3	69,6	69,9
Myanmar	35,9	43,1	53	54	54,9	55,8	56,4	56,9	57,4	57,8
Cambodia	36,4	42	53,7	54,6	55,3	56	56,6	57,1	57,6	58,2

Source: United Nation Development Program, 2019

Indonesia has not focused on the development of human resources, Table 1.1. shows that Indonesia's Human Development Index (HDI) did not experience a drastic increase during the 27-year, from 1990 to 2017. Indonesia could only raise 16,6 points, while Vietnam and Myanmar could increase their HDI by 21,9. Until 2017 the quality of Indonesian human resource development is still in the seventh position out of ten countries, whereas when viewed in 1990 Indonesia ranks 6th, so it can be concluded that the quality of Indonesian human resources is less able to compete among ASEAN countries.

Shortly from the Graph, probably HDI is one of the reasons why the amount of investment, population, and workers have not been able to have a significant effect. According to Schultz (1961), there are five ways to develop HDI, namely; providing health facilities, increasing education at all levels of education, providing

training in the workplace, providing better migration facilities, and increasing work-forced counselling. In essence, good human resources will stimulate growth by stimulating technological advancement and enhancing worker productivity, hopefully, the results of this study can answer the problems of GRDP that has been discussed. Therefore this topic is very interesting to discuss because whether the government expenditure, capital people, Worker and investment always go hand in hand in determining the Gross Regional Domestic Product (GRDP) or not.

Therefore, the researcher will take government expenditure, HDI, Worker, and investment as an independent variable and Gross Regional Domestic Product (GRDP) is the dependent variable. The title to be used in this study is **"The Impact of Government Expenditure, Human Development Index (HDI), Worker and Investment on Indonesia's Provincial Gross Regional Domestic Product (GRDP)".**

1.2. Problem Formulation

Therefore, based on the background above, the researcher raises some issues, they are:

1) Does the size of government expenditure influence Indonesia's Provincial Gross Regional Domestic Product (GRDP)?
2) Does Human Development Index (HDI) influence Indonesia's Provincial Gross Regional Domestic Product (GRDP)?
3) Does the number of worker influence Indonesia's Provincial Gross Regional Domestic Product (GRDP)?

4) Does the volume of Investment influence Indonesia's Provincial Gross Regional Domestic Product (GRDP)?

1.3. Research Objective

Based on the research problem formulation written above, the research objectives are the followings below to measure the impact on regional income or gross regional domestic product (GRDP) in Indonesia's Provinces from 2013-2018.

1) To analyze the influence of the size of government expenditure on Gross Regional Domestic Product (GRDP).
2) To analyze the influence of Human Development Index (HDI) on Gross Regional Domestic Product (GRDP).
3) To analyze the influence of the number of worker on Gross Regional Domestic Product (GRDP).
4) To analyze the influence of the volume of investment on Gross Regional Domestic Product (GRDP).

1.4. Research Contribution

1. Academic

1.1 For the researcher, this research will contribute to the academic world regarding factors that affect economic growth or Gross Regional Domestic Product (GRDP) in Indonesia.

1.2 For future researchers, it is expected that this research could be the answers to several rationales for discussing economic growth as Gross Regional

Domestic Product (GRDP) in Indonesia and at the same time can be a benchmark for discussing economic problems in Indonesia.

1.3 For science, the findings will enrich the existing literature in the public sector related to Indonesia's Gross Regional Domestic Product (GRDP).

2. Government

This research will be a reference in government policymaking for knowing the progress and the influence of government expenditure, Human Development Index (HDI), investment, and worker as the determination of region economic target as well as the evaluation topic in government.

1.5. Systematic of Writing

This thesis is presented in five chapters, namely; Chapter 1 introduction which explains the background to the research as well as a description of why this problem needs to be investigated. Chapter 2 literature review, it contains a description of theories related to this research, namely the theory of economic growth. In addition, this chapter also outlines previous research, theoretical frameworks, and research hypotheses. Chapter 3 research methods, it explains the operational definitions of variables, sources of data, and as well as an explanation of the research methods. Chapter 4 results and discussion, it elaborates on the description of research objects also a breakdown of the results and discussion of the data analysis that has been done. Chapter 5 conclusions and recommendations contains conclusions obtained from the results of the analysis. In addition, limitations were also presented in the study, as well as recommendations recommended to certain parties relating to the theme of this study.

CHAPTER II
REVIEW OF RELATED LITERATURE

2.1. Literature Review

In finding the variables, analysis, and territory in this research, it is necessary referring to previous researches that discussed Gross Regional Domestic Product (GRDP) for measuring economic performance as below:

Odit, et al. (2010) explained that human capital plays an important role in economic or GDP growth mainly as an engine for improvement of the output level. In addition, this theory supported by Liu,et al. (2018) which found that Fixed-asset investment, human capital has played a more important role in the Gross domestic product (GDP). While governance quality only could bring high-speed economic growth effect in the western region and high-quality economic development effect in the eastern region.

Pambudi and Misyanto (2013) said that one of the factors that can affect growth of economy is investment. Investment is the first step in activities production and be a factor for increasing growth the economy. Thus, investing in essence is also the first step in economic development activities. subsequently in their research found that The only investment and work-force have a positive effect and significant to influence the economic or GRDP growth, while human capital variable has insignificant positive and agglomeration have insignificant negative toward economic growth. In addition, the significance influence of investement on GRDP also supported by Nasab and aghae (2009) and Karlita and Yusuf (2013) .

Maisaroh and Risyanto (2018) explained that besides investment, as a benchmark for the growth of a regional economy, it also cannot be separated from the role of government spending in the public service sector, it proven by the findings of his research which states Investment, government expenditure and worker was a positive and significant impact on the gross regional domestic product (GRDP) in Banten Province. Wardana, et al. (2014) concluded in their research that investment, government expenditures, exports have a positive effect on Economic Growth, only export variables that have a partial effect on Economic Growth. Moreover, a research conducted by Syahputra (2017) shows a positive significance by export, tax revenue and exchange rate towards the gross domestic product (GDP).

While different findings about government spending is expressed by Rabnawaz, et al. (2015) There is a positive relationship between GDP and revenue in public investment in the short run. Reversely, in the long run, revenue of public investment could decrease in GDP. Moreover, Fitri (2016) which said in the short term, government consumption, private investment, and human capital are not significant in influencing gross domestic product (GDP) in Indonesia. Meanwhile, in the long run, government consumption has a positive and significant impact on gross domestic product (GDP) in Indonesia. Whereas private investment and human capital have a negative and significant influence.

Maharani (2016) stated that worker is seen as a capable factor of production to increase factor usability other production (tillage, utilizing capital, etc.) so the company views the labor as an investment and a lot the company that delivers education to its employees as a form of capitalization of worker. which results from

his theory is also supported by Sitindaon (2013) which found that population growth, has a significant negative and significant positive effect on the workforce on economic growth. Regarding the population Klasen, et al. (2007) conducted a research in Uganda and found the contrary that both theoretical and empirical evidence founded that high population growth puts a considerable break on per capita Economic growth in Uganda.

Hence, it can be concluded that in broad outline the variables that have a significant influence on regional income are the following: investment both private and government, human capital, government consumption, tax revenue, labor force, government expenditure, exports, population and exchange rate. Apart from all, there are some researchers who find research results quite far from theory, such as Huda (2006) conducted research focused on Exchanges, Inflation, and SBI rates of Indonesia in the period 1999-2006 (1st quarter). Data analysis used panel data where FEM was the best model to explain the results of regression. Clearly,the regression show that only one variable, that is Securities of Indonesian Bank (SBI), influencing economics growth. In addition, Research conducted by Ervani (2008). The economic growth was a dependent variable and the independent variables were real investment, human capital, and rate deposit. The sample in this study used time series data and the results of this study indicate that in the short-term, Indonesia economic growth was not significantly affected by investment. While real investment, HDI, and rate deposit will affect economic growth in long-term.

In this study, researchers used time-series data and cross-section data that were different from previous researchers using panel data analysis. Moreover, the scope of this study was wider, namely the Indonesian country with 34 provinces

data, with the hopes were not only useful and could be used by domestic researchers but also foreign researchers. Nevertheless, the results of the study is possible to be different with existing theories, because the target of economic development is not only oriented to increasing income but is more focused on the quality of the local financial management process. Additionally, Hasan, et al. (2013) found the opposite of economic theory that the increase in West Sumatra investment in the period 2006-2010 was not accompanied by an increase in the growth of Gross Regional Domestic Product (GRDP) based on Constant Prices. In fact, basically, economic growth depends on the size, spending capacity, and effectiveness of the use of capital expenditure in the development process.

2.2. Theoretical Background

Economic growth is the growth of goods and services characterized by an increase in the income of a region compared to a certain year. Therefore, economic growth shows the extent to which economic activity can run and generate income and prosperity in society, in economic analysis economic growth is very commonly used in determining the success of a country or region in the same economic sector as well as others. The theory of economic growth can differ from one generation to another and one economist to another economist. According to the classical economist, Adam Smith in (Lanza, 2012) said that economic growth was influenced by three factors, namely capital availability, population growth and the competitiveness of free trade in the market. While other classical economists such as David Ricardo who stated economic growth went hand in hand with capital accumulation and increased labor demand, the population would always gain the

introduction of machinery and technology improvement. He thought that with population growth, less productive land must be exploited, wages would rise, and mechanization would be attractive to increase productivity. As for one neo-classical generation, Robert Solow, who won the Nobel Prize in 1987, where a major paradigm is widely used in policymaking benchmark, his theory is also popular in explaining changes in the economy over time, which is also used to explain why national income grows in some countries faster than others. To achieve economic growth, Mankiw (2010) explained the aggregate terms of the Solow model can be divided into two namely:

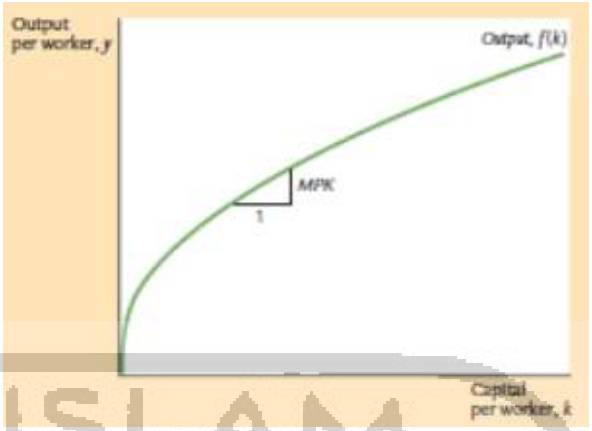
1. production or supply functions

$$\mathbf{Y = F\ (K, L)} \quad \text{..... (2.1)}$$

2. Consumption or demand functions

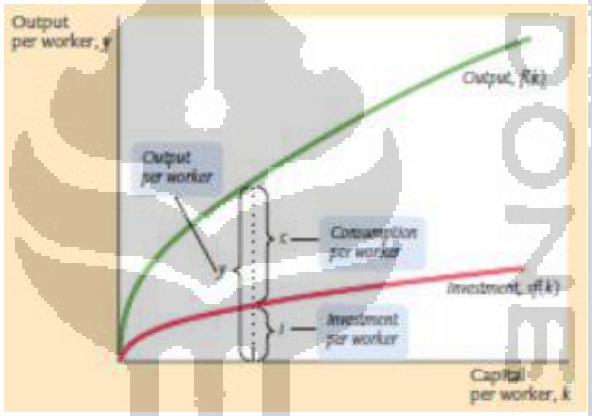
$$\mathbf{Y = C + I} \quad \text{..... (2.2)}$$

Where the variable consists of capital (K), Labor (L), consumption (C), and investment (I), in this theory the production function has constant returns to scale. In addition, the relationship between variables is as follows:



Source: Mankiw, 2010

Figure 2.1. : Production function



Source: Mankiw, 2010

Figure 2.2. : Consumption function

The production function in Figure 2.1. shows how the amount of capital per worker (k) determines the output per worker (y), when the number of workers (k) increases then the output $(f(k))$ will also increase simultaneously. Although the impact of output can vary, the differences shown by the production function's slope where if k rises by one unit $f(k)$ will rise following the MPK unit. As the slope becomes flatter, the impact can change, indicating diminishing marginal product capital. Since the consumption function in Figure 2.2. shows the saving position (s)largely determines the allocation of output between consumption and

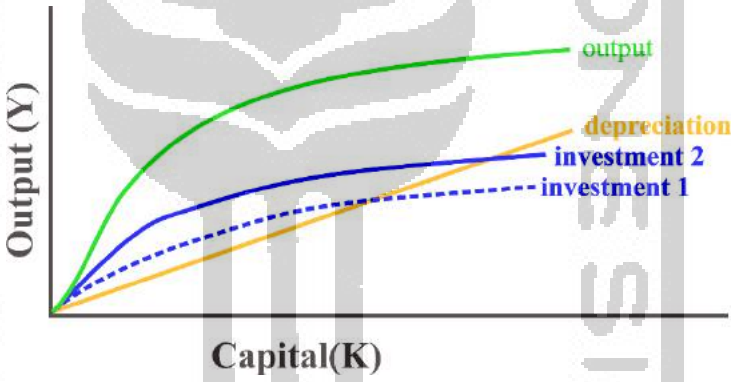
investment. Every level of capital (k) consumption is output minus investment or in the formula $f(k)$- $sf(k)$. Somehow, we can express the impact of investment and depreciation on the capital stock is Change in Capital Stock = Investment - Depreciation or the formulation as below:

$$\Delta\boldsymbol{\kappa} = \quad \boldsymbol{i} - \boldsymbol{\delta k} \quad \text{..... (2.3)}$$

As explained earlier, investment is $sf(k)$, hence it can be derived as below:

$$\Delta\boldsymbol{\kappa} = \boldsymbol{sf}(\boldsymbol{k}) - \boldsymbol{\delta k} \quad \text{..... (2.4)}$$

Graphically all relationships between all variables can be described as follows:



Source: Mankiw, 2010, processed

Figure 2.3. : Steady-State Level of Output

Because diminishing returns is exist, the increase in investment will be followed by an increase in depreciation. Hence, when investment is higher than depreciation, the capital stock must be growing on line (c) to the point of intersection (a). In short, the steady-state level of output (d) is achieved where investment equal depreciation. However, the investment line can change if the saving rate increases, so investment changes from "investment1" to "investment2" which indirectly increases the steady-state from point (d) to (e).

Thus, we can find the answer why some countries can have higher economic growth compared to others. It isbecause they already in a position close to the steady-state level of output or so-called "cutting edge growth", where the economy will slow down due to the smaller investment and depreciation differences. No doubt why Germany and Japan have higher income growth rates than countries that are already in the cutting edge position such as America and France. (O'shullivan & Sheffrin, 2003)in his book "Economics: Principles in action" says that GDP is one of the main indicators used to measure the economic health of a country to date is the best measure to measure the value of output produced in one country as a basis for measuring economic growth. Hence, in this thesis the author is using GRDP value to be dependent variable of economic growth. Besides, government expenditure, worker, HDI and investment as independent variable.

2.2.1 Gross Regional Domestic Product (GRDP)

Gross Regional Domestic Product (GRDP) is the amount of value-added of goods and services produced from all economic activities in a region. Bank Indonesia said in the metadata that the Gross Regional Domestic Product (GRDP) is one of the important indicators to determine the economic conditions in an area in a given period, both on the basis of current prices and on the basis of constant prices in calculating the Gross Regional Domestic Product (GRDP).There are three types of approaches, namely: the production approach, the expenditure approach and the income approach.

1. Production Approach

Production approach is the total value added of goods and services produced by various production units in the region of a region within a certain period (usually one year). The production units in this presentation are grouped into 9 business sectors, namely:

a. Agriculture, animal husbandry, forestry and fisheries;
b. Mining and excavation;
c. Processing industry;
d. Electricity, gas and clean water;
e. Construction;
f. Hotel and restaurant;
g. Transportation and communication;
h. Finance, real estate and business services;
i. Services.

The formulation can be explained as below:

GRDP = (P1X Q1) + (P2X Q2) +.... (PnX Qn)..... (2.5)

Where:

P1 = price of 1st item

Pn = price of nth item

Q1 = 1st item type

Qn = nth item type

2. Expenditure Approach

Expenditure approach is calculated by adding up the final demand from economic actors in a country (consumers, producers, and government), which the formulation and components as follows:

GRDP = C + G + I + (X-M) ..... (2.6)

Where:

C = Household consumption expenditures and non-profit private institutions

G = government consumption;

I = gross domestic fixed capital formation; changes in inventory and;

X = export and M = Import

3. Revenue Approach

Revenue Approach is the amount of remuneration received by the factors of production participating in the production process in a region within a certain period of time. The formulation can be written as follows:

GRDP = r + w + i + p ..... (2.7)

Where:

r = income from wages, salaries, and others

w = Net income from land rent

i = income from capital interest

p = income from profits of companies and individual businesses

All GRDP approaches are calculated before the deduction of income tax and other direct taxes. In this definition, the Gross Regional Domestic Product (GRDP) includes depreciation and net indirect taxes (indirect taxes - subsidies). For the moment GRDP data published by BPS used two approaches, namely: first, production by collecting data from relevant departments or agencies. Second, expenditures by collecting relevant departments that officially issue data (such as export-import, government spending and investment, and private investment) and through special surveys (such as special surveys on household expenditure).

Gross Regional Domestic Product (GRDP) is conducted with 2 types of prices, namely: first, the basis of current prices (ADHB), which describes the value-added of goods and services calculated using prices in the current year. Second, the basis of constant prices (ADHK), which uses prevailing prices in one particular year as a base year. In order to know economic growth, then what used is constant prices because AHDK explains real economic growth from year to year or economic growth that is not influenced by inflation price factors, so the results of the influence of independent variables on Gross Regional Domestic Product (GRDP) show more accurate results.

2.2.2 Government expenditure

Government expenditure is routine expenditure to finance development activities, such as paying the salaries of government employees, the education system and public health, various types of important infrastructure, and development are other important fields that will be funded by the government.

These expenditures will increase aggregate expenditure and increase the level of state economic activity (Sukirno, 2006). In general, it can be concluded that the optimal and efficient utilization of government spending will increase the economy and vice versa.

Government expenditure reflects government policy, this expenditure can be caused by macro and micro factors. Micro factors; for instance, the government has established a policy to buy goods and services, then the government expenditure budget will be used to finance these goods and services so that the policy is implemented. Whereas the macro factor is as explained by Rostow (1961) which has a concept with 3 stages of expenditure, namely:

1. The government must provide various facilities and infrastructure, such as health, education, and so on. At present, the percentage of government expenditure on national income is relatively large.
2. The role of government investment is still needed but private investment is getting bigger. Consequently, when the role of the private sector is increasingly large, the government must provide more and better public goods and services.
3. Government activities shift from providing infrastructure to social activities such as welfare programs in old age, public health services and so on.

2.2.3 Human Development Index (HDI)

Human Development Index (HDI) is actually talking about infrastructure quality of human beings, which includes three things, namely the health aspect, the educational aspect, and the mobility aspect. Human Development Index (HDI) indicator explains how residents can access the results of development in obtaining income, health, education, and so on, through methods that include:

1) Long life and a healthy life
2) Knowledge
3) A decent standard of living

HDI was introduced by one of the institutions of the United Nations in 1990 and was published regularly in the annual Human Development Report (HDR) report. UNDP ranks all countries from a scale of 0 (lowest) to 1 (highest) in terms of human development in that country. The formula used is as follows:

1. Health Dimension

$$I_{Health} = \frac{life\ expectation - life\ expectataion_{min}}{life\ expectataion_{max} - life\ expectataion_{min}} \quad \text{.....(2.8)}$$

2. Education Dimension

$$I_{expected\ length\ of\ school} = \frac{ELS + ELS_{min}}{ELS_{max} - ELS_{min}} \quad \text{.....(2.9)}$$

$$I_{mean\ length\ of\ school} = \frac{MLS + MLS_{min}}{MLS_{max} - MLS_{min}} \quad \text{.....(2.10)}$$

$$I_{education} = \frac{I_{expected\ length\ of\ school} + I_{mean\ length\ of\ school}}{2} \quad \text{.....(2.11)}$$

3. Expenditure Dimension

$$I_{expenditure} = \frac{\ln\ (expenditure) - \ln(expenditure)_{min}}{\ln\ (expenditure)_{max} - \ln(expenditure)_{min}} \quad \text{..... (2.12)}$$

4. Calculating HDI

$$HDI = \sqrt[3]{.} I_{Health}\ X\ I_{Educatiion} X\ I_{Expenditure} X\ 100 \quad \text{.....(2.13)}$$

According to Alevriadou & Giaouri (2016) Human Capital in the form of education, health, and motivation are determinants of social and individual development; especially in increasing competition and a global economy laden with scientific progress. In addition, Sukirno (2006) explained that education is an investment that is very useful for economic development. Individuals who get higher education tend to get higher incomes compared to uneducated. The higher the education, the higher the income is earned. The level of health is positively correlated to economic growth because by maintaining good health, work productivity will be high so that it can get higher wages or payments so that it can meet the needs of life and can spur rapid economic growth.

2.2.4 Worker

According to Law No. 13 of 2003 Chapter 1 article 1 paragraph 2 stated that Worker is anyone who is able to do work to produce goods or services both to meet their own needs and for the community, also quoted from BPS that the definition of worker is a person (between 15-65 years old) who worked for pay or assisted others in obtaining pay or profit for the duration at least one hour during the survey week. Include an unpaid worker who help an economically activity/ business, while labor in general is considered to have a permanent employer. The population has an

important role in economic development, both from the demand side and the supply side. When viewed from the demand side, residents act as consumers while viewed from the supply side, residents as owners of labor production factors. Linkages investment with labor is to increase employment. With the higher people will invest their capital then employment will be more widespread or high. Because they invest by building businesses that can absorb labor.

However, not all residents entering this age are called worker. Because residents who are not active in economic activities are not included in the worker group, such as housewives, students, and students, and income earners (retirees). Therefore, in this study the authors use the workforce that works as independent data because their contribution is very significant to the regional income of the country or region concerned.

2.2.5 Investment

Investment in Indonesia can businessbe done by the government or private sector. It consists of two kinds, namely: Domestic Direct Investment (DDI), andForeign Direct Investment (FDI). Investment can be interpreted as an expenditure or expenditure for investors or companies to buy capital goods and production equipment to increase the ability to produce goods and services in the economy. Investment is not only to maximize output but to determine the distribution of labor and income distribution, population growth and quality and technology (Sukirno, 2006).

Mankiw (2010) argues that investment consists of goods which purchased for future use. Investments can be differentiated in three types of business fixed

investment, residential investment, and inventory investment. Business fixed investment includes equipment and facilities used by companies in the production process, while residential investment includes the purchase of new homes, both of which will be occupied by the owner himself or himself which will be leased back, while inventory investment is a good stored by companies in warehouses covering raw materials, inventory of goods semi-finished and finished goods.

2.3. The Relationship between Dependent Variable and Independent Variable

The main purpose of government expenditure is to bring prosperity to the community through various programs that have been made. The higher the distribution means the greater or more programs that have been carried out by the government, so that economic facilities and infrastructure in the community can be fulfilled and can increase government revenue in an area.

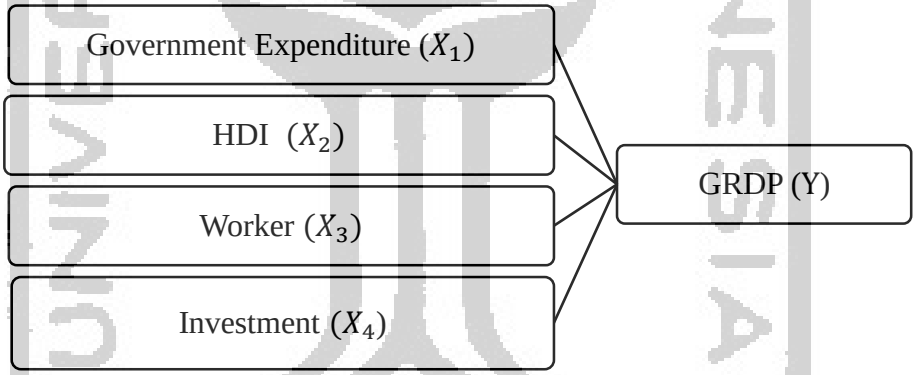
Human development index which defines the quality of human capital is one of the unique factors of production, requiring more serious attention from all parties. Education and health have an effective carrying capacity for regional income. Education is used to create an educated, trained, and health literate workforce that is needed to achieve a decent life. Besides that, the education of a person with his health can increase the productivity and quality of his work, which will increase his income. An increase in income will increase the income and standard of living of the community, which in turn will affect the national income of the country concerned.

Worker shows the level of production and public welfare, a country with a larger number of Workers mean they automatically have money for their daily

needs, so they will spend their money in various economic sectors. Indirectly will encourage producers to produce goods or services that consumers demand, so that this economic circulation went smoothly indicates Gross Regional Domestic Product (GRDP) in a region will increase.

Investment is one important factor in increasing production. Without investment, the production process will not run smoothly resulting in a decrease in overall output. The investment will open many new companies and even enlarge existing companies so that production capacity and output increases both regional and national.

2.4. Thinking framework



2.5. Hypothesis

Based on relevant theories and concepts, as well as earlier research results on Government expenditure, Human Development Index (HDI), Worker, and Investment impacts on Gross Regional Domestic Product (GRDP), a temporary answer can be given to the existing problems. The hypothesis in this research are:

1. The size of government expenditure significantly and positively influences Indonesia's provincial Gross Regional Domestic Product (GRDP).
2. Human Development Index (HDI) significantly and positively influences Indonesia's provincial Gross Regional Domestic Product (GRDP).
3. The number of worker significantly and positively influences Indonesia's provincial Gross Regional Domestic Product (GRDP).
4. The volume of Investment significantly and positively influences Indonesia's provincial Gross Regional Domestic Product (GRDP).

CHAPTER III
RESEARCH METHOD

3.1. Types and Model of Panel Data

The type of study conducted by researcher was quantitative research. This research used quantitative methods by generating numerical data or data that can be transformed into useable statistics. The data model used in this study were secondary data, as: the Gross Regional Domestic Product (PDRB) report of Indonesia based on the 2010 constant prices by province, government expenditure, Human Development Index (HDI), worker and investment. Those data were issued by the Central Statistics Agency (BPS) and the Directorate General of Financial Balance (DJPK).

Data required in this research were:

1. Indonesia's provincial Gross Regional Domestic Product (GRDP) based on constant Prices 2010 by Province, the year 2013-2018.
2. The size of government expenditure data in Indonesia by Province in 2013-2018.
3. Human Development Index (HDI) data in Indonesia by Province in 2013-2018.
4. The number of worker data in Indonesia by Province in 2013-2018.
5. The volume of investment covers domestic and foreign direct investment realization by Province in 2013-2018.

3.2. Data Sources and Definition

In collecting data this study uses a literature study by processing data and analyzing literature publications. In this case, the data is collected to obtain accurate and precise information. The data used were secondary data using the original data of Indonesia's Gross Regional Domestic Product (GRDP) in Indonesia by Provinces as well as other literature sources related to research. The tool used for statistical testing was Microsoft Excel 2013, while for Panel Data testing wasEviews8 by entering the data into Microsoft Excel 2013 software in the .xlsx format, then imported into Eviews 8 software to be tested.

3.3. Research Variable

This research contained independent variable and dependent variable. The dependent variable in this research was Indonesia's Gross Regional Domestic Product (GRDP) by Provinces and the independent variables were Government expenditure, worker, Human Development Index (HDI), and investment, those could be defined as follows:

3.3.1 Dependent Variable

The dependent variable is a variable of magnitude, which influenced by other variables. This study used Indonesia's Gross Regional Domestic Product (GRDP) as a dependent variable (Y). GRDP is all goods and services as a result of economic activities operating in the domestic area (BPS, 2018). Based on these explanations, the researcher used GRDP as an indicator of economic growth, while the data used

are data according to constant prices because the effect of price changes or inflation has been eliminated so that it is more representative of the economy in real term.

3.3.2 Independent Variable

The independent variable is the variable that can affect another variable. Independent variables used in this study are:

A. Government expenditure

Government expenditure is government routine expenditure every year in the context of organizing, implementing and maintaining government activities. According to Sukirno (2006) government expenditure is part of fiscal policy, namely a government action to regulate the economy by determining the amount of revenue and annual government expenditure, which is reflected in the National Budget (APBN) and the Provincial Budget (APBD) for the region or region. The purpose of this fiscal policy is to stabilize prices, output levels, and employment opportunities and stimulate or encourage economic growth. Hence, researcher used the summary of actual expenditures of Provincial government in period 2013-2018.

B. Human Development Index (HDI)

The Human Development Index (HDI) as an indicator of human capital is a comparative measurement of life expectancy, education, and living standards for all countries. HDI is used as an indicator to assess the quality aspects of development and classify whether a country is a developed country, a developing country, or an underdeveloped country and also to measure the effect of economic

policies on quality of life. (BPS, 2015).The range used is the number from 0 to 100, where the number 0 is the lowest number and 100 is the highest number.

In this study, researcher used the latest method of HDI because it uses indicators that are more precise and can distinguish well (discriminatory) by doing the following:

- Replacing literacy rates with an average length of schooling and long-term expectation rates, it is hoped that a more relevant picture can be obtained in education and the changes that occur.
- Replacing GDP with GNP because it is more representative of people's income in an area.

C. Worker

In-Law No. 14 of 1969 concerning "Basic Labor Provisions" states that workers are any person who is able to do work both inside and outside the employment relationship to produce goods or services to meet the needs of the community and receive similar wages or rewards. In this case, the author used data on the number of workers per province in Indonesia each year from 2013-2018 for all types of workforce whether educated, trained, or uneducated and trained. In this research the authors use the worker who involved in econonomic activities as independent data because its contribution is more significant to gross regional domestic product (GRDP) of a region.

D. Investment

Investment activities have a very important role in economic growth that is as a driver of income in a region. The role of investment in the economy in addition

to spurring economic is to absorb labor and can be as an expansion of business opportunities. The author used the combination of both realization of DDI and FDI because it measures the investment as a whole. The middle exchange rate of the United States Dolar (USD) against the Indonesian Rupiah (IDR) issued by BPS is used in converting the USD value of FDI to IDR.

3.4. Analysis Technique

In order to be the result of the relationship between dependent and independent variables, the stages are as follows:

3.4.1 Panel Data Method

Panel datais the combination of from both time series and cross-section data. According to Gujarati (2003) there is some advantages in the use of panel data, namely; can consider heterokedasticity by introducing specific variables, reduces inter-variable collinerity, of data panels also makes a greater degree of freedom (df), where the estimation results are better use cross-section analysis or time series and panel data integration makes the data more efficient, informative, less colinearity and minimize bias. The regression data panel has three approach of estimation models, namely the common effect model (CEM), the fixed effect model (FEM), and the random effect model (REM).

A) Common Effect model

In this approach, all cross-section units and time series are treated the same and then regressed using the ordinary least square method which will produce

equations with constant intercepts and coefficients of independent variables for each unit. The following is a regression model for this model:

$$\boldsymbol{Y_{it}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 X} + \boldsymbol{\beta_{2it} X_{it}} + \boldsymbol{e_{it}} \quad \text{.....(3.1)}$$

This method is the simplest method but the results are not adequate because each observation is treated as a stand alone observation, so it is quite likely that the error term correlates with several independent variables in the model. Another obstacle that is owned by this model is an assumption that considers the same intercept and slope coefficients for each cross section and time series unit. Overcome this use Fixed Effect Model or can be said as Least Square Dummy Variable.

B) Fixed Effect Model

The Fixed Effect model approach assumes that the intercept of each individuals are different while the slope between individuals is fixed (the same). In other words, in the fixed effect model there is no difference in time variant but there are differences in intercepts between cross sections. The estimation model using the Fixed Effect Model as follows:

$$\boldsymbol{Y_{it}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 X_1} + \boldsymbol{\beta_{2it} X_{2it}} + \boldsymbol{e_{it}} \quad \text{..... (3.2)}$$

For estimating the fixed effect model (FEM) needed a dummy variable to satisfy Different intercepts - differences between individuals, intercept differences can occur because of differences in work culture, management and incentives. Hence, this estimation models often called technically Least Square Dummy Variable (LSDV).

C) Random Effect Model

The approach used in the Random Effect assumes that each company has different intercepts, which intercepts are random or stochastic variables. This model is very useful if the individuals (entities) taken as a sample are chosen randomly and are representative of the population. The following is a regression model for this model:

$$\boldsymbol{Y_{it}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 X_1} + \boldsymbol{\beta_{2it} X_{2it}} + \boldsymbol{\beta_0} + \boldsymbol{\beta_1 X_{1it}} + \boldsymbol{\beta_3 X_{1i}} + \cdots + \boldsymbol{e_{it}} \quad \text{..... (3.3)}$$

According to Widarjono (2009) the random effect model used to overcome the weaknesses of the fixed effect model that it uses dummy variable. Panel data analysis method with a random effect model must be meet the requirements, namely the number of cross sections must be greater than the amount research variable. The advantage of using the random effect model is eliminate heterokesdasticity. This model is often called the Error model Component Model (ECM) or Generalized Least Square (GLS) technique.

3.4.2 Selection Panel Data Estimation

This study uses panel data regression in analyzing the influence of government expenditure, HDI, worker, and investment on Gross Regional Domestic Product (GRDP) in Indonesia by provinces from 2013-2018, where cross-section data are from the three estimation techniques, one of the most appropriate techniques will be chosen to estimate panel data regression. The selection is based on the following tests:

D) Chow Test

Chow test is used to test the best model in explaining data between the Common Effect Model (CEM) and Fixed Effect Model (FEM). In this test the hypothesis is as follows:

H_0: Common Effect Model (CEM) is better than the Fixed Effect Model (FEM).

H_1: Fixed Effect Model (FEM) is better than Common Effect Model (CEM).

If F stat> F table then H_0 is rejected and it can be concluded that the best model is the Fixed Effect Model (FEM). Conversely, if F stat <F table then H_0 is accepted and it can be concluded that the best model is the Common Effect Model (CEM).

E) Hausman Test

Hausman test was conducted to determine between Fixed Effect Model (FEM) and Random Effect Model (REM) as the appropriate model that should be used. The Hausman test is calculated using the equation as follows:

$$\boldsymbol{H = X^2_{(k)} = (\beta_{re} - \beta_{fe})\,(\sum_{re} - \sum_{fe})^{-1}\,(\beta_{re} - \beta_{fe})} \quad \text{.....(3.4)}$$

Where:

β_{re}: Random method estimator

β_{fe}: Fixed effect estimator method

$\sum_{re}$: Covariance coefficient matrix on the random effect method

$\sum_{fe}$: Covariance coefficient matrix on the fixed effect method

k: free degrees (number of parameters)

Hausman test statistic follows the Chi-Square statistic distribution with a degree of freedom is k, where k is the number of independent variable. Thus, we can see the result of Chi-square. The hypotheses proposed are the following:

H_0: Random Effect Model (REM) is better than the Fixed Effect Model (FEM).

H_1: Fixed Effect Model (FEM) is better than Random Effect Model (REM).

When chi-square table is greater than chi-square statistic means accept H_0 then Random Effect Model (REM) is better and reversely if the chi-square statistic is greater than the chi-square table, Fixed Effect Model (FEM) is better while rejecting H_0.

3.4.3 Hypothesis Testing

A) Coefficient Determinants (R^2)

Coefficient determination (R^2) is an important measurement in the regression because it will determine that the regression model is good or not. The coefficient of determination (R^2) is used to measure how far the model's ability to explain the variation of the dependent variable (Gujarati, 2003). If it finds that R^2 is zero then the variation of the Y cannot be explained by X altogether. Otherwise, if R^2 is one then a variation of the Y can be explained by X altogether. For that reason, it can be concluded that the greater $R^2$is the better regression model.

B) t-Test

The t-test is used to know the effect of the significance of independent variable individually over the dependent variable, T-test Hypothesis is:

H_0= independent variable does not influence the dependent variable significantly

H_1= independent variable influenced the dependent variable significantly.

When probability value is greater than alpha means reject H_0 and accept H_1. Reversely, when the result of alpha greater than probability means accept H_0, which indicates no significant influence of independent variable in dependent variable.

C) F-test

The F-test is used to explain the effect of independent variables on the dependent variable. F-test has hypothesis below:

H_0 = No independent variable influenced significantly the dependent variable.

H_1 = At least one independent variable influenced significantly the dependent variable.

If F-test is greater than F critical, H_0 is rejected. Rejected H_0 means that there is at least one independent variable that is influenced by the dependent variable. And conversely if the F critical is greater F-test then there is no independent variable (X) influenced significantly to the dependent variable (Y) and the study cannot continue further.

3.5. Model

The influence of independent variable toward the dependent variable systematically can be described in the following formula:

$$\boldsymbol{log(Y_{it}) = \beta_0 + \beta_1 log(X_1) + \beta_{2it}\ log(X_{2it}) + \beta_{3it}\ log(X_{3it}) + \beta_{4it}\ log(X_{4it}) + e_{it}} \quad (3.4)$$

Where:

Y: Gross Regional Domestic Product (GRDP)

X_1, X_2, X_3, and X_4: government expenditure (X_1), human development index (X_2), worker (X_3) and investment (X_4).

β_0: Constanta

$\beta_1, \beta_2 \ldots \beta_n$: The magnitude of the influence of the independent variable toward the dependent variable

i: 34 Provinces in Indonesia

t: Series 2013-2018

$\boldsymbol{e_{it}}$: Error or residual term

CHAPTER IV
RESULT AND DISCUSSION

4.1. Descriptive Statistics of Research Data

The data in this research used panel data. Panel data is a combination of time series data and cross-section data. The time-series data in this study are 6 years, namely 2013 to 2018. While the cross-section data in this study is the data of 34 Provinces in Indonesia. The data is secondary data taken from the Central Statistics Agency (BPS) and the directorate general of financial balance (DJPK). In this study the dependent and independent variables are used. The dependent variable in this study is GRDP based on 2010 constant prices in every province in Indonesia as the focus indicator for economic growth, while the independent variables consist of government expenditure, Human Development Index (HDI), worker, and investment. Indonesia is a country that has very abundant natural resources, both on land such as gold, silver, copper, forest products, etc. as well as at the seas such as fish, oil, and others. Even so, most of the people of Indonesia are still categorized as middle-lowers.

Based on the Table 4.1, it is shown that within six years all variables namely the gross regional domestic product (GRDP), government spending, Human Development Index (HDI), workers and investment of Indonesia are still centered on the island of Java and then followed by the island of Sumatra. Likewise, the largest GRDP's inequality occurs on Java Island, however the inter-island GRDP imbalance is also very apparent from the average GRDP value of each island. In

addition, the biggest difference of Human Development Index (HDI) occurred on the island of Sulawesi with a difference of 3.07.

Table 4.1. : Descriptive Statistics of Research Data Several Islands in Indonesia 2013-2018

	GRDP (trillion Rp)	Gov. Exp (trillion Rp)	HDI	Worker (people)	Investment (trillion Rp)
Sumatra					
Mean	2,012.2	56.59	69.74	24,687,815	99.3
Median	2,003.0	53.75	69.74	24,585,953	102.9
Min	1,811.0	47.75	68.36	23,094,040	64.3
Max	2,229.5	68.05	71.18	26,569,652	127.9
Std. Dv	154.8	8.89	1.06	1,337,608	26.0
Java					
Mean	5,423.9	127.08	72.75	67,586,020	337.5
Median	5,398.8	125.27	72.79	66,676,502	321.6
Min	4,716.4	93.97	71.30	65,997,749	277.7
Max	6,192.8	165.17	74.19	70,653,052	423.8
Std. Dv	551.8	27.29	1.10	1,980,258	58.0
Kalimantan					
Mean	809.4	24.63	69.36	7,251,732	77.6
Median	800.0	24.28	69.33	7,267,799	74.3
Min	755.9	22.83	68.02	6,976,747	62.5
Max	875.9	27.67	70.79	7,611,234	100.6
Std. Dv	43.6	1.80	1.02	236,564	13.9
Sulawesi					
Mean	545.8	18.43	67.65	8,187,833	42.5
Median	544.5	17.94	67.61	8,135,724	43.1
Min	454.1	13.00	66.16	7,582,727	21.9
Max	643.3	23.77	69.23	8,703,976	57.2
Std. Dv	71.6	4.38	1.15	443,195	14.6
Bali, Maluku and Papua					
Mean	514.6	34.55	65.09	9,978,071	47.9
Median	519.7	35.58	65.01	10,064,686	48.2
Min	440.5	24.28	63.65	9,355,474	32.3
Max	585.1	41.73	66.70	10,467,036	58.9
Std. Dv	55.9	6.93	1.15	444,836	10.2

4.2. Panel Data Result

Panel data regression has three standard estimation models, namely: Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The Chow and Hausman test was used in order to choose the best regression model with the results are follows:

4.2.1 Chow and Hausman Test Result

Chow test is used to decide the best model between Common Effect Model (CEM) and Fixed Effect Model (FEM). While Hausman test is used to decide the best model between Fixed Effect Model (FEM) and Random Effect Model (REM). That model test has the null hypothesis as below:

Chow test	**Hausman Test**
H_0: CEM is preferred	H_0: REM is preferred
H_1: FEM is preferred	H_1: REM is preferred

This test is done by comparing the probability value with an alpha of 5%. If the probability value is greater than alpha, then accept H_0 and vice versa. The result of chow test and Hausman test calculation using Eviews are concluded as follow:

Table 4.2 : Chow Test

Effects Test	Statistic	d.f	Prob
Cross-section F	1275.656077	(33,166)	0.0000
Cross-section Chi-square	1130.092929	33	0.0000

Source:Secondary data processed with Eviews 8, 2019

From the results of the Chow Test above it can be seen that the Chi-square statistic is 1275.656077 with a probability of 0.0000 which is significant in alpha 5%, which means that H_0 is rejected and accepts H_1, then the most appropriate model to use is Fixed Effect Model (FEM).

Table 4.3 : Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f	Prob
Cross-section random	101.130931	4	0.0000

Source:Secondary data processed with Eviews 8, 2019

From the Hausman test results above it can be seen that the Chi-square statistic of 101.130931 with a probability of 0.0000 which is significant in the alpha of 5%, which means that H_0 is rejected and accepts H_1, then the most appropriate model to use is the Fixed Effect Models (FEM).

4.2.2 Fixed Effect Result

Fixed Effect Model (FEM) assumed there are different effects between individuals (Provinces), which intercept is not constant and constant-coefficient.

Table 4.4 : Fixed Effect Model

Variabel		Coefficient	Std. Error	t-Statistic	Prob
C		4.79624	0.7866	6.09743	0.0009
log (Gov Exp)		0.02467	0.009	2.745	0.0067
HDI		0.07575	0.00336	22.5689	0.1253
log (Worker)		0.10102	0.06557	1.54062	0.001
log (Investment)		0.01355	0.00341	3.97704	0.001
Fixed effect (cross)					
Aceh	-0.2172	Ja-Teng	1.48307	Sul-Ut	-0.6703
Sum-Ut	1.00314	DIY	-1.1347	Sul-teng	-0.2632
Sum-Bar	-0.0383	Ja-Tim	1.99832	Sul-Sel	0.5367
Riau	1.00085	Banten	0.77207	Sul-gara	-0.5167
Jambi	-0.048	Bali	-0.3771	Gorontalo	-1.3638
Sum-Sel	0.67327	NTB	-0.208	Sul- Bar	-1.0378
Bengkulu	-1.1566	NTT	-0.3678	Maluku	-1.3899
Lampung	0.47391	Kal-Bar	0.07035	Maluku Utara	-1.475
Kep. Ba-Bel	-0.9253	Kal-Teng	-0.4508	Papua Barat	-0.2607
Kep. Riau	-0.1198	Kal-Sel	-0.1541	Papua	0.84614
DKI	1.45132	Kal-Tim	0.76517		
Ja-Bar	1.84905	Kal-Ut	-0.7482		
Cross-section fixed (dummy variables)					
R-squared		0.99956	Mean depend var		11.8058
Adjusted R-squared		0.99946	S.D dependent var		1.15426
S.E. of regression		0.02684	Akaike info criterion		-4.2313
Sum sq. resid		0.1196	Schwarz crite		-3.6132
Log likelihood		469.595	Hannan-Quinn crite		-3.9813
F-statistic		10141.5	Durbin- wWaton stat		0.91761
Prob (F-stati)		0			

Source:Secondary data processed with Eviews 8, 2019

Based on Table 4.4 the Constanta value is 4.79, it means the dependent variable (GRDP) is 4.79 percent if the independent variable is valued at zero. R-squared value of 0.999558, it means the change in the dependent variable that can be

explained by the independent variable is 99.95%. The F-statistic value is 10141.47 with a prob (F-statistic) of 0.0000 which means that the independent variables simultaneously influence the dependent variable. Based on the t-statistic in this model if using alpha 5%, then only worker does not have a significant influence on GRDP in Indonesia 2013-2018.

Since, the FEM assumes that there are different intercepts for each individual. The intercept similarities for each province could be different if there is no independent variable. Maluku Utara is the province with the lowest GRDP with total intercepts 3.32 percent, while the highest GRDP is East Java Province with an intercept value of 6.78 percent on the total GRDP that province in certain period .

4.3. Hypothesis Testing

After selecting the regression model and getting Fixed Effect Models to be the most appropriate model to use, the next step is to explain the test of the hypothesis as follows:

4.3.1 Coefficient of Determinant (R^2)

Coefficient of Determinant (R^2) measures the percentage of the total variation of the dependent variable that can be explained by the independent variable in the regression model. Hence, we can know the level of appropriateness of the estimation model that is formed (goodness of fit). In Table 4.4 as the appropriate model showed coefficients determination (R^2) generated by the model is 0.999558. It means variable GRDP as dependent variable is explained by government expenditure (X_1), HDI (X_2), worker (X_3) and investment (X_4) by 99,95 % as the

independent variable. While the other outside variables which described the model is 0,05% as residual.

4.3.2 t-Statistic test

The t-test in Table 4.4 as the best model shown the level of significance of the effect of each independent variable (government expenditure, HDI, worker, and investment) on the dependent variable (GRDP). We assumed the null hypothesis (H_0) by $\beta_i = 0$ whereindicates thereis no influence of independent variable towards dependent variable. Besides, the alternative hypothesis (H_1) is $\beta_i \neq 0$ where indicates there is an influence of independent towards dependent variable. The result of test can be known by comparing either t-test and t-critical or t-probability and alpha. In this research, the observer use $\alpha = 0.05$is when the value of t-test > t critical or the value of the probability $t < \alpha = 0.05$ then H_0 will be rejected.

The conclusion of t-test results is:

A. t-statistic test of hypothesis on Government expenditure

H_o: $\beta_1 \leq 0$

H_1: $\beta_1 > 0$

Government expenditure (X_1) has the probability result 0.0067 or lower than α 5%; it rejects H_0, which means there is a significant effect of the government expenditure towards GRDP in Indonesia 2013-2018. In addition, coefifcient 0.024671 concluded that the increase in government expenditure will increase GRDP simultaneously. In conclusion, when the government expenditure increased

by 1 percent, the number of provincial GRDP in Indonesia will increase by 0,024 percent.

B. t-statistic test of hypothesis on Human Development Index (HDI)

H_0: $\beta_1 \leq 0$

H_1: $\beta_1 > 0$

HDI (X_2) has the probability result 0.0067 or less than α 5%; it rejects H_0, which means there is a significant effect of HDI towards GRDP in Indonesia 2013-2018. In addition, with a regression coefficient of 0,075 which means that when HDI rises 1 percent, the number of provincial GRDP in Indonesia will experience an increase of 0,075 percent.

C. t-statistic test of hypothesis on Worker

H_0: $\beta_1 \leq 0$

H_1: $\beta_1 > 0$

Worker (X_3) has the probability result 0.1253 or bigger than α 5% and 10%; it rejects H_0, which means there is no significant effect of worker on GRDP in Indonesia 2013-2018. It can be concluded that the increase in worker will not have a serious impact on GRDP.

D. t-statistic test of hypothesis on investment

H_0: $\beta_1 \leq 0$

H_1: $\beta_1 > 0$

Investment (X_4) has the probability result of 0.001 or less than α 5%; it accepts H_0, which means there is a significant effect of the investment on GRDP in

Indonesia 2013-2018. In addition, with a regression coefficient of 0.013549 which means that when the investment goes up by 1 percent, the total GDP of the Province in Indonesia will increase by 0,013 percent.

4.3.3 F- Statistic test

F test is used to evaluate whether all independent variables influence simultaneously against the dependent variable or not. As a conclusion, it will describe the simultaneous effect of independent variables on dependent variable. F-Statistic test is found by comparing the probability value with alpha or F-statistic and F-critical. In this study, researcher using $\alpha = 0,05$. Hence, when the value of F-statistic > F-critical or if the value of the probability $F < \alpha = 0.05$ then H_0 will be rejected.

The test results in table 4.7 F-statistics are 10141.47 by showing the F-statistic probability of 0.0000 <0.05 then the conclusion H_0 is rejected.Thus, the government expenditure, HDI, worker, and investment variables contained in the regression equation simultaneously have an impact on GRDP at $\alpha = 5\%$.

Therefore, it can be concluded that the best regression equation model as below:

$$\boldsymbol{log(GRDP) = -11.75 + \beta_1\, log(Gov) + 5.11\, log(HDI) + 0.10\, log(Worker) + 0.01\, log(Investment) + e_{it}} \quad \text{.....(4.1)}$$

4.4. Discussion

A. Government Expenditure

The researchresultsare similar with the first hypothesis which states that government expenditure has a significant positive effect toward regional income. These results are supported and similar to previous studies including Wardana, et al. (2014); Fitri (2016); Maisaroh and Risyanto (2016). Government Expenditure aims to finance regional needs is very influential on Gross Regional Domestic Product (GRDP) because the expenditure will be used for public interests such as employment expenditure, goods and services expenditure, and capital expenditure, which will support economic activities in the production goods and services. As a result, Gross Regional Domestic Product (GRDP) in a region will increase.

B. Human Development Index (HDI)

Based on the results obtained in the study, the probability of HDI t-statistic is 0.0000. It means the quality of human capital which measured from HDI significantly affects the GRDP in Indonesia. It is in line with the null hypothesis that increasing human capital will increase GRDP simultaneously. As comparison to other independent variables, human capital is the factor with the greatest impact on GRDP. Besides, the coefficient of human capital is 0.075, it means the increasing of 1 percent of the capital investment will increase by 0,075 percent no doubt the impact of human resources is very high on GRDP because the human capital employed in an organization is the key thinker, planning and driving force to achieve targets as well as the efficiency of an area. As has been found by Izzah

(2015); Irmayanti (2017); and Rahmawati (2013) in their study which stated a very strong relationship between HDI and national/regional income.

C. Worker

Based on the results of research that has been done, the results of the study differ from the first hypothesis which states that government expenditure has a significant positive effect. The researcher found that that workers have no significant effect on regional income in Indonesia. Even though, from the point of view of the production process the existence of worker is one of the inputs or factors of production but this result might be happened as explained by Bloom, et al. (2003) explains that although basically workers and population can affect the income of a country or region, the population and the number of workers can be neutral; once other factors such as country size, openness to trade, educational attainment of the population, and the quality of civil and political institutions are taken into account. Futhermore, Karlita, and Yusuf (2013) explained this result could occur because of the low productivity of workers; as result, even the numbers are many but not significantly affect GRDP.

D. Investment

With an investment t-statistic probability value of 0.0001 indicating a significant relationship between investment and GRDP, coupled with a positive t-statistic (3.977042) indicates that the relationship is positive An increase in the realization of investment will have a positive direct effect on national income. The significant positive relationship occurs because when being used makes an investment, there is a certain amount of capital invested or issued. Hence, there

are a number of purchases of goods and services that are not consumed but used for production either the present or future. As researched by Pratama (2011) and Putra (2018) who found the results of the study that investment is very influential on the growth of regional Gross Regional Domestic Product (GRDP) and they also argued that investment is one component of aggregate expenditure, therefore an increase in investment will increase aggregate demand, national income and job opportunities.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

Based on the empirical results and discussion about the influence of HDI on Gross Regional Domestic Product (GRDP) in Indonesia period 2013-2018, it can be summed up as follows:

1. Government expenditure had positive and significat impact in influencing GRDP, then an increase in government expenditure would increase Indonesia's GRDP period 2013-2018.
2. Human Development Index (HDI) had positive and significat impact in Indonesia's GRDP, then an increase in HDI would have an effect on the increasing of GRDP in Indonesia period 2013-2018. Moreover, it is the most significant factor influencing GRDP.
3. Worker income had no significant impact significat impact in influencing GRDP in Indonesia period 2013-2018.
4. Investment had a significant positive impact in influencing Gross Regional Domestic Product (GRDP) in Indonesia period 2013-2018. Thus, an increase in investment would increase Indonesia's GRDP period 2013-2018.

5.2. Recommendations

Based on the conclusions of the results study, some recommendations are as follows:

1) Government expenditure has a significant positive variable on revenue growth. It is the variable that has the smallest influence compared to investment and HDI. In sum, even the fiscal allocation function can be concluded to have run well. The government must improve indicators to maintain and boost the sustainable economic growth such as the construction of roads, schools, hospitals, and all related to productive improvements in society, which are expected to increase production in the aggregate.

2) Human Development Index (HDI) is the most significant influential variable in the impact of GRDP influences among other variables, HDI as a driving force for regional income. Unfortunately, based on the data in Table 1.3 the amount of Human Development Index (HDI) increase in Indonesia is still not optimal compared to other countries such as Vietnam and Myanmar which are able to increase HDI by 21.9 in 27 years. The government should start focusing more on the human resource sector because it needs to be recognized that whatever amount of funds either obtained or issued and the number of workers. Consequently, the results will not be maximized without qualified human resources.

3) Worker Irregularities indicate that the role of the government and the company has not been synergized properly, which is very necessary to

improve output or input facilities and infrastructure that will affect an increase in the number and productivity of worker that is efficient and effective in generating better regional income.

4) Investment funds have been proven to have an effect on the Indonesian economy. Unfortunatelly, investment funds are too dependent on foreign investment, so that if foreign investment falls, it will have a negative impact on the economy. Since the foreign investment trends is always fluctiating, the government must maintain positive domestic investment trends, so it will make Indonesia as a self-reliant country.

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Appendix 1

Data of GRDP, Government Expenditure, HDI, Worker and Investment per Province in Indonesia 2013-2018

Province	Year	GRDP (Y) (milliar Rp)	Goverment Expenditure (X1) (million RP)	HDI (X2)	Worker (X3) (people)	Investment (X4) (Rp)
_Aceh	2013	111,756	11,220	68.3	1,842,671	4,784.60
_Aceh	2014	113,490	12,046	68.81	1,931,823	5,497.20
_Aceh	2015	112,666	12,149	69.45	1,966,018	4,484.90
_Aceh	2016	116,374	12,120	70	2,087,045	4,278.30
_Aceh	2017	121,241	13,833	70.6	2,138,512	1,095.00
_Aceh	2018	126,824	12,306	71.19	2,203,717	2,001.00
_sumut	2013	398,727	7,260	68.36	6,081,301	15,886.60
_sumut	2014	419,573	7,809	68.87	5,881,371	11,075.90
_sumut	2015	440,956	7,959	69.51	5,962,304	21,477.40
_sumut	2016	463,775	9,476	70	5,991,229	18,611.40
_sumut	2017	487,531	12,519	70.57	6,365,989	32,071.10
_sumut	2018	512,766	12,563	71.18	6,728,431	26,148.70
_sumbar	2013	125,941	3,113	68.91	2,061,109	1,791.90
_sumbar	2014	133,341	3,484	69.36	2,180,336	1,815.60
_sumbar	2015	140,719	4,022	69.98	2,184,599	2,340.20
_sumbar	2016	148,134	4,504	70.73	2,347,911	4,870.00
_sumbar	2017	155,976	5,760	71.24	2,344,972	4,133.20
_sumbar	2018	163,995	6,267	71.73	2,410,450	4,927.70
_riau	2013	436,188	7,525	69.91	2,479,493	20,779.70
_riau	2014	447,987	5,602	70.33	2,518,485	24,744.20
_riau	2015	448,992	7,761	70.84	2,554,296	18,956.70
_riau	2016	458,769	8,732	71.2	2,765,946	18,388.30
_riau	2017	471,082	9,189	71.79	2,781,021	25,110.10
_riau	2018	482,087	8,470	72.44	2,915,597	24,013.80
_jambi	2013	111,766	3,011	67.76	1,397,247	6,647.70
_jambi	2014	119,991	3,205	68.24	1,491,038	5,785.70
_jambi	2015	125,037	3,426	68.89	1,550,403	12,374.60
_jambi	2016	130,501	3,294	69.62	1,624,522	10,917.20

_jambi	2017	136,557	4,133	69.99	1,657,817	16,888.50
_jambi	2018	142,995	4,198	70.65	1,721,362	4,352.10
_sumsel	2013	232,175	5,679	66.16	3,524,883	3,814.10
_sumsel	2014	243,298	5,771	66.75	3,692,806	7,682.20
_sumsel	2015	254,045	5,190	67.46	3,695,866	12,429.80
_sumsel	2016	266,857	4,963	68.24	3,998,637	9,360.50
_sumsel	2017	281,571	6,409	68.86	3,942,534	9,233.80
_sumsel	2018	298,569	7,941	69.39	3,963,870	25,139.00
_bengkulu	2013	34,326	1,727	67.5	832,048	6,032.20
_bengkulu	2014	36,207	1,935	68.06	868,794	13,150.70
_bengkulu	2015	38,066	2,282	68.59	904,317	9,462.70
_bengkulu	2016	40,077	2,030	69.33	964,971	38,795.40
_bengkulu	2017	42,074	2,867	69.95	932,976	16,216.00
_bengkulu	2018	44,171	2,980	70.64	963,463	6,880.90
_lampung	2013	180,620	3,885	65.73	3,471,602	2,695.30
_lampung	2014	189,797	4,454	66.42	3,673,158	4,801.90
_lampung	2015	199,537	4,781	66.95	3,635,258	2,243.10
_lampung	2016	209,794	5,477	67.65	3,931,321	6,745.80
_lampung	2017	220,626	6,949	68.25	3,896,230	9,075.20
_lampung	2018	232,214	7,539	69.02	4,060,377	14,230.50
_babel	2013	42,191	1,610	67.92	597,613	880
_babel	2014	44,159	1,596	68.27	604,223	855.6
_babel	2015	45,962	1,870	69.05	623,949	1,307.90
_babel	2016	47,848	2,070	69.55	686,830	2,956.60
_babel	2017	49,987	2,359	69.99	672,618	3,601.30
_babel	2018	52,212	2,364	70.67	701,366	3,783.40
_kepri	2013	137,264	2,716	73.02	806,073	988.1
_kepri	2014	146,325	3,312	73.4	819,656	1,975.40
_kepri	2015	155,131	2,605	73.75	836,670	4,167.00
_kepri	2016	162,853	2,782	73.99	859,813	1,653.60
_kepri	2017	166,111	3,038	74.45	896,931	3,021.00
_kepri	2018	173,689	3,418	74.84	901,019	16,424.10
_DKI	2013	1,296,695	38,302	78.08	4,668,239	37,337.40
_DKI	2014	1,373,389	37,800	78.39	4,634,369	73,908.40
_DKI	2015	1,454,564	43,031	78.99	4,724,029	65,442.30
_DKI	2016	1,539,917	47,129	79.6	4,861,832	58,255.70
_DKI	2017	1,635,367	51,066	80.06	4,509,171	109,101.80
_DKI	2018	1,736,196	61,410	80.47	4,726,779	119,441.80
_jabar	2013	1,093,544	18,397	68.25	18,731,943	95,851.50

_jabar	2014	1,149,216	20,798	68.8	19,230,943	100,358.20
_jabar	2015	1,207,232	24,418	69.5	18,791,482	105,438.20
_jabar	2016	1,275,619	27,622	70.05	19,202,038	104,480.00
_jabar	2017	1,343,864	32,707	70.69	20,551,575	107,603.70
_jabar	2018	1,419,689	33,334	71.3	20,779,888	122,985.20
_jateng	2013	726,655	12,725	68.02	16,469,960	57,939.10
_jateng	2014	764,959	15,086	68.78	16,550,682	38,912.00
_jateng	2015	806,765	17,821	69.49	16,435,142	50,477.60
_jateng	2016	849,099	19,354	69.98	16,511,136	63,523.50
_jateng	2017	893,750	22,885	70.52	17,186,674	60,879.30
_jateng	2018	941,283	24,479	71.12	17,245,548	61,834.00
_DIY	2013	75,627	2,510	76.44	1,886,071	5,943.20
_DIY	2014	79,536	2,981	76.81	1,956,043	6,468.60
_DIY	2015	83,474	3,496	77.59	1,891,218	12,093.60
_DIY	2016	87,686	3,848	78.38	2,042,400	14,913.90
_DIY	2017	92,302	4,921	78.89	2,053,168	32,223.70
_DIY	2018	98,027	5,296	79.53	2,118,392	7,309.00
_jatim	2013	1,192,790	16,739	67.55	19,553,910	35,209.70
_jatim	2014	1,262,685	20,006	68.14	19,306,508	38,939.40
_jatim	2015	1,331,376	22,946	68.95	19,367,777	36,718.90
_jatim	2016	1,405,564	23,860	69.74	19,114,563	46,597.10
_jatim	2017	1,482,300	28,878	70.27	20,099,220	45,535.70
_jatim	2018	1,563,756	30,662	70.77	20,449,949	52,642.10
_Banten	2013	331,099	5,295	69.47	4,687,626	45,406.20
_Banten	2014	349,351	6,192	69.89	4,853,992	30,504.40
_Benten	2015	368,377	8,084	70.27	4,825,460	46,485.80
_Banten	2016	387,835	8,926	70.96	5,088,497	38,723.00
_Banten	2017	410,046	9,513	71.42	5,077,400	36,226.50
_Banten	2018	433,884	9,993	71.95	5,332,496	59,579.70
_Bali	2013	114,104	3,869	72.09	2,242,076	7,749.40
_Bali	2014	121,788	4,492	72.48	2,272,632	5,565.90
_Bali	2015	129,127	4,999	73.27	2,324,805	8,089.90
_Bali	2016	137,296	5,421	73.65	2,416,555	6,587.00
_Bali	2017	144,945	6,071	74.3	2,398,307	12,528.40
_Bali	2018	154,151	5,998	74.77	2,490,870	16,066.10
_NTB	2013	69,767	2,380	63.76	2,032,282	7,348.70
_NTB	2014	73,373	2,614	64.31	2,094,100	7,068.20
_NTB	2015	89,338	3,328	65.19	2,127,503	9,996.10
_NTB	2016	94,524	3,764	65.81	2,367,310	7,290.40
_NTB	2017	94,640	5,255	66.58	2,316,720	7,191.30
_NTB	2018	90,323	5,240	67.3	2,154,124	7,778.50

_NTT	2013	51,505	2,381	61.68	2,104,507	138.3
_NTT	2014	54,108	2,693	62.26	2,174,228	191.4
_NTT	2015	56,771	3,328	62.67	2,219,291	2,259.90
_NTT	2016	59,678	3,703	63.13	2,277,068	1,610.70
_NTT	2017	62,725	4,635	63.73	2,320,061	2,952.60
_NTT	2018	65,941	4,847	64.39	2,411,533	5,700.00
_kalbar	2013	101,980	3,297	64.3	2,172,337	10,445.00
_kalbar	2014	107,115	3,653	64.89	2,226,510	16,339.10
_kalbar	2015	112,347	4,124	65.59	2,235,887	24,569.50
_kalbar	2016	118,183	4,321	65.88	2,287,823	17,560.20
_kalbar	2017	124,294	5,260	66.26	2,303,198	20,030.40
_kalbar	2018	130,584	5,341	66.98	2,346,881	13,714.60
_kalteng	2013	69,411	2,929	67.41	1,124,017	7,705.50
_kalteng	2014	73,725	3,236	67.77	1,154,489	12,810.80
_kalteng	2015	78,891	3,482	68.53	1,214,681	14,149.10
_kalteng	2016	83,900	3,175	69.13	1,248,189	13,709.40
_kalteng	2017	89,541	3,687	69.79	1,222,707	11,664.40
_kalteng	2018	94,596	4,548	70.42	1,301,002	22,917.00
_kalsel	2013	101,851	4,750	67.17	1,830,813	11,475.70
_kalsel	2014	106,779	4,918	67.63	1,867,462	8,867.60
_kalsel	2015	110,863	5,103	68.38	1,889,502	15,320.10
_kalsel	2016	115,744	5,179	69.05	1,965,088	9,541.90
_kalsel	2017	121,856	5,866	69.65	1,975,161	6,263.00
_kalsel	2018	128,106	6,083	70.17	2,021,666	11,846.10
_kaltim	2013	438,533	13,780	73.21	1,603,915	32,311.80
_kaltim	2014	446,029	11,275	73.82	1,677,466	39,551.50
_kaltim	2015	440,676	8,599	74.17	1,423,957	42,462.70
_kaltim	2016	439,004	7,601	74.59	1,581,239	22,324.40
_kaltim	2017	452,742	8,239	75.12	1,540,675	28,276.40
_kaltim	2018	464,823	9,345	75.83	1,618,285	34,449.60
_kalut	2013	44,092	78	67.99	245,665	581.9
_kalut	2014	47,696	642	68.64	255,514	1,990.10
_kalut	2015	49,316	1,894	68.76	267,023	4,107.10
_kalut	2016	51,065	2,557	69.2	273,423	5,524.20
_kalut	2017	54,535	2,449	69.84	312,416	2,858.50
_kalut	2018	57,826	2,353	70.56	323,400	2,331.40
_sulut	2013	62,423	2,026	69.49	965,457	867.6
_sulut	2014	66,361	2,229	69.96	980,756	1,307.10
_sulut	2015	70,425	2,693	70.39	1,000,032	1,484.60
_sulut	2016	74,765	2,801	71.05	1,110,564	10,255.80
_sulut	2017	79,485	3,581	71.66	1,040,826	7,987.10

_sulut	2018	84,259	3,656	72.2	1,095,145	8,605.00
_sulteng	2013	68,219	2,145	65.79	1,239,122	918.6
_sulteng	2014	71,678	2,446	66.43	1,293,226	146.8
_sulteng	2015	82,787	2,953	66.76	1,327,418	1,063.60
_sulteng	2016	91,015	3,178	67.47	1,459,803	1,253.30
_sulteng	2017	97,475	3,446	68.11	1,374,214	2,485.50
_sulteng	2018	103,618	3,628	68.88	1,451,491	18,225.90
_sulsel	2013	217,589	4,924	67.92	3,376,549	11,342.60
_sulsel	2014	233,988	5,600	68.49	3,527,036	23,537.40
_sulsel	2015	250,803	6,150	69.15	3,485,492	24,185.70
_sulsel	2016	269,401	6,931	69.76	3,694,712	25,015.50
_sulsel	2017	288,814	8,892	70.34	3,598,663	22,770.10
_sulsel	2018	309,244	9,322	70.9	3,774,924	12,213.60
_sultra	2013	64,269	1,813	67.55	997,231	6,902.70
_sultra	2014	68,292	2,089	68.07	1,037,419	4,744.30
_sultra	2015	72,993	2,349	68.75	1,074,916	5,233.80
_sultra	2016	77,746	2,664	69.31	1,219,548	6,840.80
_sultra	2017	83,002	3,554	69.86	1,160,974	12,741.60
_sultra	2018	88,329	3,586	70.61	1,207,488	11,347.70
_gorontalo	2013	19,368	1,051	64.7	458,930	114.9
_gorontalo	2014	20,776	1,204	65.17	479,137	247.9
_gorontalo	2015	22,069	1,408	65.86	493,687	121.9
_gorontalo	2016	23,507	1,596	66.29	546,668	2,481.60
_gorontalo	2017	25,090	1,738	67.01	524,316	1,041.80
_gorontalo	2018	26,723	1,828	67.71	555,533	3,257.60
_sulbar	2013	22,227	1,044	61.53	545,438	1,738.20
_sulbar	2014	24,196	1,227	62.24	595,797	2,702.90
_sulbar	2015	25,964	1,386	62.96	595,905	3,104.10
_sulbar	2016	27,525	1,766	63.6	624,182	5,179.50
_sulbar	2017	29,347	1,927	64.3	595,004	9,986.60
_sulbar	2018	31,177	1,747	65.1	619,395	3,501.90
_maluku	2013	22,101	1,576	66.09	602,429	643.6
_maluku	2014	23,568	1,726	66.74	601,651	163
_maluku	2015	24,859	2,280	67.05	655,063	1,136.70
_maluku	2016	26,284	2,799	67.6	690,786	1,401.40
_maluku	2017	27,814	2,834	68.19	642,061	2,905.40
_maluku	2018	29,465	3,069	68.87	700,143	1,129.30
_malut	2013	18,209	1,388	64.78	454,978	4,387.60
_malut	2014	19,209	1,482	65.18	456,017	1,384.10
_malut	2015	20,380	1,809	65.91	482,543	2,859.70
_malut	2016	21,557	2,024	66.63	503,479	5,955.00
_malut	2017	23,211	2,259	67.2	488,715	4,220.40

_malut	2018	25,050	2,439	67.76	515,615	7,530.00
_pabar	2013	47,694	4,512	60.91	359,527	29,070.00
_pabar	2014	50,260	5,429	61.28	378,436	15,781.90
_pabar	2015	52,346	6,880	61.73	380,226	12,437.60
_pabar	2016	54,711	6,465	62.21	402,360	15,840.10
_pabar	2017	56,903	7,019	62.99	402,526	25,953.70
_pabar	2018	60,454	6,947	63.74	417,544	4,205.50
_papua	2013	117,119	8,171	56.25	1,559,675	1,244.90
_papua	2014	121,391	10,304	56.75	1,617,437	2,158.20
_papua	2015	130,312	12,396	57.25	1,672,480	4,842.60
_papua	2016	142,225	11,968	58.05	1,664,485	7,190.90
_papua	2017	148,823	13,303	59.09	1,699,071	2,357.80
_papua	2018	159,729	13,187	60.06	1,777,207	16,501.40

Appendix 2

Result of Descriptive Statistic Using Eviews 8

Gross Regional Domestic Product (GRDP) in Trillion Rp

Provinces	Mean	Median	Standard Deviation	Minimum	Maximum
Aceh	117.1	114.9	5.9	111.8	126.8
Sumatera Utara	453.9	452.4	42.6	398.7	512.8
Sumatera Barat	144.7	144.4	14.2	125.9	164.0
Riau	457.5	453.9	16.8	436.2	482.1
Jambi	127.8	127.8	11.3	111.8	143.0
Sumatera Selatan	262.8	260.5	24.7	232.2	298.6
Bengkulu	39.2	39.1	3.7	34.3	44.2
Lampung	205.4	204.7	19.3	180.6	232.2
Kep. Bangka Belitung	47.1	46.9	3.7	42.2	52.2
Kep. Riau	156.9	159.0	13.4	137.3	173.7
Dki Jakarta	1506.0	1497.2	164.3	1296.7	1736.2
Jawa Barat	1248.2	1241.4	122.2	1093.5	1419.7
Jawa Tengah	830.4	827.9	80.3	726.7	941.3
Di Yogyakarta	86.1	85.6	8.3	75.6	98.0
Jawa Timur	1373.1	1368.5	138.4	1192.8	1563.8
Banten	380.1	378.1	38.3	331.1	433.9
Bali	133.6	133.2	14.9	114.1	154.2
NTB	85.3	89.8	10.9	69.8	94.6
NTT	58.5	58.2	5.4	51.5	65.9
Kalimantan Barat	115.8	115.3	10.7	102.0	130.6
Kalimantan Tengah	81.7	81.4	9.5	69.4	94.6
Kalimantan Selatan	114.2	113.3	9.7	101.9	128.1
Kalimantan Timur	447.0	443.4	10.3	438.5	464.8
Kalimantan Utara	50.8	50.2	4.9	44.1	57.8
Sulawesi Utara	73.0	72.6	8.2	62.4	84.3
Sulawesi Tengah	85.8	86.9	14.1	68.2	103.6
Sulawesi Selatan	261.6	260.1	34.3	217.6	309.2

Sulawesi Tenggara	75.8	75.4	9.1	64.3	88.3
Gorontalo	22.9	22.8	2.7	19.4	26.7
Sulawesi Barat	26.7	26.7	3.3	22.2	31.2
Maluku	25.7	25.6	2.7	22.1	29.5
Maluku Utara	21.3	21.0	2.6	18.2	25.1
Papua Barat	53.7	53.5	4.6	47.7	60.5
Papua	136.6	136.3	16.5	117.1	159.7

Government Expenditure in Trillion RP

Provinces	Mean	Median	Standard Deviation	Minimum	Maximum
Aceh	12.28	12.13	0.85	11.22	13.83
Sumatera Utara	9.60	8.72	2.40	7.26	12.56
Sumatera Barat	4.53	4.26	1.26	3.11	6.27
Riau	7.88	8.12	1.27	5.60	9.19
Jambi	3.54	3.36	0.50	3.01	4.20
Sumatera Selatan	5.99	5.72	1.08	4.96	7.94
Bengkulu	2.30	2.16	0.51	1.73	2.98
Lampung	5.51	5.13	1.45	3.88	7.54
Kep. Bangka Belitung	1.98	1.97	0.35	1.60	2.36
Kep. Riau	2.98	2.91	0.33	2.61	3.42
Dki Jakarta	46.46	45.08	8.93	37.80	61.41
Jawa Barat	26.21	26.02	6.14	18.40	33.33
Jawa Tengah	18.72	18.59	4.49	12.72	24.48
Di Yogyakarta	3.84	3.67	1.09	2.51	5.30
Jawa Timur	23.85	23.40	5.25	16.74	30.66
Banten	8.00	8.50	1.88	5.30	9.99
Bali	5.14	5.21	0.86	3.87	6.07
Nusa Tenggara Barat	3.76	3.55	1.25	2.38	5.26
Nusa Tenggara Timur	3.60	3.52	1.00	2.38	4.85
Kalimantan Barat	4.33	4.22	0.83	3.30	5.34
Kalimantan Tengah	3.51	3.36	0.57	2.93	4.55
Kalimantan Selatan	5.32	5.14	0.54	4.75	6.08
Kalimantan Timur	9.81	8.97	2.32	7.60	13.78

Kalimantan Utara	1.66	2.12	1.05	0.08	2.56
Sulawesi Utara	2.83	2.75	0.67	2.03	3.66
Sulawesi Tengah	2.97	3.07	0.58	2.15	3.63
Sulawesi Selatan	6.97	6.54	1.79	4.92	9.32
Sulawesi Tenggara	2.68	2.51	0.75	1.81	3.59
Gorontalo	1.47	1.50	0.31	1.05	1.83
Sulawesi Barat	1.52	1.57	0.35	1.04	1.93
Maluku	2.38	2.54	0.62	1.58	3.07
Maluku Utara	1.90	1.92	0.42	1.39	2.44
Papua Barat	6.21	6.67	1.02	4.51	7.02
Papua	11.56	12.18	1.98	8.17	13.30

HDI

Provinces	**Mean**	**Median**	**Standard Deviation**	**Minimum**	**Maximum**
Aceh	69.73	69.73	1.09	68.30	71.19
Sumatera Utara	69.75	69.76	1.05	68.36	71.18
Sumatera Barat	70.33	70.36	1.10	68.91	71.73
Riau	71.09	71.02	0.93	69.91	72.44
Jambi	69.19	69.26	1.09	67.76	70.65
Sumatera Selatan	67.81	67.85	1.25	66.16	69.39
Bengkulu	69.01	68.96	1.18	67.50	70.64
Lampung	67.34	67.30	1.21	65.73	69.02
Kep. Bangka Belitung	69.24	69.30	1.04	67.92	70.67
Kep. Riau	73.91	73.87	0.67	73.02	74.84
Dki Jakarta	79.27	79.30	0.94	78.08	80.47
Jawa Barat	69.77	69.78	1.15	68.25	71.30
Jawa Tengah	69.65	69.74	1.14	68.02	71.12
Di Yogyakarta	77.94	77.99	1.21	76.44	79.53
Jawa Timur	69.24	69.35	1.25	67.55	70.77
Banten	70.66	70.62	0.95	69.47	71.95
Bali	73.43	73.46	1.03	72.09	74.77
Nusa Tenggara Barat	65.49	65.50	1.34	63.76	67.30
Nusa Tenggara Timur	62.98	62.90	0.99	61.68	64.39

Kalimantan Barat	65.65	65.74	0.96	64.30	66.98
Kalimantan Tengah	68.84	68.83	1.16	67.41	70.42
Kalimantan Selatan	68.68	68.72	1.16	67.17	70.17
Kalimantan Timur	74.46	74.38	0.94	73.21	75.83
Kalimantan Utara	69.17	68.98	0.92	67.99	70.56
Sulawesi Utara	70.79	70.72	1.03	69.49	72.20
Sulawesi Tengah	67.24	67.12	1.14	65.79	68.88
Sulawesi Selatan	69.43	69.46	1.13	67.92	70.90
Sulawesi Tenggara	69.03	69.03	1.14	67.55	70.61
Gorontalo	66.12	66.08	1.13	64.70	67.71
Sulawesi Barat	63.29	63.28	1.32	61.53	65.10
Maluku	67.42	67.33	1.01	66.09	68.87
Maluku Utara	66.24	66.27	1.16	64.78	67.76
Papua Barat	62.14	61.97	1.07	60.91	63.74
Papua	57.91	57.65	1.45	56.25	60.06

Worker in Million People

Provinces	**Mean**	**Median**	**Standard Deviation**	**Minimum**	**Maximum**
Aceh	2.03	2.03	0.14	1.84	2.20
Sumatera Utara	6.17	6.04	0.32	5.88	6.73
Sumatera Barat	2.25	2.26	0.13	2.06	2.41
Riau	2.67	2.66	0.18	2.48	2.92
Jambi	1.57	1.59	0.12	1.40	1.72
Sumatera Selatan	3.80	3.82	0.19	3.52	4.00
Bengkulu	0.91	0.92	0.05	0.83	0.96
Lampung	3.78	3.78	0.22	3.47	4.06
Kep. Bangka Belitung	0.65	0.65	0.04	0.60	0.70
Kep. Riau	0.85	0.85	0.04	0.81	0.90
Dki Jakarta	4.69	4.70	0.12	4.51	4.86
Jawa Barat	19.55	19.22	0.89	18.73	20.78
Jawa Tengah	16.73	16.53	0.38	16.44	17.25
Di Yogyakarta	1.99	2.00	0.09	1.89	2.12

Jawa Timur	19.65	19.46	0.52	19.11	20.45
Banten	4.98	4.97	0.23	4.69	5.33
Bali	2.36	2.36	0.09	2.24	2.49
Nusa Tenggara Barat	2.18	2.14	0.13	2.03	2.37
Nusa Tenggara Timur	2.25	2.25	0.11	2.10	2.41
Kalimantan Barat	2.26	2.26	0.06	2.17	2.35
Kalimantan Tengah	1.21	1.22	0.06	1.12	1.30
Kalimantan Selatan	1.92	1.93	0.07	1.83	2.02
Kalimantan Timur	1.57	1.59	0.09	1.42	1.68
Kalimantan Utara	0.28	0.27	0.03	0.25	0.32
Sulawesi Utara	1.03	1.02	0.06	0.97	1.11
Sulawesi Tengah	1.36	1.35	0.09	1.24	1.46
Sulawesi Selatan	3.58	3.56	0.14	3.38	3.77
Sulawesi Tenggara	1.12	1.12	0.09	1.00	1.22
Gorontalo	0.51	0.51	0.04	0.46	0.56
Sulawesi Barat	0.60	0.60	0.03	0.55	0.62
Maluku	0.65	0.65	0.04	0.60	0.70
Maluku Utara	0.48	0.49	0.02	0.45	0.52
Papua Barat	0.39	0.39	0.02	0.36	0.42
Papua	1.67	1.67	0.07	1.56	1.78

Investment in Trillion RP

Provinces	Mean	Median	Standard Deviation	Minimum	Maximum
Aceh	3.69	4.38	1.73	1.10	5.50
Sumatera Utara	20.88	20.04	7.48	11.08	32.07
Sumatera Barat	3.31	3.24	1.50	1.79	4.93
Riau	22.00	22.40	3.00	18.39	25.11
Jambi	9.49	8.78	4.76	4.35	16.89
Sumatera Selatan	11.28	9.30	7.35	3.81	25.14
Bengkulu	15.09	11.31	12.23	6.03	38.80

Lampung	6.63	5.77	4.51	2.24	14.23
Kep. Bangka Belitung	2.23	2.13	1.37	0.86	3.78
Kep. Riau	4.70	2.50	5.85	0.99	16.42
Dki Jakarta	77.25	69.68	31.30	37.34	119.44
Jawa Barat	106.12	104.96	9.26	95.85	122.99
Jawa Tengah	55.59	59.41	9.38	38.91	63.52
Di Yogyakarta	13.16	9.70	9.99	5.94	32.22
Jawa Timur	42.61	42.24	6.75	35.21	52.64
Banten	42.82	42.06	10.13	30.50	59.58
Bali	9.43	7.92	4.03	5.57	16.07
Nusa Tenggara Barat	7.78	7.32	1.11	7.07	10.00
Nusa Tenggara Timur	2.14	1.94	2.07	0.14	5.70
Kalimantan Barat	17.11	16.95	4.92	10.44	24.57
Kalimantan Tengah	13.83	13.26	5.02	7.71	22.92
Kalimantan Selatan	10.55	10.51	3.08	6.26	15.32
Kalimantan Timur	33.23	33.38	7.36	22.32	42.46
Kalimantan Utara	2.90	2.59	1.72	0.58	5.52
Sulawesi Utara	5.08	4.74	4.30	0.87	10.26
Sulawesi Tengah	4.02	1.16	7.00	0.15	18.23
Sulawesi Selatan	19.84	23.15	6.30	11.34	25.02
Sulawesi Tenggara	7.97	6.87	3.30	4.74	12.74
Gorontalo	1.21	0.64	1.35	0.11	3.26
Sulawesi Barat	4.37	3.30	2.98	1.74	9.99
Maluku	1.23	1.13	0.93	0.16	2.91
Maluku Utara	4.39	4.30	2.18	1.38	7.53
Papua Barat	17.21	15.81	9.09	4.21	29.07
Papua	5.72	3.60	5.71	1.24	16.50

Appendix 3

Result of Data Panel Test Using Eviews 8

Common Effect Model

Dependent Variable: LOG(GRDP?)
Method: Pooled Least Squares
Date: 01/18/20 Time: 18:02
Sample: 2013 2018
Included observations: 6
Cross-sections included: 34
Total pool (balanced) observations: 204

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.825399	0.581080	-6.583262	0.0000
LOG(GOV?)	0.451670	0.054899	8.227249	0.0000
HDI?	0.047053	0.007214	6.522785	0.0000
LOG(WORKER?)	0.535496	0.044131	12.13432	0.0000
LOG(INVESTMENT?)	0.090374	0.028865	3.130888	0.0020

R-squared	0.884235	Mean dependent var	11.80577
Adjusted R-squared	0.881908	S.D. dependent var	1.154263
S.E. of regression	0.396657	Akaike info criterion	1.012716
Sum squared resid	31.31007	Schwarz criterion	1.094043
Log likelihood	-98.29706	Hannan-Quinn criter.	1.045614
F-statistic	379.9988	Durbin-Watson stat	0.111738
Prob(F-statistic)	0.000000		

Fixed Effect Model

Dependent Variable: LOG(GRDP?)
Method: Pooled Least Squares
Date: 01/18/20 Time: 18:01
Sample: 2013 2018
Included observations: 6
Cross-sections included: 34
Total pool (balanced) observations: 204

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.796243	0.786601	6.097425	0.0000
LOG(GOV?)	0.024671	0.008988	2.745001	0.0067
HDI?	0.075752	0.003356	22.56891	0.0000
LOG(WORKER?)	0.101021	0.065572	1.540619	0.1253
LOG(INVESTMENT?)	0.013549	0.003407	3.977042	0.0001
Fixed Effects (Cross)				
__ACEH--C	-0.217248			
_SUMUT--C	1.003140			
_SUMBAR--C	-0.038333			
_RIAU--C	1.000849			
_JAMBI--C	-0.047971			
_SUMSEL--C	0.673267			
_BENGKULU--C	-1.156550			

_LAMPUNG--C	0.473912
_BABEL--C	-0.925310
_KEPRI--C	-0.119799
_DKI--C	1.451316
_JABAR--C	1.849049
_JATENG--C	1.483071
_DIY--C	-1.134680
_JATIM--C	1.998322
_BANTEN--C	0.772073
_BALI--C	-0.377083
_NTB--C	-0.207969
_NTT--C	-0.367823
_KALBAR--C	0.070353
_KALTENG--C	-0.450828
_KALSEL--C	-0.154147
_KALTIM--C	0.765166
_KALUT--C	-0.748214
_SULUT--C	-0.670347
_SULTENG--C	-0.263177
_SULSEL--C	0.536699
_SULTRA--C	-0.516687
_GORONTALO--C	-1.363766
_SULBAR--C	-1.037804
_MALUKU--C	-1.389933
_MALUT--C	-1.475001
_PABAR--C	-0.260684
_PAPUA--C	0.846136

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.999558	Mean dependent var	11.80577
Adjusted R-squared	0.999459	S.D. dependent var	1.154263
S.E. of regression	0.026841	Akaike info criterion	-4.231324
Sum squared resid	0.119597	Schwarz criterion	-3.613243
Log likelihood	469.5951	Hannan-Quinn criter.	-3.981299
F-statistic	10141.47	Durbin-Watson stat	0.917611
Prob(F-statistic)	0.000000		

Random Effect Model

Dependent Variable: LOG(GRDP?)
Method: Pooled EGLS (Cross-section random effects)
Date: 01/18/20 Time: 17:56
Sample: 2013 2018
Included observations: 6
Cross-sections included: 34
Total pool (balanced) observations: 204
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.155502	0.573671	0.271065	0.7866
LOG(GOV?)	0.016632	0.008874	1.874344	0.0623
HDI?	0.061817	0.002925	21.13683	0.0000
LOG(WORKER?)	0.494478	0.046756	10.57574	0.0000
LOG(INVESTMENT?)	0.011763	0.003395	3.464793	0.0006
Random Effects (Cross)				

__ACEH--C	-0.227858
_SUMUT--C	0.555329
_SUMBAR--C	-0.090918
_RIAU--C	0.899941
_JAMBI--C	0.025504
_SUMSEL--C	0.383896
_BENGKULU--C	-0.873080
_LAMPUNG--C	0.179041
_BABEL--C	-0.509046
_KEPRI--C	0.256161
_DKI--C	1.258304
_JABAR--C	0.958300
_JATENG--C	0.648034
_DIY--C	-1.030683
_JATIM--C	1.095470
_BANTEN--C	0.421276
_BALI--C	-0.400924
_NTB--C	-0.314710
_NTT--C	-0.525667
_KALBAR--C	-0.046313
_KALTENG--C	-0.278648
_KALSEL--C	-0.164073
_KALTIM--C	0.921158
_KALUT--C	-0.006089
_SULUT--C	-0.412274
_SULTENG--C	-0.163557
_SULSEL--C	0.296276
_SULTRA--C	-0.312611
_GORONTALO--C	-0.900739
_SULBAR--C	-0.672948
_MALUKU--C	-0.999181
_MALUT--C	-0.984522
_PABAR--C	0.268134
_PAPUA--C	0.747017

Effects Specification	S.D.	Rho
Cross-section random	0.378115	0.9950
Idiosyncratic random	0.026841	0.0050

Weighted Statistics			
R-squared	0.893932	Mean dependent var	0.341993
Adjusted R-squared	0.891800	S.D. dependent var	0.099751
S.E. of regression	0.032812	Sum squared resid	0.214248
F-statistic	419.2867	Durbin-Watson stat	0.766181
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.698527	Mean dependent var	11.80577
Sum squared resid	81.53688	Durbin-Watson stat	0.002013

Chow test

Redundant Fixed Effects Tests
Pool: POOL
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1311.889012	(33,166)	0.0000
Cross-section Chi-square	1135.784323	33	0.0000

Hausman Test

Correlated Random Effects - Hausman Test
Pool: POOL
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	102.375757	4	0.0000