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# Application of Data Panels in Economics

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## **APPLICATION PANEL DATA IN ECONOMICS**

COMPOSITION OF PUBLIC EXPENDITURE TO  
ECONOMIC GROWTH 2010-2014  
(EMPIRICAL STUDY 18 PROVINCE IN INDONESIA)

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# APPLICATION OF DATA PANEL IN ECONOMICS

## COMPOSITION OF PUBLIC EXPENDITURE TO ECONOMIC GROWTH 2010-2014 (EMPIRICAL STUDY 18 PROVINCE IN INDONESIA)

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### Abstract

The purpose of this research is to know the influence of population, Government Expenditure, General Allocation Fund, Foreign Investment and Opinion of BPK to LKPD on regional economic growth in Indonesia from 2010 to 2014. This research uses panel data approach.

From the research findings of this study, firstly, government expenditures on marine and fisheries have the greatest contribution in fostering economic growth in Indonesia, and this corresponds to the form of a country consisting of many islands and two thirds of its territory in the form of waters. Both government expenditures on agriculture contribute to pdrb, this is also very much in line with employment in Indonesia, thirty-three percent of employment is in the agricultural sector, so the priority of agricultural development should be a development priority supported by development programs.

**Keywords:** economic growth, government spending and panel data



## PRELIMINARY

### A. Background

Economic growth is often seen as a 'holy grail' of economic policy. This simple emphasis on economic growth is often criticized because of the limitation of economic growth in improving living standards. Some suggest economic indicators not only economic growth but other factors such as measuring economic development through measures like the Human Development Index (HDI) seen in GDP, but also statistics such as literacy and health care standards. On the one hand Economic growth also has limitations in improving living standards. Economic growth can lead to negative externalities such as pollution, high crime rates and congestion that actually reduce living standards. Economic growth may conflict with the environment, such as global warming. We must realize that although economic growth has limitations, but until now economic growth is still very important because: (1) Reducing Poverty. Growth does not always reduce poverty. Without economic growth it is very difficult to make meaningful and sustainable reductions in poverty. This is especially important in developing the economy. (2) Reducing Unemployment. A stagnant economy leads to a higher level of unemployment and social suffering. (3) Budget deficit. A deep recession has led to an appropriate increase in the budget deficit. Economic growth is important to increase the government budget deficit. (4) Living Standard. If managed properly, economic growth allows

increased resources for essential public services such as education and health. Economic growth allows an increase in social spending without an increase in tax rates.

The development of economic growth of Asean countries can be seen in table 1.1 below:

Table 1.1: GDP Growth at Constant Price Base in ASEAN Countries, 1998-Q1 2014 (y-o-y,%)

Country	1998-1999 Era of Asian Crisis	2000-2007 Era of Stable Growth	2008-2009 Era Of Global Crisis	2010	2011	2012	2013	Q1 2014
Brunei D	1,25	2,24	-1,85	2,6	2,2	1,6	-1,8	-3,3
Cambodia	8,5	9,93	3,2	6,1	7,1	7,2	7,3	7,2
Indonesia	-6,15	5,04	5,3	6,2	6,5	6,2	5,78	5,21
Laos	4,25	6,75	7,65	8,1	8	8,1	7,9	7,6
Malaysia	-0,65	5,5	1,65	7,1	5,1	5,6	6,8	6,2
Myanmar	8,35	12,88	4,35	5,3	5,4	6,3	6,7	6,5
Philippines	1,25	4,88	2,65	7,6	3,9	6,5	7,2	5,7
Singapore	2,05	6,36	0,5	14,8	5,1	1,2	3,7	4,9
Thailand	-3,05	5,05	0,1	7,8	-0,1	6,4	2,9	-2,1
Vietnam	5,3	7,64	5,8	6,8	5,9	5	5,42	4,96
<b>Asean</b>	<b>-1,9</b>	<b>5,56</b>	<b>3,85</b>	<b>8,3</b>	<b>4,9</b>	<b>5,2</b>	<b>5,1</b>	<b>4,3</b>

Note: average growth for the period 1998-1999, 2000-2007, and 2008-2009  
Growth Data Q2 / 2014: Cambodia, Laos and Myanmar are not yet available  
Source: IMF, CEIC (2014)

Economic growth in 1998-1999 in ASEAN countries almost all countries experienced negative economic growth, and the country that experienced the lowest economic growth was Indonesia (grew -6.15%) and the country that grows very admirably is Cambodia and Myanmar (8.5% and 8.35%). During the era of stability of Indonesia's economic growth below the Asean average that is below 5.56 percent or the average Indonesia in 2000-2007 only grew 5.04 percent and the highest growth reached by Myanmar at 12.88 percent, while the lowest achieved by Brunei Darussalam, which grew only 2.4 percent. While in the era of global crisis in 2008-2009 Indonesia grew above the ASEAN average or grew 5.3 percent above 3.85 percent. The countries affected by the global crisis in Asean are Brunei Darusallam growing -1.85 percent. And in 2010-2014

the average growth of Indonesia's economy grew between 5.78 to 6.5 percent, which grew above the ASEAN economic growth of 4.3 percent to 8.3 percent.

The following regional economic growth in Indonesia (34 provinces) can be seen in table 1.2 below.

Table 1.2. Economic Growth Rate of 34 Provinces in Indonesia

Province	Growth Rate of Gross Regional Domestic Product at 2010 Constant Market Prices by Province (Percent)				
	2011	2012	2013	2014	2015
Aceh	3.28	3.85	2.61	1.55	-0.72
North Sumatera	6.66	6.45	6.07	5.23	5.10
West Sumatera	6.34	6.31	6.08	5.86	5.41
Riau	5.57	3.76	2.48	2.70	0.22
Jambi	7.86	7.03	6.84	7.35	4.21
South Sumatera	6.36	6.83	5.31	4.70	4.50
Bengkulu	6.85	6.83	6.07	5.48	5.14
Lampung	6.56	6.44	5.77	5.08	5.13
Bangka Belitung Island	6.90	5.50	5.20	4.67	4.08
Riau Island	6.96	7.63	7.21	6.62	6.02
DKI Jakarta	6.73	6.53	6.07	5.91	5.88
West Java	6.50	6.50	6.33	5.09	5.03
Central Java	5.30	5.34	5.11	5.28	5.44
DI Yogyakarta	5.21	5.37	5.47	5.16	4.94
East Java	6.44	6.64	6.08	5.86	5.44
Banten	7.03	6.83	6.67	5.47	5.37
Bali	6.66	6.96	6.69	6.73	6.04
West Nusa Tenggara	-3.91	-1.54	5.16	5.06	21.24
East Nusa Tenggara	5.67	5.46	5.41	5.05	5.02
West Kalimantan	5.50	5.91	6.05	5.03	4.81
Central Kalimantan	7.01	6.87	7.37	6.21	7.01
South Kalimantan	6.97	5.97	5.33	4.85	3.84
East Kalimantan	6.47	5.48	2.76	1.57	-1.28
North Kalimantan	-	-	-	8.18	3.13

Province	Growth Rate of Gross Regional Domestic Product at 2010 Constant Market Prices by Province (Percent)				
	2011	2012	2013	2014	2015
North Sulawesi	6.17	6.86	6.38	6.31	6.12
Central Sulawesi	9.82	9.53	9.59	5.07	15.56
South Sulawesi	8.13	8.87	7.62	7.54	7.15
Southeast Sulawesi	10.63	11.65	7.50	6.26	6.88
Gorontalo	7.71	7.91	7.67	7.27	6.23
West Sulawesi	10.73	9.25	6.93	8.88	7.37
Maluku	6.34	7.16	5.24	6.61	5.44
North Maluku	6.80	6.98	6.36	5.48	6.10
West Papua	3.64	3.63	7.36	5.44	4.10
Papua	-4.28	1.72	8.55	3.81	7.97
Indonesia	6.08	6.26	6.10	5.51	5.70

Source: Central Bureau of Statistics, Indonesia, 2011-2015

If we look at table 1.2 from 2011 to 2015, the average growth of Indonesian economy grows between 5.51 percent and 6.26 percent. The provinces that contributed to the growth of Indonesia's economy in 2011 were West Sulawesi (10.73%), Southeast Sulawesi (10.63%) and Central Sulawesi (9.83%), while the lowest contribution was West Nusa Tenggara (3.91%) and Papua (-4.28%).

In 2012, the largest contribution in supporting Indonesia's economy is Southeast Sulawesi (11.65%), Central Sulawesi (9.53%) and West Sulawesi (9.25%), while the lowest contribution was West Nusa Tenggara (-1.54%) and Papua (1.72%).

In 2013, the largest contribution in supporting Indonesia's economy was Central Sulawesi (9.59%), Papua (8.55%) and South Sulawesi (7.63%), while the lowest contribution was Riau (2.48%), Aceh (2.61%) and East Kalimantan (2.76%).

In 2014 the largest contribution in supporting Indonesia's economy is West Sulawesi (8.8%), North Kalimantan (8.18%) and South Sulawesi (7.54%).

while the lowest contribution was Aceh (1.55 %), East Kalimantan (1.57%) and Riau (2.7%).

In 2015 the largest contribution in supporting the Indonesian economy is West Nusa Tenggara (21.24%), Central Sulawesi (15.56%) and Papua (7.97%), while the lowest contribution is Aceh (-0,72%), East Kalimantan (-1.28%), and Riau (0.22%).

From table 1.2 it can be seen why provinces with abundant natural resources are growing below the average of national economic growth, such as Aceh province, East Kalimantan province, Riau province and Papua province. And what factors caused some provinces to experience economic delays compared to other provinces.

One of the goals of Indonesia's national development is to create economic growth and equity of development outcomes, including the distribution of income between regions. To achieve the above target is not light work because in general the economic development of a region is closely related to the economic potential and regional characteristics.

TRISAKTI translation (Presidential Regulation No. 2 of 2015 on National Medium Term Development Plan (RPJMN 2015-2019) is manifested in the form of:

1. Sovereignty in politics is manifested in the development of political democracy based on the wisdom of wisdom in deliberations of representation. People's sovereignty becomes character, value, and spirit built through mutual cooperation and national unity.
2. Self-reliance in the economy is manifested in the development of economic democracy which places the people as the holder of sovereignty in the management of state finances and the main actors in the formation of national production and distribution. The State has a strong and sovereign leadership and policy character and authority in making economic decisions

of the people through the use of national economic resources and the state budget to fulfill the basic rights of citizens.

3. Personality in culture is manifested through the development of character and mutual cooperation based on the reality of diversity and maritime as a potential power of the nation in realizing the implementation of political democracy and economic democracy of Indonesia's future.

In order to achieve the national goal, the Indonesian nation is faced with three main issues, namely: (1) the decline of state authority; (2) the weakening of the joints of the national economy; and (3) widespread intolerance and crisis of the nation's personality and weakness of the nation's economy.

The weakness of the nation's economic joints is evident from the unfinished poverty, social inequalities, intra-regional disparities, environmental degradation caused by excessive exploitation of natural resources, and food, energy, financial and technological dependence. The state is unable to utilize the immense natural wealth, both tangible and non-physical, for the welfare of its people. The hope for the strengthening of the nation's economic joints becomes even further when the state can not provide health insurance and decent quality of life for its citizens, fails in minimizing inequality and inequality of national income, dependence on foreign debt and the provision of food that relies on imports and is not responsive in the face of the energy crisis caused by the dominance of global production tools and corporate capital and the depletion of national oil reserves.

Regional economic development has the main objective of increasing the number and type of employment opportunities for local communities, in order to achieve these objectives, local governments and communities must jointly take initiatives to develop their regions. Therefore, local governments should strive to use the resources in the area properly for the prosperity of the people and encourage the economy to move forward.

The priority delivery of development activities from the planning process into the budgeting process is a continuation (Bastian, 2006). In Law No. 25 of 2004, article 8 states that development planning consists of four stages, namely: (1) preparation of plans, (2) determination of plans, (3) implementer control plans, and (4) evaluation of implementing the plan. The four stages are held in a sustainable manner so that it will be a complete planning cycle. Achievement of performance from one stage of the implementation of the plan is evaluated to become the consideration and budgeting of the following year, so budgeting becomes reasonable and performance-based.

Regional Budget (APBD) is prepared in accordance with the needs of government administration and regional revenue capability. The preparation of this APBD is guided by the Local Government Work Plan (RKPD) in order to realize the service to the public for the achievement of the purpose of the state.

APBD has the functions of authorization, planning, supervision, allocation, distribution, and stabilization (Bastian, 2006). The authorization function means that the regional budget becomes the basis for carrying out revenues and expenditures for the year. The function of planning means that local budgets serve as guidelines for regional management in planning activities for the year. The supervisory function means that local budgets are a guide to assess whether the activities of local government operators are in compliance with applicable law. The allocation function means that local budgets should be directed towards creating jobs and wasting resources, as well as improving efficiency, and economic effectiveness. And lastly the stabilization function means that local government budgets are a tool for maintaining and seeking a fundamental balance of the regional economy.

In addition to the planning and supervision of the APBN / APBD in influencing economic conditions, investment can also be relied upon to create a development strategy to strengthen the joints of the national economy.

Arsyad (2004) explains that every effort of regional economic development has the main objective to increase the number and type of

employment opportunities for local communities. In an effort to achieve these objectives, local governments and communities must jointly take initiative to build the region. Local governments and their community participation and by using existing resources seek to inventory the potential of existing resources to design and build the regional economy.

In economic theory explained that investment is the purchase of capital or goods that are not consumed, but used for production activities so as to produce goods or services in the future. Some economists view that the formation of investment is the driving force in promoting the growth and economic development of a country. When an entrepreneur or individual or government invests, there is some capital invested or excluded, or there is some purchase of goods not consumed but used for production, resulting in goods and services in the increase of gross domestic product.

Sylwester (2000), Rustam (2013), and Gisore (2014) stated that population growth followed by efforts to improve health, education and general welfare will promote economic growth. While research conducted by Shera et al (2014) population growth on economic growth in 22 developing countries period 2001-2012 using panel data yield conclusion of population growth slow down economic development.

Idrees and Siddiqi (2013), Muthui et al (2013), and Nworji et al (2012) conclude that government spending on education have a positive influence on economic development. Shera et al (2014) concluded that government spending on education has a negative impact on economic development. While Olabisi et al (2012), Gisore (2014) and Al-Shafti in his study concluded that government spending on educational allocations has no effect on economic growth.

Dada (2013), Olkisi et al (2012), Muthui et al (2013), Al-Shafti (2014), and Nworji et al (2012) conclude that government spending on health has a positive influence on economic development in some countries.

Oyinbo et al. (2013) states that agricultural budgets have no impact on economic growth. While Chidinma, and Kemisola, (2012) stated the government budget for agricultural allocation can encourage economic growth.

Novianti, Tanti et al, (2014) and Chiawa M, M, Mk. (2012) conclude that government spending allocated for the development of marine and fishery infrastructure can promote economic growth.

Tajuddin et al. (2014) and Ahmad (2011) stated that the General Allocation Fund in some provinces in Indonesia can boost economic growth. While the research of Badrudin and Kuncorojati (2017) balancing funds in the form of General Allocation Fund has no influence on economic growth.

Nawatmi (2013), Husen (2011), Rustam (2013), Abala (2014), Kurt (2015) and Koujaraenparasit (2011) stated that foreign investment can encourage economic growth through its role in filling shortages of resources between targeted investments and savings domestically mobilized. On the other hand, Hendarmin (2012) and Olabisi et al (2012) argue that foreign direct investment actually decreases economic growth. While Shera et al (2012) and Louzi & Abadi (2011) conclude that foreign investment has no effect on economic growth.

Mauro (1995) concludes that corrupt practices that with the provision of funds to speed things up allow economic actors to avoid delays in their affairs to support growth if the country's bureaucracy rules are very bad. Nawatmi's research (2013), Brempong (2002), Mo (2001) and Shera et al (2014) are more likely to view corruption as slowing down or reducing economic growth, as well as generating inequalities and inequalities in people's incomes.

Based on background and some previous research interesting to analyze the factors that determine economic growth in several provinces in the territory of Indonesia. The study is expected to prove the role of local government expenditures, particularly in the areas of: (i) education, (ii) health, (iii) marine and fisheries, (iv) agriculture, (v) general allocation funds, and macro variables: (vi) foreign investment, and (viii) BPK's opinion on LKPD in encouraging economic growth in Indonesia, so as to create effectiveness and harmony in regional economic development, as well as the creation of good governance.

## B. Formulation of Research Problems

In line with the background that has been discussed it can be formulated research problems as follows:

1. Does the population affect on the regional economic growth.
2. Does government expenditure for education affect on the regional economic growth.
3. Does government expenditure for health affect on the regional economic growth.
4. Does government expenditures on marine and fisheries affect on the regional economic growth.
5. Does expenditure on agriculture affect on the regional economic growth.
6. Does the general allocation fund affect on the regional economic growth.
7. Does the foreign investment affect on the regional economic growth.
8. Whether BPK's Opinion on LPKD affect on the regional economic growth

## C. Research Objectives

The research objectives are as follows:

1. Want to know the effect of the population on regional economic growth.
2. Want to know the effect of government spending on education on regional economic growth.
3. Want to know the effect of government spending on health on regional economic growth.
4. Want to know the influence of marine and fishery expenditure on regional economic growth.
5. Want to know the effect of government spending on agriculture on regional economic growth.
6. Want to know the effect of general allocation funds on regional economic growth.
7. Want to know the effect of foreign investment on regional economic growth.
8. Want to know the effect of BPK's opinion on LPKD on regional economic growth.

## D. Research Benefits

The results of this study are expected to give some benefits as follows:

- a. In general it can provide a more comprehensive picture of macroeconomic fundamentals in several regions of Indonesia, especially the influence of government spending, population, investment and opinion BPK on Local Government Financial Reports on economic growth.
- b. Theoretically can be a reference material for scientific development, especially in the field of economic planning and development as well as can be a reference / reference for similar research in the future.
- c. it is practically an input for local governments in the formulation of government policies in the areas of economic planning and development, particularly in relation to economic growth related to government spending, population, investment and BPK's opinion on Local Government Financial Statements.

## E. The Renewal of Studies

Reviews on literature review that discussed theoretical references used and tracing the results of previous empirical studies is one of a series of research processes to determine the extent to which previous studies have discussed the factors driving the economic growth of a region.

Research by Kevin Sylwester (2000), Rustam A (2013), and Naftaly Gisore (2014) suggest that population growth coupled with efforts to improve health, education and general welfare will promote economic growth. Adela Shera et al (2014) population growth is not matched by such attempts will hamper economic development.

Most researchers like Suleiman U.S. Aruwa (2012), Ndari Sujaningsih et al (2012), Rustam A (2013), Wasiaturrahma (2013), and Chiawa M.M. et al (2012) concluded that government spending could be a driver of economic growth. But there are also some researchers like Hendarmin (2012) and Ergun Dagur et al (2006) in his research concluding that the government budget has no

effect on economic growth. While P Srinivasan (2013) in his research concluded that the government budget has a negative influence on economic growth, this can occur because of government spending that is not right on target.

Most researchers say investment has an influence on economic growth. On the other hand there are researchers such as Hendarmin (2012) and Adewara Sunday Olabisi et al (2012) argue that foreign investments actually reduce economic growth through exclusive agreements in production with the government by not re-making the profits they get.

Adewara Sunday Olabisi et al (2012) and Basem Mohammed Louzi & Abeer Abadi (2011) in their study concluded that foreign investment had no effect on economic growth.

Sri Nawatmi (2013), Kwabena Gyimah Brempong (2002), Pak Hung Mo (2001) and Adela Shera et al (2014) are more likely to view this corruption as slowing or lowering economic growth, as well as creating injustices and income disparities.

Based on the above brief description, the research on the drivers of regional economic growth tries to observe the composition of government expenditure on economic growth into a more integrated or more comprehensive model. Especially for the composition of government expenditure, the authors divide into allocations for education, health, marine and fisheries, agriculture and general allocation funds, this study tries to add one more variable that is the opinion of the Supreme Audit Agency against the Local Government Financial Report. While the influence of macro variables is divided into: investment and population.

A square logo with a dark background. The word "Chapter" is written in a white, cursive font at the top. Below it, the number "2" is written in a large, white, serif font.

## THEORY FRAMEWORK

### A. Library Review

The literature review to be discussed is the understanding of economic growth, the theory of economic growth and empirical studies ever undertaken by some researchers on economic growth.

#### 1. Understanding Economic Growth and Economic Development

Economic growth is related to the process of increasing the production of goods and services in the economic activities of society. It can be argued that economic growth involves the development of a single dimension and is measured by increasing production and income. In economic growth, a production process typically involves a number of product types using a certain number of production facilities (Sumitro, 1994). In this connection, there is a quantitative equilibrium relationship between a number of means of production on the one hand and the output of all production on the other. To each other it can be expressed in terms of mathematical formats. Models on economic growth should be tested with empirical-quantitative measurements.

Development has a broader meaning compared to economic growth. Increased production is indeed one of the main characteristics in the development process. In addition to quantitative aspects of production enhancement, the development process includes changes in the composition of production, changes in the pattern of use of production resources among sectors

of economic activity, changes in the pattern of distribution of wealth and income among various economic actors, changes in the institutional framework in life society as a whole.

A very important thing in the development process is the increasingly widespread employment opportunities that are productive. Economic development should bring active participation in productive activities for all members of the community who wish to participate in the economic process. Productive economic activity contains many positive impacts, including adding real income to the majority of the population. This can increase the purchasing power of consumption qualitatively and quantitatively.

According to Adam Smith (Suryana, 2000: 55) economic development is a process of integration between population growth and technological progress. Todaro (2000) defines development as a multi-dimensional process involving major changes in social structure, public attitudes, national institutions and the acceleration of economic growth, the reduction of inequality and the abolition of absolute poverty.

According to Rostow (Suryana, 2000), the economic development or transformation of a traditional society into a modern society is a multi-dimensional process. Economic development, according to him, is not only about changes in the economic structure, but also about the causal process; changes in the orientation of economic organizations, changes in society, changes in the way of capital investment, changes in the way society in determining the position of a person to be determined by the ability to carry out the work and the change of society who originally believed that human life is determined by nature, then the view that man must manipulate the surrounding natural conditions for create progress.

The notion of economic development according to Simon Kuznets (Suryana, 2000, 64) is a long-term increase in the ability of a country to provide more types of economic goods to its inhabitants. This capability grows according to technological progress, and the institutional and ideological adjustments it needs. This definition has three components: first, the economic growth of a

nation is seen from the continuous increase of inventories; second, advanced technology is a factor in economic growth that determines the degree of growth in the ability to supply various kinds of goods to the population; Third, the widespread and efficient use of technology requires adjustment in the institutional and ideological fields so that the innovations produced by human science can be exploited appropriately.

Boediono (1999: 8) mentions economic growth is a process of output increase in the long run. This understanding includes three aspects, namely process, output per capita, and long term.

According to Sadono Sukirno (1996: 33), economic growth and development have different definitions, namely economic growth is a process of per capita output increase continuously in the long term. Economic growth is one indicator of development success.

From the definition of the above experts can be concluded that economic development is defined as a process that causes income per capita population of a community increases in the long term. From this definition contains three elements. (1) economic development as a process means a continuous change in which it contains elements of its own power.

## 2. Conceptual Research Framework

### a. Classic Approach

The analytical system of Classical thinkers is based on opinions as if economic development were operating in a free market state with perfect competition without any monopoly. Classical thinking stems from the notion of the function of production, namely the relationship of the equation between the production with the combination of production factors used in the production process (Sumitro, 1994). The total of Classical production is expressed in the formula  $Y = f(K, L, R, T)$  where K is the sum of capital, L is labor, R is the land (natural resources in the broad sense) and T is Technological.

Basically the system of analysis Classical schools centered on the process of accumulation in the sense of cumulative capital formation (physical

capital and fund capital). The accumulation process is accomplished because of the surplus in the economies of society available for investment.

The main point of this school of thought that economic development may continue, but will be faced with constraints and limits related to the tendency of decreasing the rewards for the role of capital and the role of labor, two factors that are variable in the production function. In the process in question, economic development will lead to a state that is stationary (stationary state).

### 1) Adam Smith

Adam Smith (1723-1790) is often regarded as the pioneer of classical economics, in his book *An Inquiry into the Nature and Causes of the Wealth of Nation* (1776) which analyzes how a country's economy can grow and develop (Arsyad, 2004; 55, Judge, 2002; 64, Sukirno, 2006; 244). According to Smith the determinant variable of a country's production process in generating total output there are three; namely (1) available natural resources, (2) human resources and (3) stock of existing capital goods.

The available natural resources are the main raw material in the production process of a country, if the natural resources have been drained away then the production process will be stopped and the economic growth will also stop. Human resources in the sense of the labor force, labor is an input in the production process and play an active role in the process of economic growth. The amount and quality will be crucial in the production process. While the stock of capital holds a very important role in determining the fast slow process of output growth.

### 2) David Ricardo

David Ricardo (1772-1823) developed the theory of classical economic growth into a model of growth by sharpening the concept of the mechanism of its growth process. According to David Ricardo, in the economic community there are three groups of society, namely the capitalist,

the workers and the landlords. The capitalist group is the group that leads the production process and plays a decisive role in seeking profit and reinvesting in the form of capital accumulation. The capitalist class depends largely on the capitalist class and the largest group in society. As for the landlords, they only accept from the capitalist class on the land they rent (Arsyad, 2004; 58, Judge, 2002; 68).

According to David Ricardo a country's economic growth is largely determined by: (1) natural resources (in this case land), (2) population growth, and (3) Role of technology.

### 3) Robert Malthus

Malthus's discussion draws attention to the present and is still relevant for economic development in developing countries, the sociological-economic side of the institutional. In societies in developed countries, including intellectuals, there is often a view as if the backwardness and economic congestion in other parts of the world (Latin America, Africa and Asia) is caused by the behavior of the surrounding community, even lazy because the natural resources are beneficial and facilitate human life.

Malthus refers to the institutional reality in the economic order of society which is a major obstacle to the progress of the people. The underdevelopment and poverty of the population in these countries is not due to limited fertile soil or the smaller amount of land due to population development or population lethargy. But because the vast land has been dominated by a handful of people from the upper classes (Sumitro, 1994: 33).

According to Malthus there are two determinants of production in the agricultural sector, (1) economic factors (land, labor, capital and organization), and (2) non-economic factors (security and wealth, constitution and legal certainty, hard work, discipline). And among the determinant economic factors is the factor of capital accumulation, without the accumulated capital invested then the production process will stop (Judge 2002). Which can provide savings for capital accumulation is the entrepreneur who put aside the profit

and not the consumption savings of economic actors (non-entrepreneurs), because the impact of consumption savings actually reduce the effective demand and slow economic growth.

#### b. Neo Keynes Approach

The process of economic growth according to the views of the Neo Keynes is represented by the theory of Roy F. Harrod and Evsey D. Domar.

##### 1) Roy F. Harrod

Harrod's approach to the growth process shows key features in the Keynesian analysis framework. Keynes's attention revolves around the level of full employment including the use of installed production capacity. This issue is now questioned by Harrod in what conditions are the requirements met in the process of growth that takes place in a stable equilibrium.

Harrod's point of view revolves around continuous economic growth in a stable equilibrium state pattern. Harrod described two concepts of growth rates that became the key to his idea: (1) the rate of growth of production and income at a level considered adequate from the point of view of entrepreneurs; (2) the rate of growth of production and income is determined by the basic conditions concerning; (a) increase in the labor force due to the increase in population; (b) increasing work productivity due to technological progress. Thus, according to Harrod, continuous economic growth in full employment conditions can occur if fulfilled by these two conditions (Sumitro, 1994; Judge, 2002; Todaro, 2000; Sukirno, 2006).

##### 2) Evsey D. Domar

Domar's idea stems from the validity of the principle of investment multiplier. The rate of growth in effective demand is directly exposed to growth and production capacity. In the Domar model it is disclosed that growth in demand is equal to the increase of investment (I) multiplied by the multiplier (1/s). While production capacity growth is equal to investment (I) divided by

capital-output ratio (k), so demand growth is equal to growth of production capacity:  $\Delta I / I = s / k$ .

The growth rate in the Domar equation is considered to be a crystalline growth rate that is almost similar to the warranted rate of growth in the Harrod model. If the investment exceeds the rate of growth then the deviation causes  $\Delta I / I$  (which equals demand growth) to be increased relative to  $s / k$  (growth in production capacity):  $\Delta I / I > s / k$ . This situation will bring huge amount of investment. In harmony with Harrod's idea, if the rate of investment growth deviates from the critical rate  $s / k$ , the rate of growth in production capacity, then the deviation tends to continue so that policy intervention is necessary, if the deviation tendency is to be returned on the equilibrium path (Sumitro, 1994; 2002; Todaro, 2000).

#### c. Classic Neo Approach

The discussion of Neo-Classical theory of economic growth is limited to the ideas developed by Robert M Solow, Nicholas Kaldor and Simon Kuznet.

##### 1) Robert M Solow

The model developed by Solow has the possibility of changes in interest rates and wage rates. The growth process is seen as a process that takes place with the balance of variables among the factors of production. Factor prices are flexible so that there is a possibility of substitution between the factors of production involved in the production process. In circumstances where the amount of labor exceeds the amount of capital, the price of labor (wage rate) will decrease relative to the price of capital (interest rate). Conversely, if the capital increase exceeds the increase in the number of labor, the wage rate will increase. Given the change in the price of factors of production and by substitution of one type of factor of production by another type of production factor, it can constrain the possibility of deviation from the growth equilibrium. Therefore it is not appropriate if it is in the process of

growth inherently contained elements of uniformity as highlighted in instability theorem Harrod (Sumitro, 1994: 44).

## 2) Nicholas Kaldor

In Kaldor's developmental development of the problem of growth, his attention is increasingly directed to concrete problems that go on for a long time, some fifty years or more. In this connection, Kaldor increasingly abandoned the pattern of approaches that rely on methodologies based on macroeconomic models. Kaldor's view of the long-term growth process is directed to sectoral growth covering the production sectors of primary commodities and the secondary sector (industry and construction). While the activities in the tertiary sector (services) by Kaldor considered as a function of industrial development.

Kaldor made a sharp distinction between growth in the primary production sector and growth in the industrial sector. According to Kaldor, the main feature in the manufacturing industry is its production that goes with increasing return; the acceptance of the union of production increased relative to the cost of production unity. The industrialized countries already have a sufficient infrastructure base and institutional tools. In the societies of those countries, the principle of increasing return applies both in the field of micro (business environment) as well as in macro (comprehensive society) (Sumitro, 1994; 47).

Increasing return and technological advances are hooks hooked to each other. That way, increasing return is not only a function and scale of production, but also of cumulative production in the development of time.

The same thing according to Kaldor, apply to the calculation of physical capital. Continuous improvement in labor productivity requires investment with respect to the mechanism of production techniques. This means an increase in capital per worker. Industrial growth in the long run is characterized by increased production per labor (labor productivity) as well as increased capital per labor (capital-labor productivity). However, changes in

the capital-output ratio are not so prominent. Kaldor stressed: Investment is not a cause for production growth, but rather growth that enables the mobilization of investment (Sumitro, 1994).

## 3) Simon Kuznets

Kuznets's view of the economic activities of society stems from the national accounting framework with its elaboration of the component elements of national income. Kuznets succeeds in giving qualitative empirical substance to the basic notions within the framework of Keynesian analysis such as the relationship between consumption - savings - investment - income in the overall economic order (Sumitro, 1994; 53).

Kuznets emphasizes that the use of quantitative methods can not be taken apart from theory and must always be directed and controlled by theory. Indeed, two prominent features in Kuznets' view are the importance of factual meaning and empirical data and economic knowledge based on quantitative testing. But the interpretation and explanation of facts and quantitative approaches must be based on economic theory.

In view of Kuznets era of growth is not only characterized by the role of manufacturing and construction industry. It is no less important means is the modernization of agricultural technology and the field of primary production in general. In addition, it is now increasingly prominent meaning and role of marketing and communication technology. These developments have led to the pattern of modern economic activity across borders between countries. As a logical consequence of the process of world economic growth is in the interdependence and globalization that is still ongoing (Suryana, 2000; 65).

## d. Structuralism Approach

### 1) Arthur Lewis

The analytical framework and line of thought of Arthur Lewis essentially turned to the Classical school of thought (Sumitro 1994, 94, Arsyad, 2004; 93,

Sukirno, 2006; 279). First of all it deals with the postulate of the labor force which is considered a homogeneous and unskilled factor. The homogeneous and unskilled labor force is considered to move and move its limitless. In such circumstances labor supply contains high elasticity. Increased demand for labor (from the traditional sector) stems from the expansion of modern sector activities, while the expansion of the modern sector as if determined by exogenous factors may arise as consumer tastes change, or by government policy measures, or by changes in international markets. In addition, according to Arthur Lewis the capital accumulation is sourced on savings that are set aside from profits to be re-channeled as productive investments.

One of the main points in Arthur Lewis's idea is that the excess power of the sector from the traditional sector can be withdrawn or channeled smoothly and almost automatically to the modern sector. Empirical experience in developing countries indicates how difficult it is to channel some unemployment from the traditional sector and transfer permanently to the modern sector (Todaro, 2000).

## 2) Rosensteins-Rodan

Rosensteins-Rodan's view has been concerned with the strategy in the implementation of development. It stems from a state of stagnation in the economies of developing countries (Sumitro, 1994, 98). The stagnation is related to a number of endless circles. One of them is that the goods and services market is not perfect. The fact that the market for capital investment is also not perfect. Investments not only contain business risks, but also faced with all kinds of uncertainties. In such circumstances, scattered and fragmented efforts in the production of consumer goods and capital goods will not be empowered to bring society from a state of stagnation to a development that can continue with its own strength. It is therefore necessary for large-scale investments to be undertaken jointly in various fields and complementary activities. Each other is a very strong push factor (Big Push) to overcome the obstacles and obstacles contained in the stagnation of the

economy and to bring the economic system as a whole in the direction of progressing progress.

The above pattern of thinking stems from what is known in general theory as external economies. The phenomenon of external economies is most prominent in investment for social overhead capital in the form of infrastructure or infrastructure: roads, bridges, ports, electric power, hospitals, school buildings, transportation and communications.

According to Rosensteins-Rodan, massive industrial development will create three kinds of economic externalities: (1) caused by market expansion, (2) because the same industry is close together, and (3) because of other industries in the economy (Arsyad, 2004; 91).

In relation to development economics, the term external economies concerns the investment outside the (external) environment of each business in a field, but the investment yields a benefit in the sense of lowering costs for all the business units in the field concerned. The construction of road and telecommunication networks will reduce the cost of transportation for companies in various fields and various business activities. The economic benefits are said to be external because the original investment brought benefits to a number of other diverse businesses.

## 3) Albert Hirschman

Hirschman argues that a unequal development strategy (unbalanced growth strategy) should be pursued. In reality, in developing countries there has been a number of investments from the past. However, the investment is limited to several sectors. This leads to imbalances in other sectors (Sumitro, 1994). The potential investment from the point of funding is precisely in the already developed sector that has already done some investment. This advanced sector should be fostered and the outcome of this investment is directed to priorities located in other sectors so that the imbalances and imbalances in the economic community can be overcome. In other words, what is needed is an investment strategy that does not need to be

implemented simultaneously in various fields that are considered complementary.

#### 4) Hans W. Singer

According to Singer the society of a backward country in its economy is 80 percent of its population and its workforce still relies on its livelihood from the primary sector (agriculture, plantation, fishery and mining). This transformation of society leads to a transformation into a more advanced societal economy, in marked growth with reduced population and labor-dependent primary sectors reduced from 80 percent to below 15 percent (Sumitro, 1994).

Low levels of productivity and people's income in the agricultural sector mean that most of the people's income is used for food needs, and if it remains to be used for other basic needs. In general it can be said that developing countries are the primary commodity exporting countries and the importers of production for the secondary sector and services for the tertiary sector.

#### e. Linear Stage Theory WW Rostow

This theory was originally a Rostow article published in the Economics Journal (March 1956) and later developed further in his book The Stages of Economic Growth (1960). According to Todaro classification (2000), Rostow's theory is grouped into linear ladder.

According to Rostow (Sukirno, 2006; 169, Suryana, 2000; 60, Todaro, Hakim, 2002; 89), the economic development process of a country can be divided into 5 stages: (1) traditional society, (2) prerequisites for take-off, (3) take off, (4) to maturity and (5) high consumption period. The basis for differentiating the stage of economic development into these five stages are the characteristics, changes in economic, social and political conditions that occur. According to Rostow, the economic development or transformation of a traditional society into a modern society is a multi-dimensional process. Economic development does

not only mean changes in the economic structure of a country that is shown by the declining role of the agricultural sector and the increasing sector of the service industry (Arsyad, 2004, Suryana, 2000).

### 3. Determinants of Economic Growth

#### a. Total population

In developing countries most of the population still lives in rural areas. For their livelihoods, they depend primarily from primary production, namely the agricultural sector and the extractive sector (mining and forestry).

The growing number of people and the labor force poses difficulties in agriculture and sectors close to agriculture. If the ratio between the increasing number of people and the area of land available is very urgent, then the ownership of the land becomes smaller and scattered. As a result, there are less economical units in production. Each other raises what we know as the hidden phenomenon of unemployment in rural areas. Some of the workforce will flow into urban areas and create urbanization problems.

Economists generally agree that population growth can be a driving factor as well as an obstacle to economic development. Population growth will be a driver of economic growth if the population increase from time to time coupled with increased education before becoming skilled and educated workers, thus making the workforce highly competitive and will ultimately have an impact on increasing economic growth. But on the contrary, the development of the population towards development will be created if productivity of production sector is very low and in society there is unemployment. Population growth will not increase production significantly, as the number of unemployed increases steadily and becomes more serious. Besides, the low productivity of labor causes the development of agricultural sector productivity to be low, this resulted in decreased levels of income per capita (Todaro, 2000).

Nelson and Leibenstein (1974) found the central theory of their view of the direct influence of population growth on the level of well-being. Both Nelson and Leibenstein show that the rapid population growth in developing countries causes

the level of people's welfare does not improve significantly and in the long run may decrease. They argue that as a result of high population growth, in the long term the income level per capita returns to subsistence level or is quite alive.

In Nelson's opinion (1956), the rate of population growth is not always the same at various levels of income. At a very low per capita income level mortality is greater than the birth rate, the population growth is negative. At high per capita income the mortality rate is less than the birth rate, then the population growth is positive. Therefore, the higher the per capita income the smaller the population decline. In the above income subsistence income, population development will come into effect and the higher the income level then the rate of population growth increases.

One conclusion that can be drawn from Nelson's theory is that a society can release itself from the low level equilibrium trap by enlarging the level of capital investment resulting in an increase in national income that is greater than the population growth.

#### **b. Fiscal Policy**

Developing countries are forced to rely on fiscal policy because they have not been well organized and supervised to mobilize domestic finance. The main tool for mobilizing the community resources is the tax policy, which is levied directly from individuals, corporations and assets.

Taxation policies in developing countries have two benefits (Todaro, 2000): First, tax concessions and similar fiscal incentives are considered a driving force for private companies. Every concession and incentive is usually offered on foreign private investment to invite them to place their companies in developing countries. The tax incentives will increase the entry of foreign private companies that invest their capital. Second, mobilizing resources for government expenditure, economic and social progress depends largely on the government's ability to generate sufficient revenues to finance the development of very important public services programs such as health infrastructure, educational

facilities and infrastructure, agricultural facilities and infrastructure, communications and communications, and more.

#### **1) Education and Economic Development Expenditure**

Provision of basic education facilities is a top priority for all developing countries. Most developing countries the bulk of the government budget allocated to the education sector (Todaro, 2000). The role of education in development usually stems from the opinion that education is a prerequisite for improving human dignity. Through education the community gets the opportunity to foster their abilities and manage their economic life well. Expanding opportunities for education means opening up an economic opportunity to seek improvement and advancement of people's lives. So far, the governments of developing countries have provided opportunities to obtain education widely but in a quantitative sense. The expanded formal education channels have not shown the expected results. If measured by a growing set of problems facing developing countries, unemployment is likely to increase as the workforce has limited skills. The growing population is pushing towards adding learning places, not accompanied by improvements in educational structures and curricula that produce graduates who are ready to work, so that informal training education becomes increasingly important.

#### **2) Spending on Health and Economic Development**

Health and education are the main priority categories and are a key element in the quality of human resources. The main problem between public health and the development process is that health concerns the physical state. Mental and social. This understanding is considered too broad, therefore very difficult to observe and monitor its benchmarks for sure. In the public view, health is defined as a situation in which no chronic diseases are likely to be widespread and where disabilities and mental disabilities are suffered only in limited circles.

Currently in many developing countries are still perceived lack of public health services (quantitatively and qualitatively) and its network distribution. Public expenditure on public health services is still limited compared to the expenditures of developed countries in the health sector. The number of doctors and hospitals is still small, both in absolute terms and as a ratio to the population. On the one hand private hospitals can only be relied upon by the communities (Todaro, 2000).

### 3) Budget Marine and Fisheries and Economic Development

Indonesia is a country with a larger water area compared to its land area, so the water potential is very important if it is optimized to encourage economic growth through increasing maritime infrastructure and increasing fishermen resources.

Almost all provinces in Indonesia have territorial waters, so that areas with land and air transport are not yet optimal, sea transportation becomes an option. Government policies that optimize marine outcomes such as illegal fishing, fishing ban by trawling, fishing vessels for fishermen, housing subsidies for fishermen, and fuel subsidies for fishermen are expected to boost economic growth of a region.

According to Susi Pudjiastuti (Rakhmindyarto and Wesly F. Sinulingga, 2014) the potential increase of non-tax state revenues (PNBP) of 25 trillion rupiah per year which has not been utilized from fish resources and non-fish resources. On the one hand the great economic and ecological potential that is stored as a maritime country, the potential for natural damage that may be caused by excessive exploration that could threaten the sustainability of development should also receive attention.

### 4) Agricultural Expenditure and Economic Development

Lately the economics of development experts began to be less interested to pay attention to rapid industrialization efforts. It seems that

they recognize that rural areas in general and the agricultural sector in particular are not at all passive, and far more important than simply supporting the overall economic development process. Both must be placed in the real position, ie as an important element or a very important element, dynamic and even crucial in overall development strategies (Todaro, 2000).

The emergence of new awareness among third world countries that the agricultural sector is very determining their future, then since the 1970s and lasted until the 1990s there was a drastic change in the activities of thought and the formulation of wisdom concerning development. More and more developing countries are no longer ambitious to pursue industry in a fast pace. They then took a realistic attitude by paying attention to the fostering of the agricultural sector and rural development which generally focused on the formulation of the plan and the implementation of its national development.

The development of agriculture in developing countries depends heavily on the provision of extensive support services networks along with government policies in the field of prices on inputs and outputs is an important condition that must be met for the sustainability of progress in the agricultural sector in support of development programs. The development of the agricultural sector should be a development priority in Indonesia, not only because the majority of the population lives in the countryside, but also because of the centralized unemployment in the countryside, an immediate solution must be taken to improve the quality of rural living. If the balance of economic opportunity for rural and urban areas is truly created, then the developing countries will experience a major step towards the realization of the most intrinsic meaning of development.

### c. General Allocation Funds and Economic Development

In supporting the economic development of a region required the support of facilities and infrastructure. One of the key drivers of development is funding support from local governments. If regional funds are unable to finance development, the central government intervenes to promote economic development through equalization funds (revenue-sharing funds, general allocation funds, and special allocation funds). In this research, the general allocation fund is chosen by researchers to see the effect on economic growth because the general allocation fund is the highest in the balancing fund in most regions in Indonesia.

According to Bastian (2003: 84) "The General Allocation Fund is a balancing fund in order to equal distribution of inter-regional financial capabilities". Meanwhile, according to Halim (2002: 160) "General Allocation Funds are funds derived from the State Budget (APBN) allocated for the purpose of equitable regional financial capacity to finance the expenditure needs in the framework of decentralization implementation". With the support of government funding through balancing funds (general allocation funds), it is expected that the regions will be more effective in managing the budget so as to encourage economic growth in a region.

The study by Ilham Tajuddin et al (2014) concludes that there is no direct influence between General Allocation Funds, Special Allocation Funds and Revenue Sharing Funds on economic growth in Sulawesi, but indirectly there is a significant influence from the General Allocation Fund, the Special Allocation Fund, and Revenue Sharing Fund on labor through Investment, Economic Growth and Economic Structure. This indicates that the amount of the General Allocation Fund, the Special Allocation Fund, and the Profit Sharing Fund have no effect on the level of Employment, despite the increase or decrease in investment, economic growth, and economic structure.

While I G Bagus Indrajaya (2016) in his research concluded the General Fund Allocation has a positive and significant impact on economic

growth, but the Special Allocation Fund has no significant effect on economic growth.

### d. Foreign Investment and Economic Development

The arguments in favor of foreign investment are largely derived from traditional neoclassical opinions on the determination of economic growth. According to this analysis foreign investment is considered to be something that can fill the gap that exists between savings collected from within the country, foreign exchange reserves, government revenue and expertise on the one hand and the amount needed to achieve development goals on the other (Todaro, 2000). If the country concerned can fill the shortfall with foreign sources of finance then the country will be able to achieve its growth goals well, thus foreign investment has a role in contributing to a country's economic growth.

Foreign investment can also be used to overcome government tax revenue targets and the amount of taxes that can be collected. By taxing the profits of multinational corporations and participating financially in their activities domestically, developing country governments consider that they will be able to mobilize financial resources for better development projects.

But there are also arguments against the role of foreign investment in development, arguing that even if foreign firms provide capital, they can lower domestic savings and investment rates by unhealthy competition through exclusive agreements in production with the government. The foreign companies did not reinvest their profits, only heightened the opinion of certain groups with low saving desire, obstructing the expansion of domestic companies that might become semi-finished goods suppliers. In the long term foreign investment can reduce foreign exchange earnings / reserves either from the side of the trade balance / current account or capital account. The trade balance may get worse due to the massive import of semi-finished goods and capital goods and will worsen due to the re-delivery of interest profits, royalties, and overseas management fees (Todaro, 2003).

#### e. Corruption

The notion of corruption Bardhan (1997: 1321) defines corruption as "the use of public office for private gains, where an official (the agent) entrusted with carrying out a task by the public (the principal) engages in some sort of malfeasance for private enrichment which is difficult to monitor for the principal ". So the substance of corruption is related to abuse of power (abuse of power) which resulted in the state losses.

If viewed from the macro-economic side of corruption is generally more negative impact on the national economy, corruption will reduce economic growth. However, in the view of microeconomics, in the sense that it is seen from the point of view of economic actors who pay bribes to corrupt officials, the act of corruption can actually enhance the level of efficiency and support the business. This relates to various privileges gained as an implication of the funds it incurs. But the opinion while the economist there is still a debate about the effects of corruption on economic growth.

Some experts argue that corruption can only promote economic growth. This is through two types of mechanisms (Mauro, 1995). First, the practice of corruption through the provision of funds to speed up something (speed money) allows economic actors to avoid the delays of its affairs. Avoidance of delays for economic activity means cost, either from the side of a possible business opportunity, or the costs of interest, and other costs. This can support growth if the country's bureaucracy rules are very bad. Secondly, this corruption can encourage government employees to work harder. Those who had not been too eager to complete their routine matters became stimulated to work because of the incentives of his service money. Things like this can happen in any country.

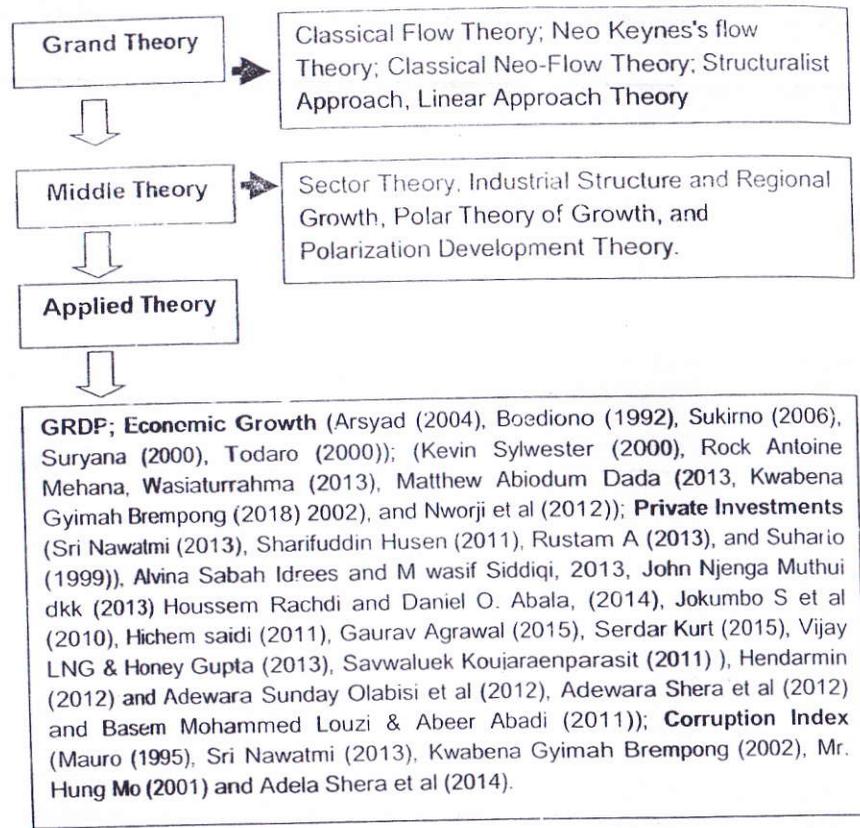
Nevertheless, from many opinions and existing studies, the view that corruption is actually slowing or reducing economic growth, in addition also

cause injustice and income inequality of society. The findings from Murphy, Shleifer, and Vishny (1993) show that many countries whose corrupt activities or "rent seeking activities" tend to slow down their economic growth. This view is more easily understood, because corruption means there are other costs, or will complicate an economic activity, which consequently can increase the cost or minimize the interest to invest so as to disrupt the smooth economic growth.

Another consequence of this corruption is the inequality of development among economic actors, as a result of injustice in the acquisition of facilities provided by the bureaucracy through the practice of corruption and collusion, or nepotism. Therefore, as long as these practices are still in place, the effort to optimize efficiency in the economic field will never be realized, which means the economy is always in an inefficient condition and has a low competitive edge. Therefore, the abolition of these corruption and collusion practices, or nepotism, is part of the economic reforms aimed at increasing productivity that will drive national development.

#### 4. Grand Theory, Middle Theory and Applied Theory

Grand theory is the basis of the birth of other theories in various levels. Called a grand theory because these theories are at the macro level. Middle theory is a theory that is at the middle level where the focus of studies macro and micro. Applied theory is a theory that is at the micro level and ready to be applied in conceptualization. The author describes the grand theory, middle theory, and applied theory to be applied in this research that is as follows:



Source : Agnes, 2013

Figure 2.1. Grand Theory Diagram, Middle Theory and Applied Theory

B. Previous Research

1. The Effect of Population on Economic Growth

Rapid population growth poses serious problems for the welfare of mankind throughout the world. The extent to which the problems of the population in many countries will be able to support or hinder economic development.

Relationship Between population to economic growth has been done by many researchers as in table 4.1.

Table 2.1. Results of Research on the Impact of Population Growth on Economic growth

No	Researchers	Conclusion
1	Kevin Sylwester (2000)	Sign (+)
2	Rustam A (2013)	Sign (+)
3	Adela Shera dkk (2014)	Sign (-)
4	Naftaly Gisore (2014)	Sign (+)

Source: Appendix

Research by Kevin Sylwester (2000), Rustam A (2013), and Naftaly Gisore (2014) suggest that population growth coupled with efforts to improve health, education and general welfare will promote economic growth. However, if the population growth is not matched by the above efforts will hamper economic development. While the research conducted by Adela Shera et al (2014) with the impact of population growth on economic growth in 22 developing countries 2001-2012 period using panel data resulted in conclusion of population development hamper economic development, this is caused by population growth not accompanied by increase of population productivity by increasing education and health.

2. The Influence of Fiscal Policy on Economic Growth

Fiscal policy is an economic policy undertaken by the government in the management of state finances (through spending on education, health spending, agricultural expenditure, etc.) to guide economic conditions for the better. Fiscal policy originates from tax revenues and non-tax revenues and is allocated in the form of state expenditures listed in its Expenditure Budget.

The relationship between government spending on education on economic growth has been largely undertaken by researchers as in Table 4.2.

Table 2.2. Research Result Influence of Fiscal Policy to Economic Growth

No	Researchers	Conclusion
1	Kevin Sylwester (2000)	Sign(+)
2	Rock Antoine Mehana	Sign(+)
3	Wasiaturrahma (2013)	Sign(+)
4	Matthew Abiodum Dada (2013)	Sign(+)
5	Kwabena Gyimah Brempong (2002)	Sign(+)
6	Alvina Sabah Idrees and M wasif Siddiqi (2013)	Sign(+)
7	John Njenga Muthui at al (2013)	Sign(+)
8	Nworji at al (2012)	Sign(+)
9	Adela Shera at al (2014)	Sign(-)
10	David E Bloom at al (2010)	No Sign
11	Adewara Sunday Olabisi at al (2012)	No Sign
12	Naftaly Gisore (2014)	No Sign
13	Ali sulieman Al-Shafti	No Sign

Source: Appendix

Kevin Sylwester (2000), Rock Antoine Mehana, Wasiaturrahma (2013), Matthew Abiodum Dada (2013), Kwabena Gyimah Brempong (2002), Alvina Sabah Idrees and M wasif Siddiqi, 2013, John Njenga Muthui et al (2013), and Nworji et al (2012) concluded that government spending on education has a positive influence on economic development.

Research by Adela Shera et al (2014) concluded that government spending on education has a negative effect on economic development.

While Adewara Sunday Olabisi et al (2012), Naftaly Gisore (2014) and Ali sulieman Al-Shafti in their research concluded that government spending on education allocation has no effect on economic growth.

The relationship between government expenditure on health for economic growth has been largely done by researchers as in the following table:

Table 2.3. Result of research influence of health budget to economic growth

No	Researchers	Conclusion
1	Matthew Abiodum Dada (2013)	Sign (+)
2	Adewara Sunday Olabisi at al (2012)	Sign (+)
3	Naftaly Gisore (2014)	Sign (+)
4	Serdar Kurt (2015)	Sign (+)
5	John Njenga Muthui at al (2013)	Sign (+)
6	Ali sulieman Al-Shafti	Sign (+)
7	Nworji at al (2012)	Sign (+)

Source: Appendix

All research on the effect of health budget on economic growth concludes that health budget increase economic growth, increase health budget impact to the increasing of public health degree, increase public health cause increase of labor productivity and push economic growth rate.

The role of agriculture in economic development is only considered as a supporting element, development is defined by the structural transformation of an economy that is based on agricultural activities into the industrial economy of goods and services. So the role of government is needed especially in encouraging activities in agriculture through the provision of agricultural facilities and infrastructure (such as irrigation, fertilizers and seeds). From table 2.4 we can see Oyakhilomen Oyinbo et al. 2013 in his research states that agricultural budgets have no impact on economic growth. Meanwhile Ebere, Chidinma and Osundina, Kemisola C, 2012 stated in his research that the government budget for agricultural allocation can boost economic growth.

Table 2.4 Relationship Between Government Expenditures For Agriculture on Economic Growth

No	Researchers	Conclusion
1	Oyakhilomen Oyinbo at al. 2013.	No Sign
2	Ebere, Chidinma, and Osundina, Kemisola C, 2012.	Sign (+)

Source: Appendix

Government expenditures used to influence the economic course of a region (eg educational, health, transport and other infrastructure) infrastructure

will result in increased economic activity and encourage economic growth. From table 2.5 we can see that most studies support that effective government spending can improve economic growth.

Table 2.5. Relationship Between Government Spending on Economic Growth

No	Researchers	Conclusion
1	Suleiman A.S. Aruwa (2012)	Sign (+)
2	Ndari Sujaningsih at al (2012)	Sign (+)
3	Rustam A (2013)	Sign (+)
4	Wasiaturrahma (2013)	Sign (+)
5	Chiawa M.M. at al (2012)	Sign (+)
6	Oni dkk (2014)	Sign (+)
7	Vijay LNG & Honey Gupta (2013)	Sign (+)
8	Ebaidalla Mahjoub Ebaidalla (2013)	Sign (+)
9	John Loizides (2005)	Sign (+)
10	Zuzana sakarupova, (2014)	Sign (+)
11	Rikwan ES manik & Paidi Hidayat, 2010	Sign (+)
12	P Srinivasan (2013)	Sign (-)
13	Hendarmin (2012)	No Sign
14	Ergun Dagur dkk (2006)	No Sign

Source: Appendix

But there are also some researchers like Hendarmin (2012) and Ergun Dagur et al (2006) in his research concluding that the government budget has no effect on economic growth. While P Srinivasan (2013) in his study concluded that the government budget has a negative effect on economic growth, this can occur because of government spending that is not right on target.

### 3. The Effect of Investment on Economic Growth

In the theory of economic development there are supporting arguments and which are counter to the role of foreign companies in supporting economic development. Similarly, in the study as seen in table 4.5 below. Most researchers agree that foreign investment can drive economic growth through its role in filling shortages of resources between targeted investments and mobilized savings in the country.

Table 2.5 Relationship Between Foreign Investment to Economic Growth

No	Researchers	Conclusion
1	Rock Antoine Mehana	Sign(+)
2	Sri Nawatmi (2013)	Sign(+)
3	Sharifuddin Husen (2011)	Sign(+)
4	Rustam A (2013)	Sign(+)
5	Housseem Rachdi and Hichem saidi (2011)	Sign(+)
6	Jokumbo S at al (2010),	Sign(+)
7	Daniel O. Abala, (2014),	Sign(+)
8	Gaurav Agrawal (2015),	Sign(+)
9	Serdar Kurt (2015)	Sign(+)
10	Vijay LNG & Honey Gupta (2013)	Sign(+)
11	Savwaluek Koujaraenparasit (2011)	Sign(+)
12	Leonid Melnyk at al (2014)	Sign(+)
13	Nuno Carlos Leitao & Saeed RASEKHI (2013)	Sign(+)
14	Z A Sultan & Md Imdadul Haque, 2011	Sign(+)
15	Zuzana sakarupova, 2014	Sign(+)
16	Hendarmin (2012)	Sign(-)
17	Adela Shera at al (2014)	Sign(-)
18	Adewara Sunday Olabisi at al (2012)	No Sign
19	Basem Mohammed L & Abeer Abadi (2011)	No Sign

Source: Appendix

While other researchers Hendarmin (2012) and Adewara Sunday Olabisi et al (2012) argue that foreign capital investment is actually reducing economic growth through exclusive agreements in production with the government by not doing back the profits they get.

Adewara Shera et al (2012) and Basem Mohammed Louzi & Abeer Abadi (2011) in his study concluded that foreign investment had no effect on economic growth.

### 4. The Influence of Corruption on Economic Growth

Some authors argue that corruption can only promote economic growth. This is through two types of mechanisms (Mauro, 1995). First, the corrupt practices that by granting funds to speed up some of the business (speed money) to enable economic actors to avoid the delays of its affairs. As

is well known, avoiding delays for economic activity means cost, either from the side of a possible business opportunity, or the costs of interest, and other costs. This can support growth if the country's bureaucracy rules are very bad. Secondly, this corruption can encourage government employees to work harder. Those who had not been too eager to complete their routine matters became stimulated to work because of the incentives of his service money. Things like this can happen in any country.

Table 2.6 Relationship Between Corruption on Economic Growth

No	Researchers	Conciusion
1	Mauro (1995)	Sign (+)
2	Sri Nawatmi (2013)	Sign (-)
3	Kwabena Gyimah Brempong (2002)	Sign (-)
4	Pak Hung Mo (2001)	Sign (-)
5	Adela Shera at al (2014)	Sign (-)

Source: Appendix

While Sri Nawatmi (2013), Kwabena Gyimah Brempong (2002), Pak Hung Mo (2001) and Adela Shera et al (2014) are more likely to view this corruption as slowing or lowering economic growth, as well as generating inequalities and income disparities.

### 5. Development of Research Hypothesis

Hypothesis of this research are:

1. Population development is expected to have a positive influence on regional economic growth.
2. Government spending on education is thought to have a positive influence on regional economic growth.
3. Government spending on health is thought to have a positive effect on regional economic growth.
4. Government expenditures on marine and fisheries are suspected to have a positive influence on regional economic growth.

5. Government spending on agriculture is thought to have a positive effect on regional economic growth.
6. General allocation funds are suspected to have a positive influence on regional economic growth.
7. Foreign investment is thought to have a positive relationship to regional economic growth.
8. BPK's opinion on LPKD is suspected to have a positive relationship to regional economic growth.

# Chapter 3

## METHODOLOGY OF DATA PANEL

### A. Data Analysis Method

Regression used in this research is regression with panel data. Panel data is a combination of time series and cross section data.

In economics, panel data analysis is used to study corporate behavior and wages over time. In political science, it is used to study the political behavior of parties and organizations over time. It is used in psychology, sociology, and health research to study the characteristics of groups of people followed over time. In educational research, researchers study the class of students or graduates from time to time. With repeatable cross-section observation, panel analysis allows researchers to study the dynamics of change with short time series. The combination of time series with cross-section can improve the quality and quantity of data in a way that is impossible to use only one of two dimensions (Gujarati, 2003; 638-640). Analysis of panel data can provide a rich and powerful study of a set of people, if one is willing to consider both space and time dimensions of the data.

According to Agus Widarjono (2009) the use of panel data in an observation has several advantages gained. First, the panel data which is a combination of two time series data and cross section can provide more data so that will produce greater degree of freedom. Second, combining information from the time series and cross section data can solve the problems that arise when there are omitted-variable issues.

Hsiao (2006), noted that the use of data panels in economic research has several key advantages over cross section and time series data. First, it can provide researchers with a large number of observations, increasing the degree of freedom, the data having great variability and reducing the collinearity between the explanatory variables, which can produce efficient econometric estimates. Second, the data panel can provide more information that can not be provided only by cross section or time series data. And Third, the data panel can provide a better solution in dynamic change inference than cross section data.

The use of panel data in modeling has its advantages and disadvantages. Hsiao (2006) and Klevmarcken (1989) in Baltagi (2005) described the benefits of using panel data, among others: (1). Controlling individual heterogeneity. Panel data can treat individuals, companies, countries heterogeneously. Added also by Greene (2002) which states that in some panel data, the number of cross section units is large, but the observation period is small, so the time series method is no longer suitable to be used. The condition of such data would be better if analyzed with techniques focused on cross section variation or heterogeneity. In addition, panel data is also able to analyze variables that do not change over time (time invariant/time constant variable). (2). Panel data more informative, varied, collinearity between smaller variables, greater degrees of freedom, and more efficient. More informative data can yield more reliable parameter estimates. (3). Panel data is good for analyzing dynamic phenomena, one of which is poverty and income dynamics. (4). Panel data both to identify and measure undetectable effects on cross section data and time series.

### 1. Panel Data Regression Model

Panel Regression Model of the above title as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + \beta_8 X_{8it} + \epsilon_t$$

Information:

Y	= Dependent variable (Economic Growth)
$\alpha$	= Constants
X1	= Variable of Population
X2	= Government Spending Variables For Education
X3	= Government Spending Variables For Health
X4	= Government Spending Variables For Marine
X5	= Government Spending Variables For Agriculture
X6	= Variable General Allocation Fund
X7	= Foreign Investment Variable
X8	= Variable Opinion CPC to LPKD
$\beta$	= Regression coefficient of each independent variable
$\epsilon$	= Error term
t	= Time
i	= Territory

## 2. Estimation Method of Panel Regression Model

In the method of estimating regression model using panel data can be done through three approaches, among others:

### a. Common Effects Model

The common effects model is the simplest panel data approach. This model does not take into account individual and time dimensions so it is assumed that inter-individual behavior is the same in various periods. This model combines only time series and cross section data in pool form, estimating it using the least squares pooled least square approach (Gujarati, 2003; 637).

The regression equation in the common effects model can be written as follows:

$$Y_{it} = \alpha + \beta X_{it} + \epsilon_{it}$$

Where i denotes the cross section (individual) and t denotes the period of time. Assuming the error component in the usual least squares processing, a separate estimation process for each cross section unit can be performed.

### b. Fixed Effects Model

The Fixed effects model assumes that there are different effects between individuals. That difference can be accommodated through differences in the intercept. Therefore, in the fixed effects model, any unknown and estimated parameters using dummy variable techniques can be written as follows (Gujarati, 2003):

$$Y_{it} = \alpha + \alpha_{it} + \beta X'_{it} + \epsilon_{it}$$

$$\begin{bmatrix} y_1 \\ y_1 \\ \vdots \\ y_n \end{bmatrix} = \begin{bmatrix} \alpha \\ \alpha \\ \vdots \\ \alpha \end{bmatrix} + \begin{bmatrix} i & 0 & 0 \\ 0 & i & 0 \\ \vdots & \vdots & \vdots \\ 0 & 0 & i \end{bmatrix} \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \vdots \\ \alpha_n \end{bmatrix} + \begin{bmatrix} x_{11} & x_{21} & \dots & x_{p1} \\ x_{12} & x_{22} & \dots & x_{p2} \\ \vdots & \vdots & \ddots & \vdots \\ x_{1n} & x_{2n} & \dots & x_{pn} \end{bmatrix} \begin{bmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_n \end{bmatrix} + \begin{bmatrix} \epsilon_1 \\ \epsilon_2 \\ \vdots \\ \epsilon_n \end{bmatrix}$$

Techniques like the above are called Least Square Dummy Variables (LSDV). In addition to being applied to individual effects, this LSDV can also accommodate systemic time-sensitive effects. This can be done by adding the dummy time variable in the model.

### c. Random Effects Model

Unlike the fixed effects model, the specific effects of each individual are treated as part of a random error component that is not correlated with the observed explanatory variables, such a model is called the random effects model (REM). This model is often called the error component model (ECM). Thus, the equation of the random effects model can be written as follows:

$$Y_{it} = \alpha + \beta X_{it} + w_{it}$$

i = Aceh, Sumut,....., Papua

t = 2010, 2011, 2012, 2013, 2014

Where :

$$w_{it} = \epsilon_{it} + u_i ; E(w_{it}) = 0 ; E(w_{it}^2) = \sigma^2 + \sigma_u^2,$$

$$E(w_{it}, w_{jt}) = 0 \quad i \neq j ; E(u_i, \epsilon_{it}) = 0 ;$$

$$E(\epsilon_{it}, \epsilon_{is}) = E(\epsilon_{it}, \epsilon_{jt}) = E(\epsilon_{it}, \epsilon_{jt}) = 0$$

Although the wt error component is homoskedastic, in fact there is a correlation between wt and wit-s (equicorrelation), namely:

$$\text{Corr}(w_{it}, w_{i(t-1)}) = \alpha_u^2 / (\alpha^2 + \alpha_u^2)$$

Therefore, the OLS method can not be used to obtain an efficient estimator for the random effects model. The appropriate method to estimate the random effects model is Generalized Least Square (GLS) with homocedastic assumptions and no cross-sectional correlation (Gujarati, 2003).

## B. Model Selection

To select the most appropriate model used in managing panel data, there are several tests that can be done namely:

### 1. ChowTest (Radundant Test)

Chow test is a test to determine the Fixed Effect or Random Effect model that is best used in estimating panel data. The hypotheses in the chow test are:

H0 : Common Effect Model or pooled OLS  
H1 : Fixed Effect

### 2. Hausman Test

The Hausman test can be defined as a statistical test to select whether the most appropriate Fixed Effect or Random Effect model is used. Testing Hausman test conducted with the following hypothesis:

H0 : Random Effect Model  
H1 : Fixed Effect Model

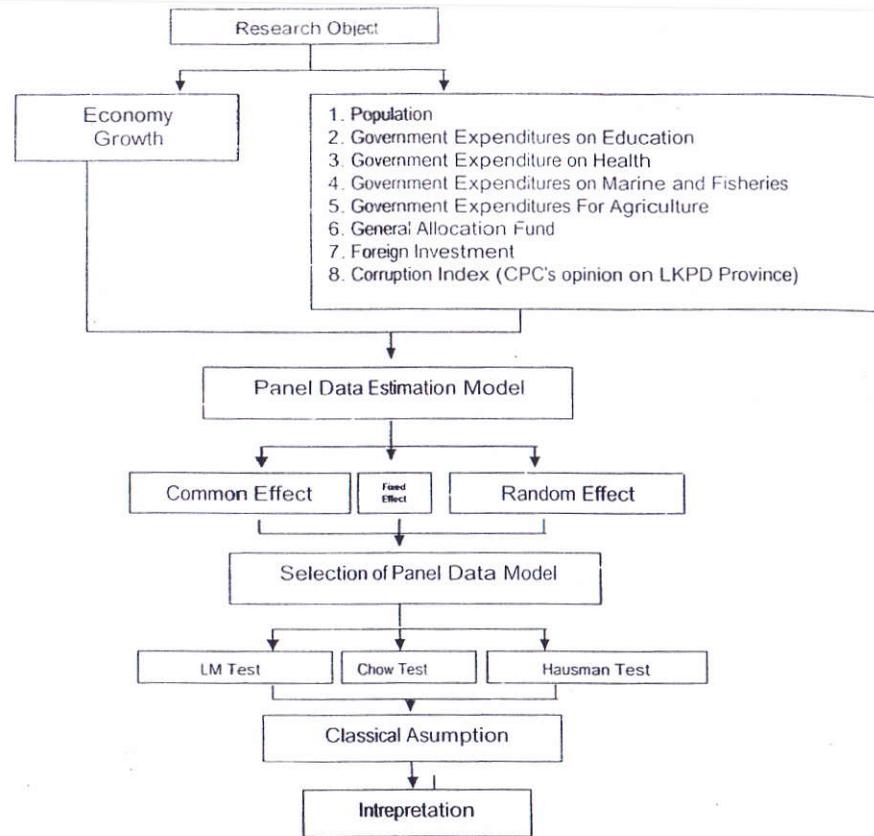
### 3. Uji Lagrange Multiplier

To find out whether the Random Effect model is better than the Common Effect (OLS) method, the Lagrange Multiplier (LM) test is used.

The fundamental differences to determine the choice between FEM (Fixed Effects Model) and ECM (Error Component Model) are as follows (Gujarati, 2003):

If T (large amount of time series data) and N (number of cross-section units) are small, the difference between FEM and ECM is very slim. Therefore, it can be done conventionally. In these circumstances, FEM may be preferred.

- When N is large and T is small, the estimation obtained by two methods can differ significantly. In ECM, which is a random cross-section component and in FEM, is defined and not random. If very confident and believing that the individual, or cross-section unit of the sample is not random, then FEM is more suitable to use. If the sample cross-section unit is random / random, then ECM is more suitable to use.
- Components of individual errors and one or more correlated regressors, estimators derived from ECM are biased, while those derived from FEM are unbiased.
- If large N and T are small, and if the assumptions for ECM are met, then the ECM estimator is more efficient than the FEM estimator.



Source : Gujarati, 2003

Figure 3.1 Stages of Panel Data Analysis

### C. Classic assumptions

The classical assumption test used in linear regression with Ordinary Least Squared (OLS) approach includes Linearity, Autocorrelation, Heteroscedasticity, Multicollinearity and Normality test. However, not all classical assumption tests should be performed on any linear regression model with OLS approach.

- The linearity test is not performed on any linear regression model. Because it is assumed that the model is linear. Even if it must be done solely to see how far the linearity level.
- The normality test is basically not a BLUE requirement (Best Linear Unbiased Estimator) and some opinions do not require this requirement as something that must be met.
- Autocorrelation occurs only in time series data. Autocorrelation testing on data that is not time series (cross section or panel) will be useless or meaningless.
- Multicollinearity needs to be done at the time of linear regression using more than one independent variable. If the independent variable is only one, then it is not possible multicollinearity.
- Heteroscedasticity usually occurs in cross section data, where panel data is closer to cross section data than time series.

From the above explanation it can be concluded that in the panel data regression, not all the classical assumption test that exist on OLS method is used, only multicollinearity and heteroscedasticity are needed.

The classical assumption test used in linear regression with Ordinary Least Squared (OLS) approach includes Linearity, Autocorrelation, Heteroscedasticity, Multicollinearity and Normality test. However, not all classical assumption tests should be performed on any linear regression model with OLS approach.

# Chapter 4

## DATA DESCRIPTION

### A. GDP growth in 18 provinces

Gross regional domestic product (GRDP) is the amount of gross domestic product (GDP) of a region. Gross Regional Domestic Product presents GDP data series based on 2000 constant prices, presented in rupiah value as well as percentage (economic growth).

Table 4.1. GDP Growth in Several Provinces  
2010-2014 (Million Rupiah)

No	Province	2010	2011	2012	2013	2014	Average
<b>Sumatra</b>							
1	NAD	33.103.000	34.705.000	36.488.000	38.013.000	39.705.500	4,65
2	SUMUT	118.719.000	126.568.000	134.462.000	142.537.000	150.408.500	6,09
3	RIAU	97.736.000	102.666.000	106.299.000	109.073.000	113.354.500	3,79
4	SUMSEL	63.859.000	68.008.000	72.096.000	76.410.000	80.528.500	5,97
5	BENGKULU	8.340.000	8.879.000	9.465.000	10.052.000	10.614.500	6,22
<b>Jawa</b>							
6	JAWA TENGAH	186.993.000	198.270.000	210.848.000	223.100.000	235.027.500	5,88
7	BANTEN	88.552.000	94.198.000	99.992.000	105.856.000	111.576.000	5,95
<b>Nusa Tenggara</b>							
8	NTB	20.073.000	19.533.000	19.319.000	20.417.000	21.515.000	1,82
9	NTT	12.547.000	13.252.000	13.970.000	14.746.000	15.457.500	5,35
<b>Kalimantan</b>							
10	KAL SEL	38.675.000	32.553.000	34.413.000	36.196.000	38.065.000	5,55
11	KAL TEN	110.953.000	115.490.000	120.086.000	121.990.000	126.556.500	8,35
<b>Sulawesi</b>							
12	SUL UT	18.377.000	19.735.000	21.287.000	22.872.000	24.327.000	7,27

No	Province	2010	2011	2012	2013	2014	Average
13	SULTENG	17.624.000	19.231.000	21.008.000	22.979.000	24.671.000	8,78
14	SULBAR	4.744.000	5.233.000	5.704.000	6.113.000	6.593.000	8,58
<b>Maluku</b>							
15	MALUKU	4.251.000	4.509.000	4.861.000	5.111.000	5.416.000	6,25
16	MALUT	3.680.000	3.236.000	3.446.000	3.656.000	3.861.000	6,19
<b>Papua</b>							
17	PAPUA	22.400.000	21.208.000	21.436.000	24.617.000	25.829.333	3,88
18	PAPUA BARAT	10.405.333	11.890.000	13.780.000	15.062.000	16.749.333	12,67
average							6,0127

Source: Central Bureau of Statistics, Indonesia (Various Issues)

If we look at the data in table 4.1, we can see that Central Java province is ranked highest in obtaining PDRB (Rp 235,027,500), followed by North Sumatra (150.408.500) and East Kalimantan (126,556,500). While the lowest PDRB is occupied by North Maluku province (3,861,000), Maluku (5,416,000) and West Sulawesi (6,593,000). For the growth of GDP growth, the highest growth was achieved by West Papua province (12.67%), Southeast Sulawesi (8.78%) and West Sulawesi (8.58%). The lowest was achieved by West Nusa Tenggara (1.82%), East Kalimantan (3.35%) and Riau (3.78%).

### B. Investment Development in 18 provinces

Based on economic theory, investment means the purchase (and production) of capital goods that are not consumed but used for future production (production goods). For example, building a railroad or factory. Investment is a component of GDP with the formula  $GDP = C + I + G + (X - M)$ . The investment function in that aspect is divided into non-residential investment (such as factory and machinery) and residential investment (new house). Investment is a function of income and interest rate, seen with the relation  $I = (Y, i)$ . An increase in income will encourage greater investment, where higher interest rates will lower interest in investment as it will be more expensive than borrowing money. Although if another company chooses to

use its own funds for investment, the interest rate represents an opportunity cost of investing the fund rather than lending to get interest.

Based on Table 4.2, we can see that the areas of investment, especially foreign investment are East Kalimantan, Central Sulawesi and Banten, while the areas that are not interested in Maluku, East Nusa Tenggara and West Sulawesi. Though investment is as a locomotive in moving the local economy, then for areas that are not desirable need to find solutions, including:

1. The region must identify its economic potential and which has economic value.
2. The region should create an attractive investment climate, namely by making pro-investor regulation by keeping in mind the rules that do not break the rules.
3. Packaging in the form of innovative regional marketing.

Table 4.2. Statistic of Foreign Direct Investment Realization by Year 2010 to 2014

NO.	LOCATION	2010		2011		2012		2013		2014	
		P	I	P	I	P	I	P	I	P	I
1	N ACEH D	13	4,6	40	22,5	26	172,3	87	94,2	49	31,1
2	SUMATERA UTARA	78	181,1	115	753,7	133	645,3	347	887,5	249	550,8
3	R I A U	45	86,6	64	212,3	81	1.152,9	168	1.304,9	129	1.369,6
4	SUMATERA SELATAN	51	186,3	99	557,3	107	786,4	142	485,9	114	1.056,5
5	BENGKULU	11	25,1	18	43,1	21	30,4	27	22,3	17	19,3
6	D I Y O G Y A K A R T A	20	4,9	22	2,4	28	84,9	62	29,6	48	64,9
7	BANTEN	280	1.544,2	361	2.171,7	405	2.716,3	592	3.720,2	709	2.034,6
8	NUSA TENGGARA BARAT	81	220,5	113	465,1	133	635,8	252	488,2	167	551,1
9	NUSA TENGGARA TIMUR	12	3,8	24	5,5	20	8,7	59	9,9	57	15,1
10	KALIMANTAN SELATAN	44	202,2	47	272,1	54	272,3	120	260,6	78	502,5
11	KALIMANTAN TIMUR	98	1.092,2	146	602,4	167	2.014,1	332	1.335,4	191	2.145,7
12	SULAWESI UTARA	25	226,8	40	220,2	70	46,7	103	65,7	69	98,5
13	SULAWESI TENGAH	7	138,5	18	370,4	27	806,5	44	855,0	58	1.494,2
14	SULAWESI BARAT	4	37,3	5	5,6	3	0,2	6	2,5	7	16,2
15	MALUKU	5	2,9	15	11,7	10	8,5	58	52,8	33	13,1
16	MALUKU UTARA	5	246,0	18	129,8	9	90,3	36	268,5	23	98,7
17	PAPUA	18	329,6	36	1.312,0	21	1.202,4	87	2.360,0	42	1.260,6
18	PAPUA BARAT	10	17,2	25	33,1	18	32,0	67	54,2	42	153,3

Source: Investment Coordinating Board, Indonesia (Various Issues)

### C. Education Budget Allocation

Law No. 20/2003 on the national education system states that every citizen has the same right to obtain quality education. Even citizens who have physical, emotional, mental, intellectual, and / or social abilities are entitled to special education. Similarly, citizens in remote or backward areas and remote indigenous peoples are entitled to special service education.

Table 4.3. The Development of Education Budget in Several Province 2010-2014 (Million Rupiah)

No	Province	2010	2011	2012	2013	2014	Average	
							Budget	%
<b>Sumatra</b>								
1	NAD	934.427	898.432	906.936	638.365	1.272.862	930.204	16.72
2	SUMUT	238.109	100.426	362.873	239.707	206.114	229.446	38.89
3	RIAU	483.606	346.600	461.690	466.407	531.060	457.873	4.94
4	SUMSEL	562.557	210.865	244.650	273.713	261.199	310.597	-9.80
5	BENGKULU	66.956	61.106	116.211	130.423	138.889	102.717	25.04
<b>Jawa</b>								
6	JATENG	283.958	264.582	257.218	271.397	271.213	269.674	-1.04
7	BANTEN	165.482	190.857	222.814	278.448	308.400	233.200	16.95
<b>Nusa Tenggara</b>								
8	NTB	22.610	16.679	30.065	30.153	38.994	27.700	20.91
9	NTT	74.659	74.474	81.341	72.066	49.539	70.416	-8.42
<b>Kalimantan</b>								
10	KALSEL	302.257	353.395	171.115	361.429	422.201	322.080	23.34
11	KALTIM	325.103	272.555	308.031	588.007	663.840	431.507	25.16
<b>Sulawesi</b>								
12	SULUT	63.983	85.940	88.551	85.124	78.026	80.325	6.29
13	SULTENG	65.149	70.244	79.083	103.487	110.089	85.610	14.41
14	SULBAR	29.627	27.431	42.505	35.300	45.402	36.053	14.80
<b>Maluku</b>								
15	MALUKU	132.458	130.959	85.146	83.478	117.348	109.878	0.63
16	MALUT	34.374	14.567	24.357	32.850	39.994	29.228	16.55
<b>Papua</b>								
17	PAPUA	239.265	249.232	189.072	181.773	88.724	189.613	-18.7
18	PAPUA BARAT	81.358	77.108	82.056	81.657	126.711	89.778	13.97

Source: Ministry of Finance, 2010-2014, APBD funds (various issues)

To fulfill the right of citizens, the central government and local governments are obliged to provide services and facilities, and ensure the implementation of quality education for every citizen without discrimination. The central government and local governments shall ensure the availability of funds for the implementation of education for every citizen aged seven to fifteen years.

To pursue the backwardness of the education world both in terms of quality and allocation of education budget compared with other countries, the 1945 Constitution mandates that education fund other than educators' salaries and official education fees is allocated at least 20% of the State Budget (APBN) on the education sector and at least 20 % of the Regional Revenue and Expenditure Budget.

From Table 4.3. we can see the highest allocation of education funding is achieved by the province of Nangro Aceh Darusalam, followed by Riau and East Kalimantan. As for the lowest budget allocation is achieved by West Nusa Tenggara, North Maluku and West Sulawesi.

### D. Allocation of Health Budget

The Government sets out several health financing policies to support the health rights of every citizen and the obligation of the government in the provision of health. Health financing policies should be supported by budgetary allocations to regions based on the principles of justice, equity and adequacy, this is because the limited sources of income and health budgeting capability of each region vary.

Table 4.4. Development of Health Budget in Several Provinces  
2010-2014 (Million Rupiah)

No	Province	2010	2011	2012	2013	2014	Average	
							Budget	%
<b>Sumatra</b>								
1	NAD	710.433	798.871	895.106	886.579	1.090.270	876.252	11,63
2	SUMUT	205.169	229.811	263.492	297.944	401.700	279.623	18,64
3	RIAU	271.676	295.892	417.426	538.821	558.365	416.436	20,67
4	SUMSEL	420.049	296.520	266.016	176.775	269.582	285.788	-5,19
5	BENGKULU	144.555	162.300	194.108	219.206	226.135	189.261	11,99
<b>Jawa</b>								
6	JATENG	740.701	922.091	973.038	1.248.836	1.625.098	1.101.953	22,12
7	BANTEN	203.800	270.394	228.645	382.492	395.091	296.084	21,95
<b>Nusa Tenggara</b>								
8	NTB	149.740	199.858	196.141	226.980	392.967	233.137	30,12
9	NTT	132.010	142.069	165.695	177.060	198.570	163.081	10,81
<b>Kalimantan</b>								
10	KALSEL	241.106	361.747	485.830	689.024	1.021.096	559.761	43,59
11	KALTIM	655.609	636.232	807.169	1.154.193	964.480	843.537	12,62
<b>Sulawesi</b>								
12	SULUT	61.959	90.580	96.126	122.589	176.891	109.629	31,04
13	SULTENG	110.723	176.835	166.022	179.235	199.810	166.525	18,26
14	SULBAR	38.323	27.500	39.141	50.404	77.636	46.601	24,22
<b>Maluku</b>								
15	MALUKU	87.061	113.786	117.855	159.181	200.618	135.700	23,84
16	MALUT	57.959	65.664	67.476	90.429	113.277	78.961	18,83
<b>Papua</b>								
17	PAPUA	443.938	475.364	575.941	672.966	649.772	563.596	10,41
18	PAPUA BARAT	91.773	71.846	87.962	82.906	172.643	101.426	25,80

Source: Ministry of Finance, 2010-2014, APBD funds (various issues)

From Table 4.4. we can see the highest health budget allocation achieved by Central Java Province, Nangro Aceh Darussalam and East Kalimantan. While the lowest budget allocation is achieved by West Sulawesi, Maluku and North Maluku.

#### E. Allocation of Marine and Fisheries Budget

The Republic of Indonesia is a country where two-thirds of its territory consists of waters so that the allocation of funds for marine and fisheries should be a priority, as now promised by Jokowi, to optimize the role of maritime resources.

Table 4.5. Development of Marine and Fisheries Budget in Several Provinces  
2010-2014 (Million Rupiah)

No	Province	2010	2011	2012	2013	2014	Average	
							Budget	%
<b>Sumatra</b>								
1	NAD	128.029	126.341	164.610	299.537	257.550	195.214	24,23
2	SUMUT	32.199	28.429	72.413	89.082	80.821	60.589	39,19
3	RIAU	40.085	40.051	38.024	61.098	98.010	55.454	28,99
4	SUMSEL	14.289	21.100	26.069	41.752	41.421	28.926	32,65
5	BENGKULU	13.315	11.686	12.694	18.621	22.587	15.781	16,10
<b>Jawa</b>								
6	JATENG	44.833	64.806	72.731	85.337	82.121	69.966	17,59
7	BANTEN	14.710	26.961	24.849	14.090	17.184	19.559	13,53
<b>Nusa Tenggara</b>								
8	NTB	18.726	21.766	33.708	31.178	31.961	27.468	16,53
9	NTT	14.806	19.716	31.477	38.053	52.837	31.378	38,14
<b>Kalimantan</b>								
10	KALSEL	28.736	33.302	27.081	49.650	49.140	37.582	19,88
11	KALTIM	43.619	44.472	58.012	82.423	100.768	65.859	24,18
<b>Sulawesi</b>								
12	SULUT	14.289	21.620	30.109	31.442	47.147	28.921	36,24
13	SULTENG	15.507	29.204	51.915	60.915	71.457	45.800	50,19
14	SULBAR	10.159	17.611	20.528	33.160	53.708	27.033	53,36
<b>Maluku</b>								
15	MALUKU	21.994	40.623	50.187	48.913	74.392	47.222	39,45
16	MALUT	20.000	12.730	20.608	23.184	26.763	20.657	13,37
<b>Papua</b>								
17	PAPUA	31.337	42.133	46.031	52.772	45.796	43.614	11,28
18	PAPUA BARAT	28.781	35.136	41.471	44.438	99.037	49.773	42,53

Source: Ministry of Finance, 2010-2014, APBD funds (various issues)

From table 6.5 we can see the highest commitment of local government in 2010-2014 in support of Jokowi policy shown by Nanggroe Aceh Darussalam Province (average 195.2 billion Rupiah). Central Java Province (average 69.9 Billion Rupiah) and East Kalimantan Province (mean 65.8 Billion Rupiah) While the lowest was reached by Bengkulu Province (average 15.78 Billion rupiah), Banten (average 19.55 Billion rupiah), and Maluku North (average 20.65 billion rupiah) .

#### F. Agriculture Budget Allocation

The agricultural sector is still the highest contributor to labor absorption compared to other sectors in Indonesia. Based on data from BPS in February 2014, the contribution of employment of agricultural sector was 33.2% and bualn of August 32.88% higher than the trade sector which was only 22.37%. Because the agricultural sector is the pre-eminent in the absorption of labor to reduce unemployment, so the role of government is needed through the improvement of facilities and infrastructure.

Table 4.6. Development of Agricultural Budget in Several Provinces  
2010-2014 (Million Rupiah)

No	Province	Allocation of Agricultural Budget					Average	
		2010	2011	2012	2013	2014	Budget	%
<b>Sumatra</b>								
1	N Aceh D	295.091	262.328	328.564	753.582	585.263	444.966	30,29
2	Sumatera Utara	141.240	162.335	178.793	192.783	210.476	177.126	10,52
3	Riau	214.748	125.797	180.621	300.504	324.810	229.296	19,16
4	Sumatera Selatan	94.783	94.260	105.631	174.571	194.256	132.700	22,01
5	Bengkulu	61.029	55.870	65.524	110.570	99.118	78.422	16,80
<b>Jawa</b>								
6	Jawa Tengah	188.687	236.521	269.249	330.147	364.642	277.849	18,06
7	Banten	30.879	37.862	41.628	59.140	84.973	50.896	29,58
<b>Nusa Tenggara</b>								
8	Nusa Tenggara Barat	62.236	69.334	105.251	113.256	154.690	100.954	26,85
9	Nusa Tenggara Timur	76.536	65.996	82.148	105.099	98.588	85.673	8,11

No	Province	Allocation of Agricultural Budget					Average	
		2010	2011	2012	2013	2014	Budget	%
<b>Sumatra</b>								
<b>Kalimantan</b>								
10	Kalimantan Selatan	108.081	107.691	133.036	176.222	195.981	144.202	16,71
11	Kalimantan Timur	160.391	128.737	180.961	235.864	306.072	202.405	20,23
<b>Sulawesi</b>								
12	Sulawesi Utara	61.403	69.568	90.948	105.510	108.063	87.098	15,62
13	Sulawesi Tengah	54.218	75.006	133.846	197.416	196.758	131.449	40,99
14	Sulawesi Barat	34.778	47.070	71.545	82.022	85.646	64.212	26,60
<b>Maluku</b>								
15	Maluku	36.987	41.349	46.525	62.077	84.198	54.227	23,34
16	Maluku Utara	11.133	18.584	32.543	42.571	49.843	30.935	47,48
<b>Papua</b>								
17	Papua	81.198	97.380	104.556	144.383	137.703	113.044	15,19
18	Papua Barat	28.647	28.874	35.609	47.547	77.903	43.716	30,37

Source: Ministry of Finance, 2010-2014, APBD funds (various issues)

From Table 4.6 we can see that the provinces with the largest agricultural sector budget are Nanggroe Aceh Darussalam (average expenditure for agriculture of 444.9 billion rupiahs), Riau (average agriculture expenditure of 277.8 billion rupiah), and Central Java (average expenditure for agricultural sector amounted to 229.2 billion rupiah). While agriculture sector which is not a priority is North Maluku (average expenditure for agriculture sector 30.9 billion rupiah), West Papua (average expenditure for agricultural sector amounted to 43.7 billion rupiah), and Banten Province (average expenditure for agriculture sector 50.8 billion rupiah),

#### G. General Allocation Fund

The General Allocation Fund (DAU) is the amount of funds allocated to each autonomous region (province/district/city) in Indonesia each year as development fund. DAU is one component of expenditure on APBN, and becomes one component of revenue in APBD. The purpose of the DAU is as

equitable distribution of inter-regional financial capacity to fund the needs of the Autonomous Region in the context of decentralization.

Table 4.7 Development of General Allocation Funds in Several Province of 2010 to 2014 (Million Rupiah)

No	Province	2010	2011	2012	2013	2014	Average	
							Budget	%
<b>Sumatra</b>								
1	NAD	621.432	716.646	911.080	1.292.445	1.201.612	948.643	19,32
2	SUMUT	792.119	948.867	1.103.389	1.223.445	1.349.132	1.083.390	14,31
3	RIAU	58.869	380.051	489.179	726.630	820.984	495.143	158,96
4	SUMSEL	507.356	646.813	716.153	870.516	985.542	745.276	18,24
5	BENGGULU	523.041	607.388	775.311	854.647	955.095	743.096	16,44
<b>Jawa</b>								
6	JATENG	1.168.788	1.276.100	1.516.892	1.670.859	1.803.931	1.487.330	11,54
7	BANTEN	381.979	460.333	530.833	671.081	728.490	554.543	17,70
<b>Nusa Tenggara</b>								
8	NTB	602.389	646.671	809.617	859.353	960.300	779.666	13,19
9	NTT	674.636	940.646	940.646	1.003.991	1.131.687	938.321	14,72
<b>Kalimanta</b>								
10	KALSEL	483.365	504.876	652.535	683.511	701.725	605.202	10,28
11	KALTIM	0	51.446	52.637	55.539	57.312	43.387	3,67
<b>Sulawesi</b>								
12	SULUT	558.635	619.711	790.534	885.684	949.852	760.883	14,44
13	SULTENG	659.331	743.161	902.087	981.035	1.053.636	867.850	12,56
14	SULBAR	405.750	441.578	590.680	685.497	776.214	579.944	17,97
<b>Maluku</b>								
15	MALUKU	607.572	703.993	829.491	897.657	1.019.704	811.683	13,88
16	MALUT	479.727	540.389	703.159	772.591	906.623	680.498	17,50
<b>Papua</b>								
17	PAPUA	1.058.228	1.276.285	1.569.782	1.889.267	1.991.202	1.556.953	17,34
18	PAPUA BARAT	605.900	700.444	901.398	1.064.872	1.122.264	878.976	16,95

Source: Ministry of Finance, 2010-2014. APBD funds (various issues)

The General Allocation Fund consists of:

1. General Allocation Fund for Provincial Region
2. General Allocation Funds for Regencies / Municipalities

The amount of General Allocation Fund each year is determined by Presidential Decree. Each province / district / city receives DAU with unequal amounts, and this is regulated in detail in a Government Regulation. The quantity of DAU is calculated using complex statistical formulas / formulations, among others, by the number of people and the total area in each region / region.

From table 4.6 we can see that the General Allocation Fund is the highest received from the central government to the provinces of Papua, Central Java and North Sumatra provinces, while the lowest is accepted by the provinces of East Kalimantan, Riau Province and Banten Province.

#### H. BPK's opinion on LKPD

In accordance with Law Number 15 Year 2004 regarding Audit of State Financial Management and Accountability, the State Audit Board (BPK), among others, performs a financial audit. Audit is an audit of financial statements aimed at providing reasonable assurance that the financial statements have been fairly presented in all material respects, in accordance with generally accepted accounting principles in Indonesia or a comprehensive accounting basis other than accounting principles generally accepted in Indonesia. Financial audits conducted by BPK are examination of Central Government Financial Report (LKPP), Local Government Financial Report (LKPD), State Owned Enterprises Financial Report (BUMN), and Financial Report of Other Agency.

The purpose of examination of financial statements is to provide opinions / opinions on the fairness of financial information presented in the financial statements. According to Law Number 15 Year 2004 Explanation of Article 16 paragraph (1), opinion is professional statement of examiner about the fairness of financial information presented in the financial statements. The criteria for giving opinion are: (a) conformity with government accounting standards, (b) adequacy of disclosures, (c) compliance with laws and regulations, and (d) effectiveness in internal control.

Examination of Government Financial Statements, paragraph 13 on Opinion Types, there are four types of opinions that can be given by examiners, as follows (CPC, 2014):

1. Unqualified (WTP) contains a statement that the financial statements present fairly, in all material respects in accordance with Government Accounting Standards (SAP). In accordance with the Public Accountant Professional Standards (SPAP) enacted in the SPKN, BPK may provide unqualified opinion with explanatory paragraph (WTP-DPP) due to certain circumstances that require the examiner to add an explanatory paragraph in the LHP as a modification of the WTP opinion.
2. Reasonable With Exception (WDP) contains a statement that the financial statements present fairly, in all material respects in accordance with SAP, except for the impact of matters relating to the excluded.
3. Unfair (TW) contains a statement that the financial statements do not present fairly in all material respects in accordance with SAP.
4. Declaration of Resisting to an Opinion or Non-Opinion (TMP) states that the examination does not express an opinion.

Table 4.8. BPK's opinion on LKPD in 18 provinces

No	Name of Province	Opinion				
		2010	2011	2012	2013	2014
1	N Aceh D	3	3	3	3	3
2	Sumatera Utara	3	3	3	3	3
3	Riau	5	3	3	4	4
4	Sumatera Selatan	3	3	3	3	3
5	Bengkulu	3	3	5	5	5
6	Jawa Tengah	3	4	5	4	5
7	Banten	3	3	3	1	3
8	Nusa Tenggara Barat	1	5	5	5	5
9	Nusa Tenggara Timur	3	3	3	3	3
10	Kalimantan Selatan	3	3	3	3	5
11	Kalimantan Timur	3	3	5	5	5
12	Sulawesi Utara	5	3	4	4	5

No	Name of Province	Opinion				
		2010	2011	2012	2013	2014
13	Sulawesi Tengah	3	3	4	3	4
14	Sulawesi Barat	3	3	3	3	3
15	Maluku	1	1	1	3	3
16	Maluku Utara	1	1	1	1	1
17	Papua	1	1	1	3	3
18	Papua Barat	1	1	1	1	1

Source: Financial Accounting Body, Book II Financial Statement Inspection, 2010-2014.

Based on Table 4.8 of BPK's opinion on LKPD in 18 provinces stated in the form of score, point 1 shows that the local government financial report given TMP opinion, point 2 shows that the local government financial report given TW opinion, number 3 shows that the local government financial report give the WDP opinion, point 4 indicates that the local government financial statements are given WDP-DPP opinion and the number 5 indicates that the local government financial statements are given a WDP opinion. The highest score is obtained by Bengkulu, Central Java, NTB, South Kalimantan, East Kalimantan and North Sulawesi. While the lowest obtained by Papua and North Maluku.

# Chapter 5

## RESULT OF DATA ANALYSIS

### A. Classical Assumption Test

There is no single strong and rigorous rule to detect heteroscedasticity. Nevertheless, econometric experts suggest several methods for detecting the presence of heteroscedasticity problems in the empirical model, such as by using Park's 1966 test (Gujarati, 2003, 403), Glejser test (Gujarati, 2003: 405), Spearman's Ranking Correlation Test (Gujarati, 2003; 406), Breusch-Pagan-Godfre test (Gujarati, 2003; 411).

Here is the output of Heteroskedasticity Test results by using Park Test shown in the table below:

Table 5.1.

Test Heterokedastisitas with Park Test

Variable	t-Statistic	P> t
C	-0.603026	0.5486
LOG(JP?)	0.543671	0.5886
LOG(PEDU?)	-0.705324	0.4832
LOG(PKES?)	1.304793	0.1966
LOG(PKEL?)	-0.126348	0.8999
LOG(PPERT?)	-0.541442	0.5901
LOG(DAU?)	-0.367563	0.7144
LOG(PMA?)	-0.421881	0.6745
OPINI?	-0.358051	0.7215

Source: Appendix

Information :

\*\*\* = significant 1%

\*\* = significant 5%

\* = significant 10%

From table 4.1, it can be concluded that the data used as independent variables free from the problem of heterokedastisitas.

Multicollinearity test is a state where between independent variables in multiple regression models found the existence of correlation (relationship) between one another. The problem of Multicollinearity is only related to the existence of linear relationships among the independent variables. This means that the problem of Multicollinearity will not occur in the regression model whose form of function is non-linear, but the Multicollinearity problem will appear in the regression model whose form of function is linear between the independent variables (Gujarati, 2003: 348).

Multicollinearity test aims to test whether in this regression found the existence of such correlation. In the case of multicollinearity, the regression coefficient of the independent variable will be insignificant and has a high standard error. The smaller the correlation between the independent variables, the regression model will be better.

From the appendix can be seen that the correlation coefficient value between independent variables is not greater than [0,9] thus the data in this research does not occur multicollinearity problem.

### B. Best Model Analysis

In panel data model analysis there are three kinds of approach that can be used, that is least squares approach (ordinary / pooled least square), fixed effect approach, and random effect approach. The statistical test for choosing the first model is to test the Chow to determine whether Pooled least square or Fixed effect method should be used in creating panel data regression.

The selection of this model using the best analysis test is described in the following table.

**Table 5.2**  
Estimated Results

Dependent Variable : Economy Growth (LOG(PDRB))	Model		
	Common Effect	Fixed Effect	Random Effect
<b>Constanta</b>		<b>7,593</b>	<b>0.678197</b>
Standar error		1.361.163	1.339.923
Probability		0.0000****	0.6141
<b>LOG(JP)</b>	<b>0.874787</b>	<b>0.443728</b>	<b>0.932107</b>
Standar error	0.060612	0.096728	0.093540
Probability	0.0000****	0.0000****	0.0000****
<b>LOG(PEDU)</b>	<b>0.360223</b>	<b>-0.017859</b>	<b>0.015832</b>
Standar error	0.069510	0.011527	0.021943
Probability	0.0000****	0.1263*	0.4727
<b>LOG(PKES)</b>	<b>-0.252884</b>	<b>0.051847</b>	<b>0.044550</b>
Standar error	0.093297	0.014366	0.029561
Probability	0.0082****	0.0006****	0.1357*
<b>LOG(PKEL)</b>	<b>0.142634</b>	<b>0.087515</b>	<b>0.096766</b>
Standar error	0.100167	0.009998	0.024224
Probability	0.1583*	0.0000****	0.0001****
<b>LOG(PPERT)</b>	<b>0.166637</b>	<b>0.087475</b>	<b>0.077440</b>
Standar error	0.132799	0.015670	0.029241
Probability	0.2131	0.0000****	0.0097****
<b>LOG(DAU)</b>	<b>-0.227566</b>	<b>0.041599</b>	<b>-0.025898</b>
Standar error	0.048809	0.023221	0.025379
Probability	0.0000****	0.0780**	0.3106
<b>LOG(PMA)</b>	<b>0.167081</b>	<b>-0.003170</b>	<b>0.008910</b>
Standar error	0.023529	0.002888	0.007759
Probability	0.0000****	0.2765	0.2542
<b>OPINION</b>	<b>0.007336</b>	<b>-0.011929</b>	<b>-0.021423</b>
Standar error	0.044660	0.005130	0.008225
Probability	0.8699	0.0232***	0.0109***
<b>R<sup>2</sup></b>	<b>0.917027</b>	<b>0.999712</b>	<b>0.785981</b>
<b>F<sub>statistik</sub></b>		8886.339	37.18388
Probability		0.000000****	0.000000****

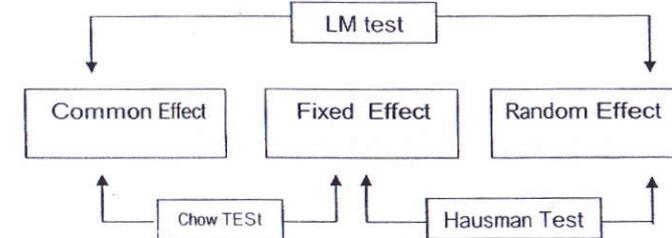
Source: Data processed

Information :

- \*\*\*\* = significant 1%
- \*\*\* = significant 5%
- \*\* = significant 10%
- \* = significant 20%

Based on the test of the model specification that has been done from both analysis that is done by using Likelihood Test and Hausman Test both suggest to use Fixed Effect, and from comparison of best selection test hence regression model used to estimate influence of population, budget allocation for education, health, marine and fisheries, agriculture, general allocation funds, foreign investment and opinion cp to economic growth is the Fixed Effect Model. Fixed Effect Model is chosen because it has the probability that each independent variable from Fixed Effect Model is more significant than Random Effect Model or Common Effect Model which each independent variable is not significant so that a better model is Fixed Effect Model.

Figure 5.1. Model Selection Test



Source: Gujarati, 2003

Selection of panel data testing method is done on all sample data, Chow test is done to choose the method of testing panel data between Pooled least square method or Fixed Effect. If the F statistic value in the Chow test is significant, the Hausman test will be performed to choose between the Fixed Effect or Random Effect method. The Hausman test result with less probability value than Alpha is significant, it means Fixed Effect method chosen to process

panel data. Selection of test method is done by using Fixed Effect and Random Effect and combine cross-section, period, and cross-section / period combination.

Lagrange Multiplier (LM) is a test to determine whether the most appropriate model of Random Effect or Common Effect (OLS) model is used. This Random Effect significance test was developed by Breusch Pagan. The Pagan Breusch method for the Random Effect significance test is based on the residual value of the OLS method (Gujarati, 2003).

### 1. Chow Test

Chow test is a test to determine the best model between Fixed Effect Model with Common / Pool Effect Model. If the result states accept the null hypothesis then the best model to use is the Common Effect Model. However, if the result states rejecting the null hypothesis then the best model used is the Fixed Effect Model, and the test will continue into the Hausman test.

$$\begin{aligned}
 F_{n-1, nt, n-k} &= \frac{(10.68703 - 0.159485) (18 - 1)}{0.159485 (90 - 18 - 8)} \\
 &= 10,619267 / 0,002492 \\
 &= 248,5068 \\
 \\ 
 F\text{-tabel} &= \alpha ; df (n-1, nT-n-k) \\
 &= 5\% ; (18 - 1, 90 - 18 - 8) \\
 &= 5\% ; (17, 64) \\
 &= 1,834
 \end{aligned}$$

The result of calculation of F-hitung is 248,5068 while F-table from numerator 17 and denominator 64 at  $\alpha$ : 5% is 1,834. From the above hypothesis can be concluded that  $H_0$  is rejected because F-count is bigger than F-table ( $1975,443 > 1,649$ ), so the model used in this research is Fixed Effect Model.

Based on the Chow Test table above, the two probability values of Cross Section F and Chi Square are smaller than Alpha 0.05, thus rejecting the null hypothesis. So according to Chow Test, the best model used is the model by using the Fixed effect method. Based on Chow Test results that rejected the null hypothesis, the test data continues to Hausman Test.

### 2. Hausman Test

Hausman test is a test to determine the use of method between Random Effect with Fixed Effect. If the Hausman test results states accept the null hypothesis then the best model to use is the Random Effect model. However, if the result states rejecting the null hypothesis then the best model used is the Fixed Effect model.

Table 5.3 Hausman Test

Test Summary	Chi-Sq Statistic	Chi-Sq.d.f	Prob.
Cross-section random	29.752435	8	0.0002

Source: Data processed

Based on the Hausman Test table, the probability value of Cross-section random is 0.0002 which is smaller than Alpha 0.05 thus rejecting the null hypothesis. So according to Hausman test, the best model used is model by using Fixed Effect method.

### 3. LM Test

The LM test is based on the distribution of chi-squares with degree of freedom by the number of independent variables. If the statistical LM value is greater than the critical value of the chi-squares statistic then we reject the null hypothesis, which means the precise estimation for the panel data regression model is the Random Effect method of the Common Effect method. Conversely, if the LM value of the statistic is less than the statistical value of chi-squares as the critical value, then we accept the null hypothesis, which

means the estimation used in panel data regression is the Common Effect method instead of the Random Effect method (Widarjono, 2009).

On this occasion the LM test is not used because in the Chow test and Hausman test shows the most appropriate model is the Fixed Effect Model. LM test is used when Chow test shows the model used is Common Effect Model, while in Hausman test shows the most appropriate model is Random Effect Model. Then the LM test is needed as the final step to determine the most appropriate model of Common Effect or Random Effect.

Based on test model specification that has been done as well as from the best value comparison then the regression model used is Fixed Effect Model. Fixed Effect Model (FEM) is a panel data estimation technique using dummy variables to determine intercept differences between cross sections. The following table shows the results of data estimation with the number of observations of 18 provinces during the period 2010-2014 (5 years).

**Tabel 5.4**  
Hasil Estimasi Fixed Effect Model

Dependent Var : Economics Groth (LOG(PDRB))	Fixed Effect Mode
<b>Constanta</b>	<b>7,593</b>
Standar error	1.361.163
Probabilitas	0.0000****
<b>LOG(JP)</b>	<b>0.443728</b>
Standar error	0.096728
Probabilitas	0.0000****
<b>LOG(PEDU)</b>	<b>-0.017859</b>
Standar error	0.011527
Probability	0.1263*
<b>LOG(PKES)</b>	<b>0.051847</b>
Standar error	0.014366
Probability	0.0006****
<b>LOG(PKEL)</b>	<b>0.087515</b>
Standar error	0.009998

Dependent Var : Economics Groth (LOG(PDRB))	Fixed Effect Mode
Probability	0.0000****
<b>LOG(PPERT)</b>	<b>0.087475</b>
Standar error	0.015670
Probabilitas	0.0000****
<b>LOG(DAU)</b>	<b>0.041599</b>
Standar error	0.023221
Probabilitas	0.0780**
<b>LOG(PMA)</b>	<b>-0.003170</b>
Standar error	0.002888
Probabilitas	0.2765
<b>OPINI</b>	<b>-0.011929</b>
Standar error	0.005130
Probabilitas	0.0232***
<b>R<sup>2</sup></b>	<b>0.999712</b>
<b>F statistik</b>	<b>8886.339</b>
<b>Probabilitas</b>	<b>0.000000****</b>

Source: Panel data processing results

From the results of the above estimation, it can be made panel data analysis model of the factors that affect economic growth as follows:

$$\text{LOG (PDRB)} = \beta_0 + \beta_1 \cdot \text{LOG(JP)} + \beta_2 \cdot \text{LOG(PEDU)} + \beta_3 \cdot \text{LOG(PKES)} + \beta_4 \cdot \text{LOG(PKEL)} + \beta_5 \cdot \text{LOG(PPERT)} + \beta_6 \cdot \text{LOG(DAU)} + \beta_7 \cdot \text{LOG(PMA)} + \beta_8 \cdot \text{OPINI} + et$$

Information:

- LOG (GRDP) = Gross Regional Domestic Product
- LOG (JP) = Population
- LOG (PEDU) = Government Expenditures For Education Sector
- LOG (PKES) = Government Expenditures For Health Sector
- LOG (PKEL) = Government Expenditures For Marine Sector
- LOG (PPERT) = Government Expenditures For Agriculture Sector
- LOG (DAU) = General Allocation Fund
- LOG (PMA) = Foreign Investment
- OPINION = Opinion of BPK to Local Government Financial Report
- $\beta_0$  = Constants
- $\beta_1 - \beta_8$  = Parameter Coefficient
- et = Disturbance Error

Where obtained the following regression results:

$$\text{LOG (PDRB)} = 7,59 + 0,4437 \text{ LOG(JP)} - 0,0178 \text{ LOG(PEDU)} + 0,0518 \\ \text{LOG(PKES)} + 0,0875 \text{ LOG(PKEL)} + 0,0874 \text{ (PPERT)} + \\ 0,0415 \text{ LOG(DAU)} - 0,0031 \text{ LOG(PMA)} - 0,0119 \text{ OPINI} + \\ \text{et}$$

Information :

- \*\*\*\* which is significant at 1 percent alpha
- \*\*\* which is significant at 5 percent alpha
- \*\* which is significant at 10 percent alpha
- \* which is significant at 20 percent alpha

The result of regression of fixed effect model panel data can be seen from the value of Prob (t-stat) less than 0.01 (for population, government expenditure for health, marine and fishery, agriculture, general allocation fund). With a confidence level of 95 percent, almost all the variables have a significant effect on economic growth. Significant variables are characterized by a t-statistical probability (as a partial test) of less than 0.05. So with a 90 percent confidence level variable that does not significantly affect economic growth is the variable allocation of education budget and foreign investment has no effect on economic growth. And the model can explain 99.96 percent of the variation that occurs in the PDRB variable (adjusted R-squared).

- β1: 0.4437 means that if other factors are considered fixed then a 1 percent increase in population will increase economic growth by 0.44 percent. Increased economic growth should be accompanied by an increase in per capita income, one way to increase per capita income is to reduce the rate of population growth.
- β2: -0.0178 means that if other factors are considered fixed then a 1 percent increase in government spending on education will reduce economic growth by 0.018 percent. A negative outcome indicates that the development budget for education is not well targeted so that the government needs to re-evaluate the development of curriculum and educational infrastructure facilities.

- β3: 0.05186 means that if other factors are considered fixed then a 1 percent increase in government spending in health will increase economic growth by 0.052 percent. Increasing the health budget will expand public health services, and improve human resources, and will ultimately drive economic growth through increased productivity.
- β4: 0.0875 means that if other factors are considered fixed then a 1 percent increase in government spending for marine and fisheries will increase economic growth by 0.08 percent. Indonesia 2/3 of its territory consists of waters, so the increase of maritime facilities and infrastructure can encourage economic growth.
- β5: 0.087 means if other factors are considered fixed then a 1 percent increase in expenditure for agriculture will increase economic growth by 0.087 percent. Indonesia has almost 35 percent of its people relying on the agricultural sector, so that government funding support through improved agricultural advice and infrastructure can boost economic growth.
- β6: 0.041 means that if other factors are considered fixed then a 1 percent increase in general allocation funds will increase economic growth by 0.041 percent. General Allocation Fund (DAU) is the amount of funds allocated to every Autonomous Region (Province / Regency / City) in Indonesia each year as development fund. DAU is one component of expenditure on APBN, and becomes one component of revenue in APBD. Increased DAU means increasing development funds, and resulting in an increase in economic growth.
- β7: -0,0032 means that if other factors are considered fixed then a 1 percent increase in foreign investment will reduce economic growth by 0.0032 percent. But based on statistical results of foreign investment variables have no effect on economic growth.
- β8: -0.0119 means the opinion of BPK to the local government financial report has a negative relationship, meaning the worse opinion of BPK to LKPD the better economic growth of a region.

## C. Output Analysis Results

### 1. Relationship Between Population and Economic Growth

The results of the above analysis show that population growth can encourage economic growth in various provinces in Indonesia. Traditionally population growth as one of the positive factors that refers to economic growth. A large population is a potential market that is a source of demand for a wide range of goods and services that will then move various economic activities to create an economies scale. The results of this study are in accordance with research conducted by Kevin Sylwester (2000), Rustam A (2013) and his research Naftaly Gisore.

The policy of slowing the rate of population growth is aimed in the long run to reduce absolute poverty, minimize income inequality, expand women's educational opportunities, increase employment opportunities, increase health infrastructure and create more equitable social services.

### 2. Relationship between Education Budget and Economic Growth

Government Expenditures For Education has a negative influence on regional economic growth. This means that the allocation of education can not improve the quality and quantity of education but only improve the welfare of educators. This means that the increase in the allocation of education funds is mostly used for certification and school operations. Wrong ideas have been made in several provinces in Indonesia that say the creation and expansion of the opportunity to obtain rapid, quantitative education is the key to the success of national development, the more educational opportunities, the faster the development process will be. Based on that opinion, the regions are competing to hold the expansion of education in a short time, so this field becomes more politically sensitive. Each of the ownership of the head of the region always raised free education. The rapid expansion of educational opportunities has cost enormous amounts, but the average condition of the community actually has a development gap.

Indonesia country is faced with two fundamental alternatives to policy in addressing educational issues, first expanding the formal education system quantitatively with some minor modifications in both curricula, teaching methods and evaluations without changing the costly educational policies and institutional structures of markets workforce. Second, try to reform the entire system of education, accompanied by changes to the conditions of demand and supply of school opportunities and redirect the curriculum to fit the actual national needs. The evidence suggests that the first alternative will only exacerbate the problems of unemployment, poverty, inequality of income distribution, and stagnation of the village economy.

The results of this study are supported by the research of Adela Shera et al (2014) that spending on education has a negative relationship with economic growth. But if the alpha we use is 10 percent then education spending does not have an impact on economic growth, according to David E Bloom et al (2010), Adewara Sunday Olabisi et al (2012), Naftaly Gisore (2014) and Ali Sulieman Al-Shafti stated that education spending has no relationship with economic growth.

### 3. Relationship Between Health Budgets with Economic Growth

Government Spending For Health has a positive influence on regional economic growth. This is evidenced by the probability t count smaller than 0.05. And this proves that an increase in health spending will lead to a reduction in infant and maternal mortality so as to boost economic growth. Besides, with the existence of healthy Indonesia can encourage productivity, which in turn will encourage economic growth.

### 4. Relationship between Marine and Fisheries Budgets with Economic Growth

Government Expenditures For the allocation of Marine and Fisheries have a positive influence on regional economic growth. This is evidenced by the probability t count smaller than 0.05. Because 2/3 parts of our country is

oceanic then the allocation of government spending will optimize the resources in the field of marine and fisheries, so that the maritime sector will develop.

#### 5. Relationship between Agricultural Budget and Economic Growth.

From the analysis it can be concluded that development expenditure for agriculture has an influence on economic growth in 18 provinces in Indonesia. The purpose of agricultural development in Indonesia is to improve the living standards of rural communities by increasing income, total production, and productivity of small farmers, first of all the government must do is to identify the main sources of agricultural progress and the basic conditions that would affect the successful achievement of agricultural development goals, all these important elements clearly related to each other to form a very complex relationship. To facilitate understanding we can divide into three components of small-scale agricultural development resources, namely: (1) improvement of technological progress and innovation in agricultural activities is an important prerequisite that must be fulfilled in order to achieve the improvement of output level and productivity, (2) economic policy appropriate government policies such as regulation and protection of prices of agricultural commodities, especially grain for staple food. (3) Land Reform, agricultural and rural development will only succeed in bringing benefits to many people if there is a joint effort between the government and all farmers, especially the granting and improving the right of ownership or land use to each farmer. If the programs of land reform can be effectively treated and effectively implemented by the government it will create a solid foundation for improving the output and living standards of rural farmers.

#### 6. Relationship Between General Allocation Funds and Economic Growth

General Allocation Funds have a positive influence on regional economic growth. This is evidenced by the probability t count smaller than 0.05. The General Allocation Fund (DAU) is the amount of funds allocated to

each Autonomous Region (province / district / city) in Indonesia each year as development fund. DAU is one component of expenditure on APBN, and becomes one component of revenue in APBD. The purpose of the DAU is as equitable distribution of inter-regional financial capacity to fund the needs of the Autonomous Region in the context of decentralization. DAU is used by local governments to encourage economic growth, especially as a complementary fund in regional development.

#### 7. Relationship Between Foreign Investment with Economic Growth.

Foreign Investment (PMA) has no relationship to regional economic growth. This is evidenced by probability t counts greater than 0.20. It can be seen that foreign investment in Indonesia has been exploring more natural resources, and regions that rely on natural resources tend to have lower average economic growth. From the above problems, the local government should make a policy to raise the added value of the products of natural resources, so that the role of investment can be really optimized. This research is supported by Adewara Sunday Olabisi, et al (2012) and Basem Mohammed Louzi and Abeer Abadi (2011) which stated that investment has no effect on economic growth.

Criticism of foreign investment has been largely undertaken, especially its impact on development in Indonesia is highly uneven and in many cases the activities of foreign capital firms reinforce the dualistic economic structure and exacerbate the distribution of income. They will divert resources from use to produce food to use to produce sophisticated goods that mostly satisfy only certain groups and tend to exacerbate the imbalance of economic opportunities between rural and urban areas with mostly operating in urban areas and accelerate the urbanization of village to city. Foreign capital investment companies tend to produce unsuitable goods (only consumed by certain groups), thus encouraging the luxury consumption pattern through advertising and the resulting goods tend to use capital-

intensive technology. So that domestic resources tend to be allocated to socially unprofitable projects.

#### 8. Relationship between Opinion of CPC and Economic Growth.

BPK's opinion on LKPD has a positive relationship to regional economic growth. This is evidenced by the probability t count smaller than 0.05. So far, local governments have not optimized the performance-based budget, which is implemented only limited to budget absorption, and this has not affected the outcome of each program implemented. The study was supported by Mauro (1995),

First, the corrupt practices that by granting funds to speed up some of the business (speed money) to enable economic actors to avoid the delays of its affairs. As is well known, avoiding delays for economic activity means cost, either from the side of a possible business opportunity, or the costs of interest, and other costs. This can support growth if the country's bureaucracy rules are very bad. Secondly, this corruption can encourage government employees to work harder. Those who had not been too eager to complete their routine matters became stimulated to work because of the incentives of his service money. Things like this can happen in any country.

To avoid corruption, it is necessary to optimize the KPK (Corruption Eradication Commission) institution. After the Corruption Eradication Commission (KPK) was formed there was a growing trend of corruption cases brought to justice, involving high-ranking state officials. However, it can be assumed that there are still more who have not been caught than those who have to deal with the authorities. Corruption that comes to the fore and becomes very little public discussion, but that does not look much bigger. The second phenomenon is the phenomenon of loss and loss of the state is obvious and very large, but the perpetrator is almost never seen and very difficult to reveal.

#### D. Conclusion

From the above analysis and discussion we can conclude as follows:

1. The number of residents has a positive influence on regional economic growth.
2. Government Expenditures For Education has no positive effect on regional economic growth.
3. Government Expenditure For Health has a positive influence on regional economic growth.
4. Government Expenditures For the allocation of Marine and Fisheries have a positive influence on regional economic growth.
5. Government Expenditure For agricultural allocation has a positive influence on regional economic growth.
6. General Allocation Funds have a positive influence on regional economic growth.
7. Foreign Investment (PMA) has no relationship to regional economic growth.
8. BPK's opinion on LPKD has a negative relationship to regional economic growth.

#### E. Contributions and Implications

From the findings of research which is the contribution of research results in the academic field can be seen from the analysis of the influence of the composition of government spending (education, health, marine and fisheries, agriculture, and general allocation funds). Firstly, from the government expenditure component, government expenditure on marine and fishery has the greatest contribution in encouraging economic growth in the Indonesian territory, and this is in accordance with the shape of our country which consists of many islands and 2/3 of the waters area. So President Jokowi's policy on maritime development priorities is very appropriate. Both components of government

expenditure on agriculture contribute second only to marine and fishery spending, this is also very much in line with employment in Indonesia, 35 percent of labor absorption is in the agricultural sector, so the priority of agricultural development or government-backed government programs is appropriate .

#### F. Practical Implications

Contribute and practical implications are donated to the government as policy makers or other interested parties in enhancing regional economic growth.

- a. **Government Expenditures For Education** has a negative influence on regional economic growth. The government needs to reevaluate basic education in terms of curriculum, teaching methods, and educational evaluation. So that not only the pursuit of quantity but also keep the quality of basic education.
- b. Foreign investment has no effect on the economic growth of a region. Foreign investment companies tend to produce unsuitable goods (only consumed by certain groups), thus encouraging the luxury consumption pattern through advertising and the resulting goods tend to use capital-intensive technology. So that domestic resources tend to be allocated to socially unprofitable projects. The government through the Investment Coordinating Board should be able to create a conducive investment climate, so that PMA is still indirectly we receive but firstly selected whether in the future will benefit the community and can encourage regional economic growth.
- c. **BPK's opinion on LPKD** has a positive relationship to regional economic growth. This study finds the increasingly ugly opinion of BPK to LKPD economic growth is increasing. This means that all matters relating to general kepetingan must be accompanied by money, this is due to complicated procedures handling. The government needs to simplify procedures and optimize the role of the KPK, as well as the inherent supervision of agencies directly related to the public interest.

#### G. Suggestions

##### 1. For Policy Makers

- a. In this study budget allocation for education does not encourage economic growth, meaning that the allocation of education can not improve the quality and quantity of education but only improve the welfare of educators. This means that the increase in the allocation of education funds is mostly used for certification and school operations. The government needs to make two key policy alternatives to address educational issues, first expanding the formal education system quantitatively with some minor modifications in curricula, teaching methods and evaluations without changing the costly educational policies and institutional structures of the labor market it works. Second, try to reform the entire system of education, accompanied by changes to the conditions of demand and supply of school opportunities and redirect the curriculum to fit the actual national needs. The evidence suggests that the first alternative will only exacerbate the problems of unemployment, poverty, inequality of income distribution, and stagnation of the village economy.
- b. FDI has not given a big role in economic development, it can be seen that foreign investment in Indonesia has been exploring more natural resources, and regions that only rely on natural resources tend to have low economic growth, so the government should make policy raising the added value of natural products, so the investment role can be optimized. Criticism of foreign investment has been largely undertaken, especially its impact on development in Indonesia is highly uneven and in many cases the activities of foreign capital firms reinforce the dualistic economic structure and exacerbate the distribution of income. They will divert resources from use to produce food to use to produce sophisticated goods that mostly satisfy only certain groups and tend to exacerbate the imbalance of economic opportunities between rural and urban areas with most operating in urban areas and accelerate the flow of urbanization from village to city. Foreign capital investment companies tend to produce unsuitable goods (only consumed by certain groups), thus

encouraging the luxury consumption pattern through advertising and the resulting goods tend to use capital-intensive technology. So that domestic resources tend to be allocated to socially unprofitable projects. So as to avoid the adverse impact of foreign investment, the government must selectively choose foreign investment, especially those using labor-intensive technology, and tend to produce products for the benefit of the community,

- c. The role of government should be optimized through budget monitoring, namely that money derived from APBD is public money, so it should be used optimally for the benefit of the community. So far, local governments have not optimized the performance-based budget, which is implemented only limited to budget absorption, and this has not affected the outcome of each program implemented. In addition to optimizing and monitoring performance-based budgets, governments need to transparent all matters of economic policy. Transparency allows the wider community to take part in making a positive contribution to government policy, as well as solving various problems in government. Policy-related information taken is an input to political control over public sector policy as well as evaluation and monitoring materials. Transparency guarantees the right to information that helps prevent the use of information by individuals or groups for personal gain, for political gain, as well as for the economy (OECD, 2003). For poor or developing country people, transparency is an important instrument for improving people's lives. Poverty is essentially a multi-dimensional phenomenon that encompasses many things including lack of access to basic services (such as health, education, sanitation, etc.), basic citizens' rights, human resource quality and human development. The rise of corruption further impacts on the weaker pillars of human development, the neglect of human rights, and the legislative framework created to protect the rights of the people (Transparency International, 2003)

## 2. For Next Researcher

The limited area of the province in the study that brought the consequences of generalization of research results to be limited also to the next researcher is expected to cover the entire territory of the province that exists throughout Indonesia. In addition it is also expected to use more precise corruption indicators so that the role of corruption in this deep-rooted country can be photographed to be more comprehensive.

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**ATTACHMENT**

**COMMON EFFECT MODEL**

Dependent Variable: LOG(PDRB?)

Method: Pooled Least Squares

Date: 05/11/16 Time: 21:43

Sample: 2010 2014

Included observations: 5

Cross-sections included: 18

Total pool (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic
LOG(JP?)	0.874787	0.060612	14.43257
LOG(PEDU?)	0.360223	0.069510	5.182322
LOG(PKES?)	-0.252884	0.093297	-2.710520
LOG(PKEL?)	0.142634	0.100167	1.423963
LOG(PPERT?)	0.166637	0.132799	1.254814
LOG(DAU?)	-0.227566	0.048809	-4.662353
LOG(PMA?)	0.167081	0.023529	7.100970
OPINI?	0.007336	0.044660	0.164256
R-squared	0.917027	Mean dependent var	
Adjusted R-squared	0.909944	S.D. dependent var	
S.E. of regression	0.361012	Akaike info criterion	
Sum squared resid	10.68703	Schwarz criterion	
Log likelihood	-31.81943	Hannan-Quinn criter.	
Durbin-Watson stat	0.358211		

**FIXED EFFECT MODEL**

Dependent Variable: LOG(PDRB?)  
 Method: Pooled EGLS (Cross-section weights)  
 Date: 05/11/16 Time: 21:37  
 Sample: 2010 2014  
 Included observations: 5  
 Cross-sections included: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.593023	1.361163	5.578337	0.0000
LOG(JP?)	0.443728	0.096728	4.587359	0.0000
LOG(PEDU?)	-0.017859	0.011527	-1.549239	0.1263
LOG(PKES?)	0.051847	0.014366	3.609075	0.0006
LOG(PKEL?)	0.067515	0.009998	8.752836	0.0000
LOG(PPERT?)	0.067475	0.015670	5.582123	0.0000
LOG(DAU?)	0.041599	0.023221	1.791396	0.0780
LOG(PMA?)	-0.003170	0.002888	-1.097509	0.2765
OPINI?	-0.011929	0.005130	-2.325246	0.0232
Fixed Effects				
(Cross)				
_ACEH--C	-0.152194			
_SUMUT--C	0.889099			
_RIAU--C	1.066045			
_SUMSEL--C	0.642718			
_BENGKULU--C	-0.637459			
_JATENG--C	0.828252			
_KALSEL--C	0.162107			
_KALTIM--C	1.443548			
_SULUT--C	0.021756			
_SULTENG--C	-0.158726			
_NTB--C	-0.401041			
_NTT--C	-0.790735			
_MALUKU--C	-1.331269			
_PAPUA--C	-0.172485			
_MALUT--C	-1.373841			
_BANTEN--C	0.929751			
_PAPUABAR--C	-0.008162			
_SULBAR--C	-0.957361			

**Weighted Statistics**

R-squared	0.999712	Mean dependent var	30.26517
Adjusted R-squared	0.999600	S.D. dependent var	15.32404
S.E. of regression	0.046576	Sum squared resid	0.138836
F-statistic	8886.339	Durbin-Watson stat	1.673814
Prob(F-statistic)	0.000000		

**RANDOM EFFECT MODEL**

Method: Pooled EGLS (Cross-section random effects)  
 Date: 05/11/16 Time: 21:39  
 Sample: 2010 2014  
 Included observations: 5  
 Cross-sections included: 18  
 Total pool (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.678197	1.339923	0.506146	0.6141
LOG(JP?)	0.932107	0.093540	9.964765	0.0000
LOG(PEDU?)	0.015832	0.021943	0.721488	0.4727
LOG(PKES?)	0.044550	0.029561	1.507058	0.1357
LOG(PKEL?)	0.096766	0.024224	3.994674	0.0001
LOG(PPERT?)	0.077440	0.029241	2.648325	0.0097
LOG(DAU?)	-0.025898	0.025379	-1.020433	0.3106
LOG(PMA?)	0.008910	0.007759	1.148470	0.2542
OPINI?	-0.021423	0.008225	-2.604619	0.0109
Random Effects				
(Cross)				
_ACEH--C	-0.285879			
_SUMUT--C	0.257371			
_RIAU--C	0.755859			
_SUMSEL--C	0.256914			
_BENGKULU--C	-0.222970			
_JATENG--C	-0.189311			
_KALSEL--C	0.121960			
_KALTIM--C	1.240612			
_SULUT--C	0.283863			
_SULTENG--C	0.007392			
_NTB--C	-0.444782			
_NTT--C	-0.848045			
_MALUKU--C	-0.881228			
_PAPUA--C	-0.011085			
_MALUT--C	-0.756783			
_BANTEN--C	0.326819			
_PAPUABAR--C	0.740959			
_SULBAR--C	-0.351668			

**Weighted Statistics**

R-squared	0.785981	Mean dependent var	0.932654
Adjusted R-squared	0.764843	S.D. dependent var	0.114208
S.E. of regression	0.055383	Sum squared resid	0.248449
F-statistic	37.18388	Durbin-Watson stat	1.020978
Prob(F-statistic)	0.000000		

### HAUSMAN TEST

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

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	29.752435	8	0.0002

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(JP?)	0.593904	0.932107	0.027524	0.0415
LOG(PEDU?)	-0.002214	0.015832	0.000029	0.0009
LOG(PKES?)	0.044353	0.044550	0.000029	0.9709
LOG(PKEL?)	0.094351	0.096766	0.000008	0.3827
LOG(PPERT?)	0.086466	0.077440	0.000052	0.2124
LOG(DAU?)	0.012633	-0.025898	0.000097	0.0001
LOG(PMA?)	0.002249	0.008910	0.000002	0.0000
OPINI?	-0.015927	-0.021423	0.000004	0.0038

Cross-section random effects test equation:

Dependent Variable: LOG(PDRB?)  
 Method: Panel Least Squares  
 Date: 10/31/16 Time: 01:18  
 Sample: 2010 2014  
 Included observations: 5  
 Cross-sections included: 18  
 Total pool (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.492367	2.712737	2.024658	0.0471
LOG(JP?)	0.593904	0.190457	3.118306	0.0027
LOG(PEDU?)	-0.002214	0.022604	-0.097946	0.9223
LOG(PKES?)	0.044353	0.030051	1.475933	0.1449
LOG(PKEL?)	0.094351	0.024381	3.869807	0.0003
LOG(PPERT?)	0.086466	0.030124	2.870356	0.0056
LOG(DAU?)	0.012633	0.027228	0.463977	0.6442
LOG(PMA?)	0.002249	0.007894	0.284890	0.7766
OPINI?	-0.015927	0.008441	-1.886791	0.0637

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.998799	Mean dependent var	17.14372
Adjusted R-squared	0.998329	S.D. dependent var	1.203000
S.E. of regression	0.049173	Akaike info criterion	-2.950111
Sum squared resid	0.154748	Schwarz criterion	-2.227944
Log likelihood	158.7550	Hannan-Quinn criter.	-2.658891
F-statistic	2128.207	Durbin-Watson stat	1.286854
Prob(F-statistic)	0.000000		

## REDUNDANT TEST

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	465.830979	(17,64)	0.0000

Cross-section fixed effects test equation:  
Dependent Variable: LOG(PDRB?)  
Method: Panel EGLS (Cross-section weights)  
Date: 10/31/16 Time: 01:21  
Sample: 2010 2014  
Included observations: 5  
Cross-sections included: 18  
Total pool (balanced) observations: 90  
Use pre-specified GLS weights

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.965664	0.789142	1.223688	0.2246
LOG(JP?)	0.872011	0.047871	18.21591	0.0000
LOG(PEDU?)	0.265545	0.055140	4.815848	0.0000
LOG(PKES?)	-0.271151	0.066033	-4.106280	0.0001
LOG(PKEL?)	-0.084079	0.066273	-1.268683	0.2082
LOG(PPERT?)	0.534917	0.087371	6.122334	0.0000
LOG(DAU?)	-0.335208	0.060756	-5.517304	0.0000
LOG(PMA?)	0.158270	0.013733	11.52523	0.0000
OPINI?	0.022788	0.035433	0.643150	0.5219

### Weighted Statistics

R-squared	0.964076	Mean dependent var	30.26517
Adjusted R-squared	0.960528	S.D. dependent var	15.32404
S.E. of regression	0.462387	Sum squared resid	17.31791
F-statistic	271.7198	Durbin-Watson stat	0.917594
Prob(F-statistic)	0.000000		

### Unweighted Statistics

R-squared	0.892006	Mean dependent var	17.14372
Sum squared resid	13.90982	Durbin-Watson stat	0.298412

## HETEROSKEDASTISITY TEST

Dependent Variable: LOG((RESID?)^2)  
Method: Pooled Least Squares  
Date: 10/31/16 Time: 01:10  
Sample: 2010 2014  
Included observations: 5  
Cross-sections included: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-72.69606	120.5522	-0.603026	0.5486
LOG(JP?)	4.601519	8.463788	0.543671	0.5886
LOG(PEDU?)	-0.708492	1.004492	-0.705324	0.4832
LOG(PKES?)	1.742465	1.335434	1.304793	0.1966
LOG(PKEL?)	-0.136896	1.083485	-0.126348	0.8999
LOG(PPERT?)	-0.724817	1.338679	-0.541442	0.5901
LOG(DAU?)	-0.444750	1.209997	-0.367563	0.7144
LOG(PMA?)	-0.147989	0.350783	-0.421881	0.6745
OPINI?	-0.134313	0.375123	-0.358051	0.7215
<b>Fixed Effects</b>				
<b>(Cross)</b>				
_ACEH--C	0.064132			
_SUMUT--C	-5.073564			
_RIAU--C	0.426046			
_SUMSEL--C	-4.122177			
_BENGKULU--C	2.453402			
_JATENG--C	-10.48922			
_KALSEL--C	-0.818684			
_KALTIM--C	-0.174762			
_SULUT--C	2.942516			
_SULTENG--C	2.776157			
_NTB--C	-0.326971			
_NTT--C	-4.424340			
_MALUKU--C	3.543593			
_PAPUA--C	0.402809			
_MALUT--C	4.419937			
_BANTEN--C	-5.521731			
_PAPUABAR--C	10.34972			
_SULBAR--C	3.573139			

R-squared	0.388262	Mean dependent var	-8.178292
Adjusted R-squared	0.149301	S.D. dependent var	2.369202
S.E. of regression	2.185194	Akaike info criterion	4.638137
Sum squared resid	305.6047	Schwarz criterion	5.360305
Log likelihood	-182.7162	Hannan-Quinn criter.	4.929358
F-statistic	1.624795	Durbin-Watson stat	2.992848
Prob(F-statistic)	0.061573		

### JLTCOLINEARITY TEST

Dependent Variable: LOG(PDRB?)  
 Method: Pooled Least Squares  
 Date: 05/11/16 Time: 21:43  
 Sample: 2010 2014  
 Included observations: 5  
 Cross-sections included: 18  
 Total pool (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(JP?)	0.874787	0.060612	14.43257	0.0000
LOG(PEDU?)	0.360223	0.069510	5.182322	0.0000
LOG(PKES?)	-0.252884	0.093297	-2.710520	0.0082
LOG(PKEL?)	0.142634	0.100167	1.423963	0.1583
LOG(PPERT?)	0.166637	0.132799	1.254814	0.2131
LOG(DAU?)	-0.227566	0.048809	-4.662353	0.0000
LOG(PMA?)	0.167081	0.023529	7.100970	0.0000
OPINI?	0.007336	0.044660	0.164256	0.8699
R-squared	<b>0.917027</b>	Mean dependent var	17.14372	
Adjusted R-squared	0.909944	S.D. dependent var	1.203000	
S.E. of regression	0.361012	Akaike info criterion	0.884876	
Sum squared resid	10.68703	Schwarz criterion	1.107082	
Log likelihood	-31.81943	Hannan-Quinn criter.	0.974482	
Durbin-Watson stat	0.358211			

### TEST REGRESSION INTER INDEPENDENT VARIABLES

Dependent Variable: LOG(JP?)  
 Method: Pooled EGLS (Cross-section weights)  
 Date: 10/31/16 Time: 01:25  
 Sample: 2010 2014  
 Included observations: 5  
 Cross-sections included: 18  
 Total pool (balanced) observations: 90  
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(PEDU?)	0.168779	0.085684	1.969770	0.0522
LOG(PKES?)	0.460629	0.108392	4.249641	0.0001
LOG(PKEL?)	-0.641254	0.103029	-6.223991	0.0000
LOG(PPERT?)	0.640437	0.150796	4.247049	0.0001
LOG(DAU?)	0.440384	0.042255	10.42215	0.0000
LOG(PMA?)	0.066211	0.028452	2.327109	0.0224
OPINI?	-0.018322	0.052243	-0.350714	0.7267
R-squared	<b>0.754678</b>	Mean dependent var	20.99596	
Adjusted R-squared	0.736944	S.D. dependent var	10.58820	
S.E. of regression	0.629965	Sum squared resid	32.93902	
Durbin-Watson stat	0.412629			

Dependent Variable: LOG(PEDU?)  
 Method: Pooled EGLS (Cross-section weights)  
 Date: 10/31/16 Time: 01:27  
 Sample: 2010 2014  
 Included observations: 5  
 Cross-sections included: 18  
 Total pool (balanced) observations: 90  
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(JP?)	0.218836	0.076225	2.870908	0.0052
LOG(PKES?)	0.676987	0.086317	7.843026	0.0000
LOG(PKEL?)	0.133144	0.121666	1.094347	0.2770
LOG(PPERT?)	0.281603	0.156315	1.801505	0.0753
LOG(DAU?)	-0.219273	0.055854	-3.925816	0.0002
LOG(PMA?)	-0.068220	0.022307	-3.058208	0.0030
OPINI?	-0.180803	0.057543	-3.142054	0.0023
R-squared	<b>0.843460</b>	Mean dependent var	15.60789	
Adjusted R-squared	0.832144	S.D. dependent var	6.987063	
S.E. of regression	0.556382	Sum squared resid	25.69355	
Durbin-Watson stat	0.751560			

Dependent Variable: LOG(PKES?)  
 Method: Pooled Least Squares  
 Date: 10/31/16 Time: 01:30  
 Sample: 2010 2014  
 Included observations: 5  
 Cross-sections included: 18  
 Total pool (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(JP?)	0.156441	0.069212	2.260318	0.0264
LOG(PEDU?)	0.322264	0.073732	4.370723	0.0000
LOG(PKEL?)	0.095930	0.117375	0.817294	0.4161
LOG(PPERT?)	0.359942	0.151160	2.381200	0.0195
LOG(DAU?)	-0.029724	0.057331	-0.518467	0.6055
LOG(PMA?)	0.099924	0.025417	3.931446	0.0002
OPINI?	0.008472	0.052534	0.161272	0.8723
R-squared	<b>0.797723</b>	Mean dependent var	12.39848	
Adjusted R-squared	0.783100	S.D. dependent var	0.911978	
S.E. of regression	0.424731	Akaike info criterion	1.199867	
Sum squared resid	14.97293	Schwarz criterion	1.394296	
Log likelihood	-46.99399	Hannan-Quinn criter.	1.278272	
Durbin-Watson stat	0.310385			

Dependent Variable: LOG(PMA?)  
 Method: Pooled Least Squares  
 Date: 10/31/16 Time: 01:35  
 Sample: 2010 2014  
 Included observations: 5  
 Cross-sections included: 18  
 Total pool (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(JP?)	0.603821	0.274878	2.196684	0.0308
LOG(PEDU?)	-0.392864	0.321384	-1.222413	0.2250
LOG(PKEL?)	0.063499	0.467227	0.135906	0.8922
LOG(PKES?)	1.571052	0.399612	3.931446	0.0002
LOG(PPERT?)	-0.637065	0.615547	-1.034957	0.3037
LOG(DAU?)	-0.216334	0.226454	-0.955310	0.3422
OPINI?	-0.034671	0.208305	-0.166445	0.8682
R-squared	<b>0.344749</b>	Mean dependent var	14.27501	
Adjusted R-squared	0.297381	S.D. dependent var	2.009159	
S.E. of regression	1.684125	Akaike info criterion	3.954956	
Sum squared resid	235.4110	Schwarz criterion	4.149385	
Log likelihood	-170.9730	Hannan-Quinn criter.	4.033361	
Durbin-Watson stat	0.327596			



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