# **Gross Domestic Product in Eastern Indonesia**

A Thesis

Presented as Partial Fulfillment of the Requirements to Obtain the Bachelor Degree in Economics Department



By:

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#### **A BACHELOR DEGREE THESIS**

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# **DECLARATION OF AUTHENTICITY**

Hereby I declare the originality of the thesis; I have not presented someone else's work to obtain my university degree, nor have I presented someone else's words, ideas or expressions without any of the acknowledgments. All quotations are cited and listed in the bibliography of the thesis. If in the future this statement is proven to be false, I am willing to accept any sanction complying with the determined regulation or its consequence.

Yogyakarta, June 4<sup>th</sup>, 2018

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# MOTTOS

"Allah does not burden a soul beyond that it can bear"

(Quran, 2:286)

"Life is like riding a bicycle, to keep you balance, you must keep

moving"

(Albert Einstein)



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# ABSTRACT

This research aimed to analyze the factors that determine Gross Domestic Product in Eastern Indonesia in the period of 2010-2014. Factors analyzed in this research included export, consumer price index (CPI), labor, foreign investment, and planting in the country. The data used in this study were secondary data from statistical central agency (BPS) and the East Indonesia Investment Coordinating Board (BKPM) of East (Maluku Province, Bali Province, South Sulawesi Province, Southeast Sulawesi Province, Papua Province and Central Sulawesi Province) 2010-2014. The analysis used in this research was panel data analysis with fixed effect model. The data was taken from 6 provinces in Eastern Indonesia. The analysis showed that economic growth in eastern part of Indonesia had been influenced significantly by export, consumer price index (CPI), labor, and domestic investment. These factors had a positive impact on economic growth in Eastern Indonesia. Meanwhile, foreign investment had no significant effect on economic growth in Eastern Indonesia.

*Keywords:* Gross Domestic Product, export, consumer price index, labor force, foreign investment, domestic investment.

#### ABSTRAK

Penelitian ini bertujuan untuk menganalisis faktor-faktor yang menentukan produk domestik bruto di Indonesia bagian Timur pada periode 2010-2014. Factor-faktor yang akan dianaslisis dalam penelitian ini antara lain export, consumer price index (CPI), tenagakerja, penanaman modal asing, dan penanaman dalam negeri. Data yang digunakan dalam penelitian ini adalah data sekunder dari badan pusat statistic (BPS) dan Badan Koordinasi Penanaman Modal (BKPM) Indonesia bagian Timur (Provinsi Maluku, Provinsi Bali, Provinsi Sulawesi Selatan, Provinsi Sulawesi Tenggara, Provinsi Papua, dan Provinsi Sulawesi Tengah) 2010-2014. Analisis yang digunakan dalam penelitian ini menggunakan analisis panel data dengan model fixed effect. Data yang digunakan adalah data dari 6 provinsi yang ada di Indonesia bagian Timur. Hasil analisis menunjukan bahwa pertumbuhan ekonomi di Indonesia bagian Timur telah di pengaruhi secara signifikan oleh export, consumer price index (CPI), tenagakerja, dan penanaman modal dalam negeri. Empat faktor tersebut memiliki dampak positif terhadap pertumbuhan ekonomi di Indonesia bagian Timur. Sementara itu, penanaman modal asing tidak mempunyai pengaruh signifikan terhadap pertumbuhanekonomi di Indonesia bagian Timur.

**Kata Kunci:** *Produk Domestik Bruto, export, consumer price index, tenagakerja, penanaman modal asing, penanaman modal dalam negeri.* 

#### **Chapter 1**

#### **INTRODUCTION**

#### 1.1. Study Background

Economic growth is very important for the country. It will help government to know about economic condition in that country. Good country will have good economic growth, and development country always have problem or difficult situation on their economic condition.

According to Todaro (2006), development is a multi-dimensional process involving major changes in social structure, accustomed mental attitudes and national institutions including acceleration or acceleration of economic growth, reduction of inequality and absolute poverty eradication. A development, based on the desire to achieve a welfare in society is needed to improve the quality of life and welfare of the people. The state needs it to increase economic growth.

The economic improvement of a country is closely related to the human quality that exists in that country. People can be the main source of the economic development of the country.People are the main actor in this action. Without human, country cannot grow and without human, country cannot run its role as a country.

Population development will encourage development economy. The growing population will expand the market. Thus, it will increase specialization in the economy. The development of specialization and division of labor will accelerate the development process of economy because the specialization will increase the productivity of power work and encourage technological development (Sukirno, 2011).

Economic development is an effort created by the government to improve an economic situation happening. Economic development that every nation wants to have is the achievement of the welfare of the community, which can be characterized by equitable welfare. To achieve prosperity, the government should strive to increase the prosperity of the community which is characterized by increasing revenue (Sumodiningrat, 2001). It is also the government's attempt to change every aspect of basic society, starting from the social structure of society, community behavior, helping to increase economic growth in a country, and the abundance of poverty in Indonesia (Todaro, 2010).

Economic growth is an activity to improve a country's economic condition, which can be seen from the growth of income generated annually. The national income that has been managed using data collected annually is needed to find out whether the economy in Indonesia has increased or not. It can be known by looking at changes that occur in the national income by comparing the current data with the previous year data (Sukirno, 2011). In Indonesia, economic growth is fickle. Every election of the presidency, Indonesia could have a drastic change or small-scale decline. This is because the economic growth in Indonesia is very unstable.

In economic growth there are two impacts, negative impacts as well as positive impacts for a country. Positive impact will be seen if there is a significant change to the increasing GDP which will change the social state of society. On the other hand, the negative impacts will be seen if there is significant change on the decreasing of GDP which will make poverty and unemployment rate increases (Sukirno, 2011).

According to Boediono in Tarigan (2007), economic growth is a process of per capita output increase in the long run. Economic growth is a change marked by an increase in Gross Domestic Product or real income. This increase will encourage the welfare of society and improve the standard of living of society in general. Economic growth is needed for a country's economic development. Therefore, economic development will be achieved if there is an increase in income of every region in Indonesia.

Economic growth occurs when there is positive economic development. Meanwhile, economic development has a close relationship with changes that occur in society or changes that occur in a social system in society. The changes that occur in a positive society will help the economic development efforts in a region. If the regional development has succeeded, there will be changes that will help increase the economic growth in Indonesia. Thus, it can be concluded that in an effort to increase economic growth in a country, it is necessary to change the economy of the community in every region in Indonesia. It is because the change in society is closely related to the economic growth of the country (Todaro, 2000).

To achieved a successful regional development in mark with the existence of good economic growth, economic growth will be achieved if there is an increase in all aspects of the economy, in the form of quality goods, quantity of goods, and prices of goods that increased compared with the previous years. Changes that occur as a whole will have an impact on the economic development of a region. Economic growth is the growth of society's overall income as a reflection of the increase of all added value created in a region (Arsyad, 1999).

However, this does not always go smoothly as planned. Development within an area of Indonesia will have a change gap, in which each region will have a difference of change, or uneven growth. This is similar to what happened between western Indonesia and eastern Indonesia (Sjafrizal, 2008). Eastern Indonesia is part of Indonesia that still had a lot of problem on economic growth. Some of the problems are high poverty, most of the people are labors and still high unemployment.

Based on the Presidential Decree no.41 (1987), Indonesia is divided into three area which is western area, central area, and eastern area. In this research, the researcher tried to analyze the gross domestic product in Eastern Indonesia. Eastern Indonesia has two province which is Maluku Province and Papua province. Because this research used panel data analysis, the researcher took four provinces from central Indonesia but the location was near from eastern area. Those four provinces were South Sulawesi Province, Southeast Sulawesi Province, Bali Province, and Central Sulawesi Province.

Eastern Indonesia has slow progress in economic growth. If we compare economic growth in Eastern Indonesia with Western Indonesia, Western Indonesia is still dominant. A lot of province in Western Indonesia has a good economic condition, such as Jakarta, Yogyakarta, Lampung, and others province. If we look at BPS of Western Indonesia, they have a good development in economic development especially.

In some provinces in Western Indonesia, they already have a good infrastructure. Every year they increase the infrastructure, such as street, service, and others. In Eastern Indonesia, they are still lack on their development and infrastructure because of many problems, such as the government role, lack of educated people, and most people in Eastern Indonesia, who work in the company are people that come from the Jakarta, Medan, Lampung, Semarang, Yogyakarta, and other place who are not the local people.

In Eastern Indonesia, most of the owners of the company are foreigners. Actually in Eastern Indonesia, they are potential to be a better economic condition, if the government has a good regulation on that place. Eastern Indonesia has a lot of natural resources but the problem is that the area is already bought by the foreigners.

#### Table 1.1

#### **Gross Domestic Product in Eastern Indonesia (US\$)**

Year	Maluku	Bali	South Sulawesi	Southeast Sulawesi	Papua	Central Sulawesi
2010	184285	93749349.	17174074	48401152	11080817	51752070
	84.55	70	4.10	.38	6.62	.61
2011	213678	10461218	19828908	55758554	10818875	60716294

	57.82	9.30	4.82	.87	6.41	.86
2012	213678	11798740	22828547	64693984	11281256	69637920
2012	57.82	3.30	3.12	.56	0.53	.82
2013	278344	13440752	25883641	71041253	12285717	79842224
	42.10	9.20	6.19	.61	0.47	.70
2014	316564 82.62	15639573 2.20	29803380 4.83	78622151 .49	13332998 1.21	90246273 .54

Source: BPS Growth Domestic Product in Eastern Indonesia (2015)

The Growth Domestic Product in Eastern Indonesia was taken from BPS such as the province of Maluku, Bali, South Sulawesi, Southeast Sulawesi, Papua, and Central Sulawesi. It showed that every year GDP in each Province increases.

For the increasing economic and infrastructure in Eastern Indonesia, the government needs assistance in financial condition. Investment is one of the ways for the government to help the financial condition in Eastern Indonesia. Investment is a resource of economic development, income growth, and the decrease of unemployment. In fact, investment is an important component of the national income and economic growth (Adnan, 2010).

Investment plays an important role in economic growth. It is important to determine an investment strategy that will balance the economic growth and will have sustainable development (Triyodo, 1996). Investment is a commitment of funds, directly or indirectly, to one or more assets in the hope of increasing future wealth. Because investment is one of the tools that the government can do to take the income from the investor who invest their asset to the regional government, this kind of asset will help increase the economic growth in Eastern Indonesia (Lutfi, 2010).

Investment is divided into two things, namely domestic investment and foreign direct investment. Domestic investment is capital invested by domestic investor on the area they want to invest. Furthermore, foreign direct investment is investment done by foreigners who have willingness to invest their capital business in the area. Both investments are mutually beneficial to the regions. If local governments are able to take both of these matters well. In this research, the researcher chose the foreign investment that was used to analyze whether there was any connection with the economic growth that occurred in Eastern Indonesia or not.

To increase investment activity, local governments need export activities, which will help companies in Eastern Indonesia to ship their products to other countries. This will also help economic growth for Eastern Indonesia. Exports will generate foreign exchange which will be used to finance the import of raw materials and capital goods required in the production process that will form value added. The aggregation of added value generated by all production units in the economy is the value of Growth Regional Gross Economic (Ekaynayake, 1999).

The indirect contribution of the export sector in development can be divided into three groups. Firstly, by exports will encourage and enhance the development of domestic and foreign direct investment. This is because many industries have experience on market expansion as a result of the development of the export sector. Secondly, by the development of the export sector in development will facilitate the entry of innovation in technology, market and business expertise. Industries will be encouraged to import new technology from abroad in the face of foreign competition. Thirdly, in the presence of goods that can be imported from abroad, the variety of goods will be plenty and will encourage the increase in consumption. The export sector has so many benefits that it must be driven by its growth (Amalia, 2012).

#### Table 1.2

			South	Southeast		Central	
Year	Maluku	Bali	Sulawesi	Sulawesi	Papua	Sulawesi	
2010	111.6	494914	1459.85	70589.94	3116512789	97.25	
2011	130.3	576331	1675.77	95862.48	2529674059	107.14	
2012	130.4	589234	1947.91	826379.56	3728043282	162.38	
2013	134.9	605100	2318.81	941543.78	4657427418	286.33	
2014	166.7	628159	190401	975891.38	5080211565	441.92	
Source: BPS Export in Fastern Indonesia (2015)							

#### **Export in Eastern Indonesia**

Source: BPS Export in Eastern Indonesia (2015)

From the data above, it showed the export in each province every province has increasing. The export activity is always correlated with the production activity. When the production activity in Eastern Indonesia is increasing, the export activity will also increase.

The population growth that happens every year indicated that every population growth is something that will help economic growth. Increasing population means that the labor force in the area has increased. Therefore, the growth of the labor force will have a positive impact on economic growth if the government has provided employment to be ready-to-work as labor force. It aims to increase productivity in the area (Samuelson, 1997) Unemployment is a state of inevitable existence, whether in developing countries or in developed countries though. Unemployment has limitations that needs attention because unemployment is very influential on the occurrence of problems of various criminal and social, political and poverty (Amalia, 2012). Unemployment is caused by the existence of modern industry that rejected the workers who do not have high education level. Eastern Indonesia has higher unemployment than Western Indonesia. Unemployment that occurred in the Eastern Indonesia region is caused by prosperity and welfare of declined society (Todaro, 1997).

Consumer price index is one factor that affects the level of GDP that will cause an impact on demand for goods. When the price of goods rises, the level of buyers or demand will decline but if the goods are the primary goods for humans, the demand for goods will continue to increase. Consumer Price Index has positive effect on the economic growth of the region which will increase regional income (Case & Fair, 2002).

#### Table 1.3

**Consumer Price Index in 5 Province of Eastern Indonesia** 



Sources: BPS Maluku, BPS Bali, BPS Sulawesi Selatan, BPS Sulawesi Tenggara, BPS Papua, BPS Sulawesi Tengah (2015)

According to BPS data, the CPI is an index that calculates the average of price changes in a period, from the list of prices of goods and services consumed by residents / households within a certain time frame. The type of goods and services are grouped into 7 groups, namely foodstuffs; finished food, beverages, cigarettes, and tobacco; housing; clothing; health; education, recreation and sports; transport and communication. Eastern Indonesia, as seen from the BPS data, shows that there is an increase every year from 2010-2013, but decreases in 2014. It means that in Eastern Indonesia, the economic growth based on Consumer Price Index is increasing.

Based on the description above, this research examined the determinants of economic growth in Eastern Indonesia; they were export, consumer price index (CPI), labor force, foreign direct investment, and local investment. Thus, the title of this research is formulated as follows "Growth Domestic Product in Eastern Indonesia".

### **1.2. Problem Formulation**

Based on the background above, the problem formulations are as follow:

- 1. Does Export influence Gross Domestic Product in Eastern Indonesia?
- Does Consumer Price Index (CPI) influence Gross Domestic Product in Eastern Indonesia?
- 3. Does Labor Force rate influence Gross Domestic Product in Eastern Indonesia?
- 4. Does Foreign Direct Investment (FDI) influence Gross Domestic Product in Eastern Indonesia?
- 5. Does Domestic Investment/Local Investment influence Gross Domestic Product in Eastern Indonesia?

#### 1.3. Research Objective

Based on the problem formulation above, this research objective are as follow:

- To analyze the influence of Export on Gross Domestic Product in Eastern Indonesia.
- To analyze the influence of Consumer Price Index (CPI) on Gross Domestic Product in Eastern Indonesia.

- To analyze the influence of Labor Force on Gross Domestic Product in Eastern Indonesia.
- To analyze the influence of Foreign Direct Investment on Gross Domestic Product in Eastern Indonesia.
- 5. To analyze the influence of Local Investment on Gross Domestic Product in Eastern Indonesia.

#### **1.4. Research Contribution**

The benefits of this research:

- For the researcher, this research will provide knowledge and a deep understanding of the factors that affect the Gross Domestic Product in Eastern Indonesia.
- For the future researcher, it is expected that this research could be an alternative reference for further research related to the problem of Gross Domestic Product in Eastern Indonesia.
- For government, this research will provide suggestion to the government associated with the development of Gross Domestic Product in Eastern Indonesia in order to take the right policy in the future.

#### **1.5. Systematical Writing**

The researcher uses systematics of writing to simplify and clarify the writing of this thesis. Thus, it will be more focused. There are five chapters in this thesis as follow:

#### **CHAPTER I: INTRODUCTION**

This chapter contains background of the study, problem identification, problem formulation, problem limitation, research objectives, research contributions, and systematical writing.

# CHAPTER II: LITERATURE REVIEW AND THEORITICAL FRAMEWORK

This chapter describes the results of research done previously in the same field as well the basic theory used to approach the issues which is examined.

#### **CHAPTER III: RESEARCH METHOD**

This chapter elaborates the method of analysis used in the research and data sources used.

#### **CHAPTER IV: DATA ANALYSIS & DISCUSSIONS**

This chapter contains the result from the research data that have been obtained previously and analysis in order to find out the influences of the respective data obtained.

#### **CHAPTER V: CONCLUSIONS & RECOMMENDATIONS**

This chapter is the concluding chapter which contains the conclusions and recommendations from the analysis results of the data in the previous chapters.

#### **Chapter II**

#### LITERATURE REVIEW & THEORETICAL FRAMEWORK

#### 2.1. Literature Review

In determining the variables and analysis in this research, it is necessary referring to previous researches that discussed about the factors that determine economic growth in other places.

Hukubun and Rotinsulu (2012), analyzed North Sulawesi as one of the economic centers with a high amount of labor, with the government investment and private investment that can be the amount of labor availability that affect the rise and fall of economic growth rates in North Sulawesi. This study aimed to examine the effect of economic growth on employment, the effect of investment on economic growth and employment. The analysis model used path analysis as the secondary data from the central statistics agency. The results showed that government investment has no effect on economic growth, the effect of government investment on employment through economic growth is positive. Thus, economic growth can serve as an intervening variable between government investment and employment. The effect of private investment on labor through economic growth is negative. Thus, economic growth cannot be functioned as an intervening variable between private investment and employment in north Sulawesi.

Taufik, Eny, and Fitriadi (2014), this study aims to determine the effect of investment and export on economic growth and employment of East Kalimantan Province. The research analyzed the data based on the primary data of investment, export, economic growth and labor from BPS institution of East Kalimantan Province from 2003 to 2011. Based on sub-structure model 1, analysis model through F-test shows that independent variables (investment and export) have a significant influence on economic growth because the probability value of F-statistic is smaller than the real level (0.008 <0.05). Thus, it can be said that the two independent variables used in this model have a real effect on economic growth at a confidence level of 5% (0.05). In the sub-structural model 2, it shows that the three independent variables (investment, export, and economic growth) have a significant influence on labor absorption because the F-statistics probability value is less than the real level used (0.000 <0.05). Thus, it can be said that these three independent variables have a real effect on the absorption of labor at a confidence level of 5% (0.05).

Kholis (2012) stated that FDI (Foreign Direct Investment) is believed to be one of the important sources of financing for developing countries including Indonesia. The presence of FDI is expected to provide a substantial contribution to development through the transfer of assets, technology and managerial skills to improve an economic growth. This research analyzes the effect of FDI on economic growth in Indonesia from 2006 to 2010. The method of analysis used Pooled Least Square (PLS). The variables employed in this study are economic growth, growth of FDI, growth of export and growth of import. By applying the panel data model, it is expected to be known to what extent the presence of FDI in promoting economic growth in Indonesia. Calculation results showed that the growth of FDI and import growth have a negative impact on economic growth in Indonesia, while the growth of exports has a positive effect on economic growth. These results indicate that the main source of economic growth still depends on exports.

Sunusi, Kumenaung, and Rotinsulu (2014) explained that his research object is North Sulawesi Provincial Government entitled "Analysis of Total Employment, Education Level, the Government Expenditure on Economic Growth and its Impact on Poverty in North Sulawesi Provincial in 2001-2010". The main purpose of this study was to analyze the influence of the labor force, education level, government spending on economic growth and its impact on poverty in North Sulawesi. As the data used in this study is secondary data of time series data from 2001 to 2010 which is obtained from the Central Statistics Agency of North Sulawesi. The method used in this study is Path Analysis. The analysis showed that the variable of labor, government spending and education level of poverty is positive and have significant impact on economic growth in the province of North Sulawesi. Especially in North Sulawesi, the Economic Growth fluctuated from 2006 until 2009. There is an increase of Economic Growth annually. While in 2010 there is a decrease. The increase and the decrease can be influenced by labor, education level, government spending, and poverty. The total labor force in North Sulawesi continued to rise. Similarly occurred on the level of education and government spending continue to rise. In contrast to the level of poverty in which every

year, the decline can be seen from the success of the work force each year that suffer from rising.

According to Jufrida and Nasir (2016), this study aims to analyze the effect of foreign direct investment (FDI) and domestic investment on Indonesian economic growth. The data used was time series data on Indonesian economy annually. Furthermore, the analysis was conducted with quantitative method using Ordinary Least Square (OLS) regression method with the multiple regression models. The result shows that Foreign Direct Investment (FDI) has a positive but insignificant effect on Indonesia economic growth. On the other hand, Domestic Investment has a positive significant effect on Indonesian economic growth. Based on the research results, it is recommended that the Indonesia government has to maintain the stability of economic variables that can stimulate foreign and domestic investment in order to achieve sustainable economic growth.

Dewi and Triaryati (2013), foreign investors (Foreign Direct Investment) assist Indonesia in developing the nation. FDI fund adjunct a financial development in Indonesia. This study aimed is to determine the effect of economic growth, interest rates and tax as independent variable on foreign direct investment as a dependent variable. This research data source is time series of secondary data within 13 years period of time (2001-2013). This study uses multiple regression analysis technique. This research found that economic growth has a significant positive effect on foreign direct investment and the tax rate has a significant negative effect on foreign direct investment.

Juita, Wardi, and Aimon (2014) explained that this study aims to analyze: (1) the influence of investment, inflation and the exchange rate of the economic growth in Indonesia and (2) the effect of exchange rate, money supply, interest rates and economic growth of SBI on stock prices in Indonesia. This study uses a simultaneous equation model analysis tools using Indirect Least Squares (ILS). The study concluded that: (1) investment and exchange rate has jointly significant effect on economic growth in Indonesia, while inflation is not significant and has negative effect on economic growth in Indonesia and (2) The exchange rate, money supply, interest rate of SBI and economic growth have significant effect on stock price index in Indonesia. This study only uses five macroeconomic variables. Thus, further research needs to find other macroeconomic variables that affect the economic growth and stock prices.

According to Purbadharmaja (2017), economic growth is a change in the level of economic activity that lasts from year to year. An economy is said to be experiencing a change in its development if the level of economic activity is higher than that achieved in the previous period. The research is conducted in the province of Bali from 2004 to 2015. As stipulated in Law No. 10 of 1998, which meant the bank is an entity that collects fund from the public in the form of savings and channel them to the public in the form of loans and or shape other-shape in order to improve the standard of living of the people. Thus, the bank is part of a financial institution intermediary function that bridges the benefit of the excess funds (depositors or creditors) and those who need the

funds (the borrower or debtor). Economic Growth and Total Credits can be pursued through the interest rate, Consumer Price Index and exchange rate.

Karlina (2017) stated that GDP (Gross Domestic Product) is one of the factors that involved many sectors and the primary indicators used to gauge the health of a country's economy. Therefore, it is important to know the factors that affecting number of GDP in one country, especially in Indonesia. The purpose of this study is to analyze the factors that affect the change of GDP in Indonesia. The author uses a quantitative methodology with multiple regressions and shows the relationship between the dependent variable and independent variable. Independent variables in this case are population, interest rate, and inflation rate. In this study, it is found that the change of Gross Domestic Product (GDP) in Indonesia from 2011 to 2015 is affected by inflation rate and not by CPI (Costumer Price Index).

Yesika and Karmini (2015) stated that one of important indicators in determined success of economic development is economic growth. The role of government in order to reach success of development by determine direction of development policy and to reach development goal will be need a good development planning to realize constant economic growth in order to improve public prosperity by improve local origin income, employment and investment. This study aims to find out the effect simultaneously and partially the local origin income, employment and investment toward economic development. Source of data was secondary data by using panel data that consist of time series data during five years and cross section data with nine regencies /city that result 45 observations. Analysis technique to problem solving this study was multiple regressions linear. The result showed that simultaneously local origin income, employment and investment have significant effect toward economic development in Bali. Partially local origin income, employment and investment have significant effect toward economic development in Bali province, while investment had positive effect but it not significant.

De Fretes (2007) stated that in connection to the influence of investment on the economic growth, the aims of this research are to characterize the influence of both domestic and foreign investments for the employment and for the income per capita of people in Papua Province. This research used the secondary data that was collected from some related departments and previous study. The data was analyzed by using mathematics, econometrics, and particularly the regression analysis model. Based on the result of analysis, foreign investment has significant influence on employment opportunities and income per capita because foreign investment oriented more on logging sub sector that exploits for products (plywood industry), mining sector, etc. that provide many job opportunities. Thus, they have positive impact for the increase of income per. capita. From result of analysis, domestic investment does not have significant influence on job opportunities and income per capita because domestic investment oriented more on the development of some sectors that absorb less logging sector; chemical industry, expenditure for general facilities, educational and teaching expenditures, Representatives Secretariat expenditure, and other expenditures. Some steps required to be

done and view as positive phenomenon to increase domestic investment and overseas investment are: (I) reform the investment service bureaucracy, build the investment potential information system, and improve and provide the physical infrastructures. (2) It is therefore, suggested that local government should have more consistent policy to characterize the productive sectors in order to support the less productive ones; (3) the policy of local government to develop the function of the Kaped and Kadin that must serve their functions.

#### **2.2 Theoretical Framework**

#### 2.2.1. Definition of Economic Growth

According to Budiono (1999), economic growth is a process of long-term per capita output growth that occurs when there is a tendency (per capita output to rise) that comes from the internal process of the economy (the forces within the economy itself), not from outside. In other words is self-generating, which means that the growth process itself produces a force or momentum for the continuation of that growth in subsequent periods.

Therefore economic growth is an increase in the amount of goods in production that will help increase economic growth of a region. As Budiono has said that economic growth cannot be interpreted as short-term growth, which only increases in the near future. However, it can be cited as an economic growth if production activities increased in the long term.

Based on the above explanation about economic growth, it can be interpreted that economic growth can be seen from GRDP growth in eastern part of Indonesia.
#### 2.2.1.1. Theory of Economic Growth

The economic progress of a region shows the success of a development even though it is not the only indicator of development success (Todaro, 2006). There are three sizes to assess economic growth: output growth, output growth per worker, and output growth per capita. The output growth is used to assess the growth of production capacity that is influenced by the increase of manpower and capital in the region. Output growth per labor is often used as an indicator of a change in the competitiveness of the region (through productivity growth). While per capita output growth is used as an indicator of changes in economic prosperity (Bhinadi, 2003).

There are several theories about economic growth as described below:

#### 2.2.1.1.1. Theory of Economic Growth according to Adam Smith

Adam Smith was the first economist to give much attention to the issue of economic growth. In his book An Inquiry into the Nature and Causes of the Wealth of Nations put forward the systematic process of economic growth in the long run systematically. According to Smith (1776), one of the economic growth processes is there is growth of Total Output. The three main elements of a country's production system according to Smith (1776) are as follow:

a. Available natural resources (soil production factors) i.e. available natural resources is the most basic container of a community's production activities and is a "maximum limit" for economic growth. That is, if these resources have not been fully utilized, the population and existing capital stocks play

a role in output growth. Such output growth may cease if the resources are used in full.

- b. Human resources (population) has a passive role in the process of output growth, the population will adjust to the needs of the workforce of a society.
- c. The stock of existing capital goods is able to increase and its specialization and division of labor which in turn can increase per capita productivity.

This specialization and division of labor can result in output growth. Such specialization can improve the skills of every worker in his field and the division of labor can reduce the time lost during the transition of jobs.

According to Smith, there are two important factors behind the process. The accumulations of capital for the creation of output growth are as follow:

1. The growing market,

2. The existence of a profit level above the minimum profit.

Smith (1776) stated that the market potential can be achieved maximally if the public is given the widest possible freedom to conduct exchanges and conduct economic activities. To encourage economic growth, it is necessary to reform and eliminate regulations, laws that hamper freedom of business and economic activities. This level of profit is closely related to the market area i.e. if the market does not grow as fast as capital growth, the profit rate will decline and will reduce the enthusiasm of capital owners to make capital accumulation. According to Smith (1776) in the long term, the profit rate will decrease and will eventually reach the minimum profit level on the stationary position of the economy (Arsyad, 1992: 49-51).

## 2.2.1.1.2. Theory of Economic Growth according to Harrord-Domar

The Harrod-Domar growth theory is an extension of Keynes's (1936) analysis of national economic activity and labor issues. This analysis is considered incomplete because it does not discuss long-term economic issues. Harrod-Domar's theory analyzes the conditions necessary for the economy to grow and develop in the long term. In other words, this theory tries to show the conditions needed for the economy to grow and develop steadily (Arsyad, 1999: 64-69).

Harrod-Domar theory has several assumptions, namely:

- a. The economy in full employment and the capital goods that are made up in society are used in full.
- b. The economy, which consists of two sectors, namely household and corporate sector, means that the government and foreign trade do not exist.
- c. The amount of community savings is proportional to the magnitude national income, means that the saving function starts from the zero point.
- d. The propensity to save tendency remains large, as the ratio between capital-output (capital output ratio = COR) and capital-output increases ratio (incremental capital-output ratio = ICOR) (Arsyad, 1999: 58).

In Harrod-Domar's theory, its production function is L-shaped because some capital can only create a certain level of output (capital and labor are not substitutive). To produce the output of Q1 required K1 capital and labor L1, and if the combination changes then the output level changes. For outputs of Q2, for example can only be created if the capital stock is K2.

According to Harrod-Domar (1957), every economy can set aside a certain proportion of its national income only to replace the defective capital goods (buildings, equipment, materials). However, to grow the economy, new investments are needed in addition to the stock of capital. If we assume that there is a direct economic relationship between the capital stock (K) and the total output (Y), for example, if 3 IDR of capital is needed to generate (increase) total output of 1 rupiah, any net addition to the capital stock (new investment) will result in an increase in total output in accordance with the capital-output ratio. If we set COR = k, the saving tendency ratio (MPS) = s which is a fixed proportion of total output, and investment is determined by the saving rate, we can construct a simple economic growth model as follows:

 Saving (S) is part of a certain amount or (s) of national income (Y). Therefore, we can also write the relationship in the form of a simple equation:

$$\mathbf{S} = \mathbf{sY} (2.1)$$

2. Net investment (I) is defined as a change in capital stock (K) which can be represented by  $\Delta K$ . Thus, we can write the second simple equation as follows:

$$I = \Delta K \qquad (2.2)$$

However, since the amount of capital stock, K, has a direct relationship with the amount of national income or output, Y, as has been shown by the capital-output ratio, k, then:

or

$$\Delta K / \Delta Y = k$$

Or, finally

$$\Delta k = k \Delta Y$$
 (2.3)

Finally, since the national net savings (S) must be equal to the net investment (I), the next equation can be written as follows:

$$\mathbf{S} = \mathbf{I} \tag{2.4}$$

From equation (2.1) it is known that S = sY and from equations (2.2) and (2.3), it is known that:

Thus, we can write the "identity" of saving equals investment in equation (2.4) as follows:

$$S=sY=k\Delta Y=\Delta K=1$$
(2.5)

Or it can be summarized to be:

$$sY = k\Delta Y$$
 (2.6)

Furthermore, if both sides of equation (2.6) are divided first by Y and then by K, the following is obtained:

$$\Delta Y/y = s/k$$
 (2.7)

The left-hand side of equation (2.7) or  $\Delta Y / y$  is actually the rate of change or growth rate of GDP (i.e., the percentage change rate of GDP) (Todaro, 2006: 128 - 129).

Equation (3.7), which is a simplified version of the famous equation in Harrod-Domar's economic growth theory, clearly stated that the growth rate of GDP ( $\Delta Y / y$ ) is determined jointly by the national saving ratio, s, as well as the capital-output ratio national, k. More specifically, the equation stated that without government intervention, the rate of growth of the national income will have direct or "positive" proportional to the saving rate (i.e. the more part of GDP is saved and invested, the greater the GDP growth generates) and will have "negative" or inverse proportional to the capital-output ratio of an economy (i.e. the greater the national capital-output ratio or k, the lower the GDP growth rate).

The economic logic contained in equation (3.7) above is very simple. In order to grow rapidly, every economy must save and invest as much as possible part of its GDP. The more that can be saved and then invested, the faster the growth rate of the economy. However, the actual rate of growth that can be reached at any level of savings and investment, the additional amount of output obtained from an additional unit of investment, it can be measured by inverse the capital-output ratio, k, since this opposite ratio, i.e. 1 / k, is outputcapital ratio or output-investment ratio. Furthermore, by multiplying the new investment rate s = I / Y with the productivity level of 1 / k, there will be a growth rate in which the national income or GDP will rise (Todaro, 2006: 129-130)

## 2.2.1.1.3. Theory of Economic Growth according to Solow Swan (Neo-Classic)

This theory explains how savings and investment rates, population growth and technological progress affect the level of economic output and growth over time (Mankiw: 2000). In this theory technological developments are assumed to be exogenous variables. The relationship among output, capital and labor can be written in the form of the following functions.

 $y = f(k) \dots (1)$ 

From equation 1 it appears that output per worker (y) is a function of capital stock per worker. In accordance with the production function which is applicable to the law of "diminishing-return", where at the initial production point, the addition of capital per labor will increase output per worker more. At a certain point, the addition of capital stock per worker will not increase output per worker and even will be able to reduce output per worker. The investment function is as follows.

$$i = s f(k) \dots (2)$$

In that equation, the level of investment per worker is a function of capital stock per worker. Capital stock itself is influenced by the amount of investment and depreciation where investment will increase capital stock and depreciation will reduce it.

$$\Delta \mathbf{k} = \mathbf{i} - \gamma \, \mathbf{k} \mathbf{t} \, \dots \, (3),$$

 $\gamma$  is the depreciation portion of capital stock. A high savings rate will have an effect on the increase in capital stock and will increase the income resulting in rapid economic growth. But in a certain period of time economic growth, it will slow down if it has reached what is called steady-state level of capital. This condition occurs if the investment is equal to depreciation - accumulation of capital. In addition to the saving rate, growth is also influenced by population growth. More population growth can account for sustainable economic growth. Population increases the number of labor and by itself will reduce capital stock per worker. The rate of population growth and the level of depreciation together will reduce the capital stock. The effect of mathematical population growth can be written as follows.

where n is the rate of population growth. In this theory it is predicted that countries with high population growth will have low GDP per capita (Mankiw, 2000).

Technological advances in Solow theory are regarded as exogenous factors. In the next formulation the production function is Y = f (K, L, E), where E is the labor efficiency. Next y is Y / LE where LE shows the effective amount of labor. The effect of technological advances on capital change can be formulated as follows:

where g describes technological progress through labor efficiency. The impact of technological advancement is to create sustainable economic growth as it optimizes the efficiency of the growing labor force.

According to Solow's theory, there are several things that are done to spur economic growth. Increasing the share of savings will increase the accumulation of capital and accelerate economic growth. In addition, it increases the appropriate investment in the economy both in physical and nonphysical form. Encouraging technological advances can increase income per work force so that the provision of opportunities to innovate in the private sector will have a major impact on economic growth.

#### 2.2.1.1.4. Theory of New Economic Growth

This theory provides a theoretical framework for analyzing endogenous growth, economic growth is the result of within the economic system. According to Romier (1994) in Todaro (2004), this theory assumed that economic growth is more determined by the production system, not from outside the system. Technological advances are endogenous. Growth is part of the decisions of economic actors to invest in knowledge. The role of capital is greater than just part of income when capital is growing not only physical capital but about human capital. With this capital, when human beings have good qualities it will cause the increase of productivity levels, and they create new things based on their idea to develop their own regional economic growth.

Capital accumulation is a major source of economic growth. The definition of capital is expanded by incorporating science models and human capital. Technological change is not something that comes from outside the model or exogenous but technology is part of the process of economic growth. In the theory of endogenous growth, the role of investment in physical capital and human capital contributes to long-term economic growth. Savings and investments can promote sustainable economic growth (Mankiw, 2000). Not only investing in money alone, humans can also be a valuable investment of a country when these two economic resources are mutually beneficial.

## **2.2.2. Definition of Export**

There are two definitions of export as follow:

- According to Marolop (2011: 63), Export is the expenditure of goods from the Indonesian customs area to be sent abroad by following the applicable provisions, especially regarding customs regulation.
- b. According to Law no. 10 of 1995 on customs, Export is the activity of removing goods from the Customs Area, and goods which have been transported or to be loaded in the carrier facilities for removal from customs areas are deemed to have been exported.

#### 2.2.3. Definition of Costumer Price Index (CPI)

According to Lerner (cited in Gunawan, 1995) inflation is a condition in which there is excess demand for goods in the economy as a whole. The advantages of these items can be interpreted as excessive spending levels for the final commodity compared to the maximum level of output achieved in the long run, with certain production sources. Vanieris and Sebold in Muana (2001) defined inflation as a tendency to increase prices where the increase is continuous and not just on a single commodity. According to Mishkin (2008), inflation is a condition in which there is an increase in the price level (CPI) of various general and constant goods.

Understanding Consumer Price Index (CPI) is the index number that describes the change in prices of goods and services consumed by the public in general at a certain period with a predetermined time period. And CPI can be interpreted also as the average size of price changes of goods and services in a certain period (Noor Azhar Fauzi, 2012). Therefore, CPI or CPI is an important indicator of financial market. Changes in prices of goods and services will affect the change of GDP of a State. According to Case & Fair (2002), Gross Domestic Product is the market value of all finished goods and final services produced during a certain period by factors of production located in a country.

#### 2.2.4. Definition of Labor Force

According to the Principal of Employment No. 14 of 1969, the labor force is anyone who can do the work both inside and outside the working relationship to produce goods or services to meet community needs. In related to this, the coaching of labor is the increase of the ability of the effectiveness of labor to do the work. According to Law no. 13 of 2003 on Manpower, the labor force is any person who can do the work to produce goods and or services either to meet a need of its own or for the community.

Based on the above explanation, it can be interpreted that the workforce can help to increase the productivity of society, which will increase economic growth in the area. When outputs generated by the labor force increase the amount of goods or products produced and the number of products increases in accordance with the understanding of economic growth, it will increase the regional economy and also increase regional income.

## 2.2.5. Definition of FDI

Foreign Investment (PMA) may be interpreted as an investment made by a private party in the country of origin of the capital owner, or investment of a country to another country on behalf of the government of the country of the capital owner (Jhingan, 2000). Investment is the first step of production activities. With such a position, investment is essentially the first step of development activity. The dynamics of capital investment affects the low economic growth, reflecting the sluggish development (Dumairy, 1999).

According to Jhingan (2000), developing countries are unable to start basic industries and key industries individually. Once again through foreign capital, they can establish steel plants, machine tools, heavy electronics and chemical plants, and others. Moreover, the use of foreign capital in an industry will be able to encourage local companies by reducing costs in other industries that can lead to the expansion of the average eye of other related industries. In this case foreign capital will help to industrialize it.

#### **2.2.6.** Definition of Domestic Investment (PMDN)

Domestic Investment (PMDN) as a domestic source is the main key to national economic growth. On the one hand, it reflects effective demanded, on the other hand it creates productive efficiency for future production. This capital investment process generates national output in various ways. Investment in capital goods does not only increase production but also increases labor. This formation or investment will lead to technological advancement. Technological advances in turn lead to specialization and largescale production savings. PMDN generates an increase in the magnitude of national output, income and employment, thus solving inflation, and balance of payments problems and make the economy free from the burden of foreign debt. The sources that can be directed to capital formation are the increase in national income, the reduction of consumption, the mobilization of savings, the establishment of financial institutions, the movement of gold deposits, the increase of profits, fiscal and monetary measures and so on. Saving the government and society is very important in capital formation.

The understanding of PMDN is contained in Law no. 25 of 1997. It is said that Capital Investment is an activity of investing to conduct business in the territory of the Republic of Indonesia. Domestic investment is an investment by Indonesian citizen, Indonesian business entity, the Republic of Indonesia, or a region that performs investment in the territory of the Republic of Indonesia. Domestic capital is capital owned by the state of the Republic of Indonesia, an individual Indonesian citizen, or business entity in the form of a legal entity or non-legal entity. Domestic investment can be in the form of a business entity, legal entity, not legal entity or sole proprietorship, or in accordance with the provisions of legislation.

Law no. 25 Year 1997 also explains that the government establishes a closed business field for investment, both foreign and domestic, based on the criteria of health, morals, culture, environment, defense and national security, as well as other national interests. The government establishes an open business field with requirements based on national interest criteria, namely protection of natural resources, development of micro, small and medium cooperative enterprises, supervision of production and distribution, technology capacity building, participation of domestic capital, and government-appointed efforts.

# 2.3. Relationship between independent variable with dependent variable2.3.1. Relationship between export variable and Gross Domestic Product

Export activity is a trading system by issuing goods from domestic abroad by complying with applicable regulations. Exports represent the total goods and services sold by a country of other countries, including among goods, insurance, and services in a given year (Triyoso, 2004).

Exports can also assist all countries in carrying out their development efforts through the promotion and strengthening of economic sectors that contain comparative advantages, whether the availability of certain factors of production in abundance or the superiority of the efficiency of labor productivity. Exports can also help all countries take advantage of their economic of scale (Todaro, 2002). Thus, export activity can affect the economic growth of a region because the amount of goods sent abroad will make the economic activity more alive.

# 2.3.2. Relationship between the CPI (Inflation) variable and the rate of Gross Domestic Product

Inflation has an impact on the economy, namely on redistribution and distortion as follows:

- 1) Redistribution of income and wealth. One example is the redistribution of the creditor to the debtor, in which the debtor is charged a fixed interest rate for his loan which is used to purchase certain assets. But it turns out that the rate of inflation is greater than the interest rate, thus; the real creditor becomes poorer. On the contrary, the debtor experiences an increase in wealth as the price of the asset he buys increases in price, at least at the rate of inflation.
- 2) Distortion of price. At a low inflation rate people are aware of the inflation and can differentiate the difference in inflation among mutually substitute goods. But at a high rate of inflation, people do not understand the difference in the rate of inflation because the price of all goods rise high.

- 3) Distortion of the use of money. Inflation changes the way people use their money. Because inflation lowers the real value of money, people tend to minimize the amount of money they hold.
- 4) Tax distortion. The higher the inflation the higher the tax burden in real terms.

## 2.3.3. Relationship between the Labor Force variable and the rate of Gross Domestic Product

Todaro (2000) mentioned that population growth and labor growth are traditionally regarded as one of the positive factors that spur economic growth. A larger number of workers mean increasing production levels, while greater population growth means greater domestic size. Yet it is still questionable whether the true rate of rapid population growth will actually have a positive or negative impact on its economic development. Furthermore, it is said that the positive or negative effects of population growth depend on the ability of the regional economic system to absorb and exploit productively the increase of labor.

According to Lewis (1954) in Todaro (2004) a homogeneous and unskilled workforce is thought to be able to move from the traditional sector to the modern sector smoothly and in limited numbers. In such a case, labor supply contains high elasticity. The increasing demand for labor (from the traditional sector) stems from the expansion of modern sector activities. Thus, one of the factors that affect the economic growth is the workforce.

## **2.3.4.** Relationship between the Foreign Direct Investment (FDI) variable and the rate of Gross Domestic Product

Foreign investment is a form of investment by way of building, buying or acquiring a total company. Investments in Indonesia are regulated by Law Number 25 of 2007 concerning Capital Investment. In this Law, Foreign Investment is an activity of investing to conduct business in the territory of the Republic of Indonesia conducted by foreign investors, either by using foreign capital completely or in association with domestic investors (Article 1 of Law Number 25 year 2007 on Investment). The notion of foreign capital in the law is:

1. Apparatus foreign payments that are not part of the foreign exchange resources of Indonesia, with the approval of the government used to finance the company in Indonesia.

2. The tools for companies, including new discoveries are owned by foreigners and materials, which are inserted from the outside into the territory of Indonesia, during these tools are not financed from foreign exchange resources of Indonesia.

3. Part of the profits which by law - this law benefits permitted to be transferred, but is used to finance the company in Indonesia.

# 2.3.4. Relationship between the Domestic Investment variable and the rate of Gross Domestic Product

Domestic Investment or Domestic Investment (PMDN) is an activity of investing to conduct business in the territory of the Republic of Indonesia conducted by domestic investors by using domestic capital. The provisions concerning Investment are regulated in Law no. 25 Year 2005 regarding Investment.

Domestic Investor may be conducted by an individual Indonesian citizen, a state enterprise, and / or a government of a country that carries out investment in the territory of the Republic of Indonesia. Business activities of a business or type of business are open to investment activities, except for business fields or business types declared closed and open with the requirements and restrictions on the ownership of public capital in the business field of the company shall be regulated in Presidential Regulation no. 36 of 2010 Concerning Change of List of Closed Business Fields and Opened Business Fields with Requirements in the Field of Investment.

## 2.4. Framework for Thinking

The framework of this research can be explained through the following figure:



**Figure 2.1 Economic Growth Frameworks** 

## 2.5. Hypothesis

Based on relevant theories and concepts, as well as previous research results on factors influencing the flow of Economic Growth, it can be given a temporary answer to the existing problems. The hypothesis in this research are as follow:

- Export has a positive and significant influence on Economic Growth in Eastern Economic.
- 2. Consumer Price Index (CPI) has a negative and significant influence on Economic Growth in Eastern Indonesia.

- Labor Force has positive and significant influence on Economic Growth in Eastern Indonesia.
- 4. Foreign Direct Investment (FDI) has positive and significant influence on Economic Growth in Eastern Indonesia.
- 5. Local Investment/Domestic Investment has positive and significant influence on Economic Growth in Eastern Indonesia.

#### CHAPTER III

#### **RESEARCH METHOD**

#### 3.1 Type of Study

The type of study conducted by the researcher was quantitative research. This research used quantitative method by generating numerical data or data that could be transformed into useable statistics. The type of data in this research was secondary data. The researcher reused information as secondary data because it was accessible and more efficient to collect. Secondary data is data obtained directly from the source, such as a quote from the books, literature, reading scientific journals, which have relevance to the theme of the research (Gujarati, 2013). In this research, secondary data was obtained from BPS and Investment Coordinating Board (BKPM) for Eastern Indonesia. The data used in this research were as follow:

- Gross Regional Domestic Product data of Eastern Indonesia by districts from 2010-2014.
- b. Export data of Eastern Indonesia by districts from 2010-2014.
- c. Consumer Price Index (CPI) data of Eastern Indonesia by districts from 2010-2014.
- d. Labor Force data of Eastern Indonesia by districts from 2010-2014.
- e. Foreign Direct Investment (FDI) data of Eastern Indonesia from 2010-2014.
- f. Local Investment data of Eastern Indonesia from 2010-2014.

## **3.2 Data Collection Method**

The method of collecting data used in this research was the study of the literature. It was an attempt to obtain data by studying and analyzing the literature books and processed data. The collections of data in this research were intended to obtain materials that were relevant and accurate. The data used were secondary data by using a data collection method in studies of original documents from the BPS, BKPM as well as other library resources related with the research.

## 3.3 Research Variable

This research contained of independent variable and dependent variable. The dependent variable in this research was Growth Domestic Product of Eastern Indonesia that consisted of six Provinces. The provinces were Maluku, Bali, South Sulawesi, Southeast Sulawesi, Papua, and Central Sulawesi. However, the data of six provinces above were complete but these were not all part of Eastern Indonesia because some province did not have a complete data.

#### **3.3.1 Dependent Variable**

Dependent variable is a variable which is influenced by other variables (Gujarati, 2013). This research used economic growth as a dependent variable. Therefore, Economic growth is the total value added of goods and services generated from all economic activities throughout the region within a given period of time generally in one year. The data used in this research was taken from the data released by Central Bureau of Statistics (BPS) of Eastern Indonesia stated in the form of thousand Rupiah.

## 3.3.2 Independent Variable

The independent variable is the variable that can affect another variable (Gujarati, 2013). Independent variables used in this research were as follow:

## a. Export (X1)

Export is the activity to send local product to the other country. This activity will have good influence on Growth Domestic Product. In this research, the researcher used the data from 2010-2014 in BPS.

## b. Consumer Price Index (CPI) (X2)

Consumer Price Index is the change of price for goods and services, such as transportation, food, and etc. This research was done to find out the relationship between consumer price index and Growth Domestic Product from 2010-2014 in BPS.

#### c. Labor Force (X3)

Labor force is calculated from the number of working-age populations who worked as well as the unemployed in Eastern Indonesia. This research was done to find out the relation between labor force and Growth Domestic Product that used the data from 2010-2014 in BPS.

#### d. Foreign Direct Investment (FDI) (X4)

FDI is one of the factors that can influence the Growth Domestic Product in Eastern Indonesia. In this research, the source of FDI data comes from BKPM.

#### e. Local Investment (X5)

Local investment is the investment that came from local investor. In this research, to find out the relationship among the Growth Domestic Product in Eastern Indonesia, the researcher used the data from 2010-2014 in BKPM.

#### **3.4 Analysis Technique**

The processing of secondary data that had been collected from various sources was using some statistical program packages, such as Microsoft Excel 2013 and E-Views 9.0. In processing the data activities, researcher used Microsoft Excel 2013 to create tables and to analysis the data. Meanwhile, in the processing of panel data regression, the researcher used package program of E-views 9.0.

## 3.4.1 Panel Data Method

According to Gujarati (2013), panel data is combinations between time series and cross section data. In other words, panel data are data obtained from some of the same individuals that are observed in certain period of time. The use of panel data allows researcher to be able to capture the characteristic among individuals and among different times. The advantage of using panel data regression is the panel data is able to provide more data and more complete information. The use of panel data obtained a larger degree of freedom (df). Thus, that the resulting estimation is better. By combining the information from the time series data and cross section, it can solve the problems that arise because there is a problem on removing variables (omitted variable). The panel data was able to reduce the collinearity between variable and panel data is better in detecting and measuring effect that simply cannot be done the time series data of pure and cross section.

Panel data regression has three standard estimation models. They are Polled Regression (Common Effect Model), Fixed Effect Model (Least Square Dummy Variable), and Random Effect Model (Gujarati, 2013).

#### 3.4.2 Selection of Panel Data Estimation Model

## a. Chow Test

Chow test or F-test Statistics are used to determine whether the techniques of panel data regression with fixed effects regression models of panel data without a dummy variable (common side effects) and to see the residual sum of squares (RSS). If the statistic value is greater than the significance level, the null hypothesis will be rejected. Thus, it is better to use fixed effect model than common effect model (Gujarati, 2013).

#### b. Lagrange Multiplier (LM) test

Lagrange Multiplier (LM) test which is developed by Bruesch-Pagan could we used to find out weathers a random effects model is better than common effects model. This method is based on the residual value method of common effects. The null hypothesis (H0) that is used is that intercept is not a random or stochastic variable. In other words, the variance of the residual value is zero. If the results of the LM test is greater than the critical value of chi-square statistic, then the null hypothesis will be rejected, it means that exact estimation for regression data panel is a method of random effects rather than the method of common effects.

## c. Hausman-test

Hausman-test can be used to find out the best model among fixed effects and random effects. Hausman test is used to choose the Fixed Effect Model (FEM) or Random Effect Model (REM). Therefore, it uses Chi-Squares. The hypotheses proposed are the following:

H0 : Random Effect Model (REM) is better than Fixed Effect Model (FEM).

H1 : Fixed Effect Model (FEM) is better than Random Effect Model (REM).

Hausman test statistic follows the Chi Square statistic distribution with a degree of freedom as much as k, where k is the number of independent variables. If the value of the Hausman statistic is greater than the critical value, H0 is rejected and the right model is a Fixed Effect model. Conversely, if Hausman statistic value is smaller than the critical value, the appropriate model is Random Effect model.

## **3.4.3 Hypothesis Testing**

Hypothesis testing is useful for examining or testing whether the regression coefficient obtained is significant or not. The intent of this significance is a regression coefficient value which is significant or not equal to zero. If the slope coefficient is equal to zero, it can be said that there was not enough evidence to declare that the independent variables had influence on the dependent variable. Therefore, all regression coefficients should be tested.

## 1. T-test

T-test is individual coefficient test. This test is used in order to know the influence of independent variable on the dependent variable.

Hypothesis in T-test are:

H0 :  $\beta i = 0$ ,

H1 :  $\beta i \neq 0$ .

If the probability value t<  $\alpha = 0.05$ , H0 is rejected. It means that independent variable influenced partially and significantly on dependent variable.

## 2. Coefficient Determinants $(R^2)$

Coefficient determination (Goodness of Fit) is an important measurement in the regression because it can inform whether the regression model estimated is good or not. The value of  $(R^2)$  reflects the extent of the variation of the dependent variable that can be explained by the independent variable X or the diversity of the dependent variable that is able to be explained by the model. If  $(R^2) = 0$ , the variation of the Y cannot be explained by X altogether and if  $(R^2) = 1$  it means a variation of Y as a whole can be described by the X.

## 3. F-test

F-test is used to perform a test of hypothesis of the regression coefficients (slope) thoroughly/ simultaneously. F-test shows independent variables that influence the dependent variables simultaneously.

The hypotheses in F-test are as follow:

Ho: 
$$\beta 1 = \beta 2 = .... = 0$$

H1 : 
$$\beta 1 \neq \beta 2 \neq \dots \neq 0$$

If F-test is greater than F-critical, H0 is rejected. It means that there is minimum of one independent variable that influence dependent variable.

## 3.4.4 Model

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

 $Y_{it} = \beta_0 + \beta_1 X_{1it} - \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + e_{it}$ 

Where as:

Y	: Economic Growth (Gross Domestic Product)
X <sub>1</sub> , X <sub>2</sub> , X <sub>3</sub> , X <sub>4</sub> , X <sub>5</sub>	: Export (X1), Consumer Price Index (CPI)(X2),Labor
	Force (X <sub>3</sub> ), Foreign Direct Investment (X <sub>4</sub> ), Local
	Investment(X <sub>5</sub> )
$\beta_0$	: Constanta
$\beta_1,\beta_{2,\ldots,}\beta_n$	: The magnitude of the influence of independent variable
	toward the dependent variable
i	: Regions and cities in Banten province

t : Series 2010-2014

*e*<sub>it</sub> : *error term* 

#### CHAPTER IV

## **DATA ANALYSIS & DISCUSSION**

#### **4.1 Panel Data Result**

Panel data regression had three standard estimation models. They were Polled Regression (Common Effect Model), Fixed Effect Model (Least Square Dummy Variable), and Random Effect Model (Gujarati, 2013). The results of panel data calculation using E-views were concluded as follow:

## 4.1.1 Common Effect Result

Common effect model is the simplest panel data model approach. It is assumed that there is the same behavior among individuals in different period of times. Thus, this model does not notice the dimensions of the individual and time. This research employs technique of the data regression of cross section or time series. In the panel data, it combines the cross section with time series data. This combination data is treated as a combination observation to estimate the model by OLS (Ordinary Least Square).

#### Table 4.1

#### **Common Effect**

Dependent Variable: LOG(GDP?) Method: Pooled Least Squares Date: 04/11/18 Time: 08:43 Sample: 2010 2014 Included observations: 5 Cross-sections included: 6 Total pool (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	1.202889	1.138544	1.056515	0.3013
LOG(EXPORT?)	0.027340	0.008281	3.301512	0.0030

CPI?	-0.003950	0.000637	-6.205285	0.0000
LOG(LF?)	1.177131	0.103419	11.38214	0.0000
LOG(FDI?)	0.003986	0.038501	0.103539	0.9184
LOG(LI?)	0.038558	0.020063	1.921843	0.0666
R-squared	0.945424	Mean deper	ndent var	18.23389
Adjusted R-squared	0.934054	S.D. depen	dent var	0.734840
S.E. of regression	0.188706	Akaike info	o criterion	-0.320397
Sum squared resid	0.854638	Schwarz cr	iterion	-0.040158
Log likelihood	10.80596	Hannan-Qu	inn criter.	-0.230746
F-statistic	83.15123	Durbin-Wa	tson stat	0.435537
Prob(F-statistic)	0.000000			

*Source:* E-views 9.0, 2018

## **4.1.2. Fixed Effect Result**

There are different effects among individuals, namely the assumption of Fixed Effect Model. The difference in the intercept can be accommodated through the differences. Thus, by using the technique of dummy variables, the unknown parameter could be estimated.

## Table 4.2

## **Fixed Effect**

Dependent Variable: LOG(GDP?) Method: Pooled Least Squares Date: 04/11/18 Time: 08:41 Sample: 2010 2014 Included observations: 5 Cross-sections included: 6 Total pool (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C LOG(EXPORT?) CPI?	8.073624 0.057804 -0.001880	2.918319 0.023383 0.001009	2.766532 2.472097 -1.862641	0.0123 0.0231 0.0780
LOG(LF?) LOG(FDI?) LOG(LI?)	0.659469 -0.011537 0.041664	0.221419 0.062585 0.014594	2.978376 -0.184346 2.854843	0.0077 0.8557 0.0101
Fixed Effects	010 1100 1	01011091	2100 10 10	0.0101

(Cross)	
_MALUKU—C	-0.372326
_BALI—C	-0.044089
_SULAWESISELA	
TAN—C	0.608132
_SULAWESITENG	
GARA—C	-0.065318
_PAPUA—C	-0.290560
_SULAWESITENG	
AH—C	0.164161

## **Effects Specification**

Cross-section fixed (dummy variables)

R-squared	0 987063	Mean dependent var	18 23389
Adjusted R-squared	0.980254	S.D. dependent var	0.734840
S.E. of regression	0.103261	Akaike info criterion	-1.426548
Sum squared resid	0.202592	Schwarz criterion	-0.912776
Log likelihood	32.39823	Hannan-Quinn criter.	-1.262188
F-statistic	144.9637	Durbin-Watson stat	1.331826
Prob(F-statistic)	0.000000		

**Source:** E-views 9.0, 2018

## 4.1.3 Random Effect Result

Variation of generalized least squares estimation is called Random Effect Model (REM). Generalized least squares method is another name for the method of fixed effect and random effect. The estimation of the panel data with the fixed effects by the dummy variable technique shows the uncertain model used. To solve this problem, it uses residual variable known as random effect.

## Table 4.3

## **Random Effect**

Dependent Variable: LOG(GDP?) Method: Pooled EGLS (Cross-section random effects) Date: 04/11/18 Time: 08:43 Sample: 2010 2014 Included observations: 5 Cross-sections included: 6 Total pool (balanced) observations: 30 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	1.202889	0.623015	1.930754	0.0654
LOG(EXPORT?)	0.027340	0.004531	6.033428	0.0000
CPI?	-0.003950	0.000348	-11.34000	0.0000
LOG(LF?)	1.177131	0.056591	20.80056	0.0000
LOG(FDI?)	0.003986	0.021068	0.189215	0.8515
LOG(LI?)	0.038558	0.010979	3.512120	0.0018
Random Effects				
(Cross)				
_MALUKU—C	0.000000			
_BALI—C	0.000000			
_SULAWESISELA				
TAN—C	0.000000			
_SULAWESITENG	ſ			
GARA—C	0.000000			
_PAPUA—C	0.000000			
_SULAWESITENG	ŕ			
AH—C	0.000000			
	Effects Spe	cification		
			S.D.	Rho
Cross-section rando	n		0.000000	0.0000
Idiosyncratic random	n		0.103261	1.0000
	Weighted	Statistics		
R-squared	0.945424	Mean depe	ndent var	18.23389
Adjusted R-squared	0.934054	S.D. depen	dent var	0.734840
S.E. of regression	0.188706	Sum square	ed resid	0.854638
F-statistic	83.15123	Durbin-Wa	tson stat	0.435537
Prob(F-statistic)	0.000000			

Unweighted :	Statistics
--------------	------------

R-squared	0.945424	Mean dependent var	18.23389
Sum squared resid	0.854638	Durbin-Watson stat	0.435537

**Source:** E-views 9.0, 2018

#### 4.1.4 Chow Test and Hausman Test

The kind of estimation model used in this research analysis were based on two tests, they were Chow test and Hausman test. Chow test was used to decide the best model between common effect model and fixed effect model, while Hausman test was used to decide the best model between fixed effect model and random effect model. The result of Chow Test and Hausmann Test calculation using e-views were concluded as follow.

## Table 4.4

#### Chow test

Pool: Untitled Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F Cross-section Chi-square	12.230379 43.184536	(5,19) 5	0.0000

**Source:** E-views 9.0, 2018

**Redundant Fixed Effects Tests** 

The result of the Chow test obtained the probability value of 0.0000 or smaller than  $\alpha = 0.05$ . It means H0 was rejected. If H0 was rejected, Fixed Effect Model was better than Common Effect model.

To identify the suitable model estimation for the research, it was continued by Hausman test. In the Hausmann test result, If the value of probability was smaller than the Hausman statistics value, the null hypothesis would be rejected. It means that exact estimation for panel data regression of fixed effects model was better compared to the random effects model. The decision in rejecting H0 was carried out by comparing it with Chi square. If the value was <0.05, H0 was rejected. Thus, the model used was fixed effects. If the value was >0.05, H0 was accepted. Thus, the model used random effect.

#### Table 4.5

#### Hausman Test

Correlated Random Effects - Hausman Test

Pool: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic Chi-Sq. d.f.		Prob.	
Cross-section random	61.151894	5	0.0000	
Source: E-views 201)				

The result of Hausman test can be seen in table 4.5. it showed that the value of probability on a cross section random effect test showed the number of probability of 0.0000. It means that the model was significant with the level of significance  $\alpha$ =0.05. Thus, the preferred method was *fixed effect model*.

#### Table 4.6

#### **Cross Effect**

Provincies	Ci	С	C+Ci
_MALUKU—C	-0.372326	8.073624	7.701298
_BALI—C	-0.044089	8.073624	8.029535
_SOUTHSULAWESI—C	0.608132	8.073624	8.681756
_SOUTEASTSULAWESI—	-0.065318		
С	-0.005518	8.073624	8.008306
_PAPUA—C	-0.29056	8.073624	7.783064
_CENTRALSULAWESI—C	0.164161	8.073624	8.237785

Source: E-views 9.0, 2018

Based on table 4.6 the result of cross effect on fixed effect model showed that South Sulawesi had the highest value among others by 8.681756 and the lowest value was Maluku Province by 7.701298. It means that the value of Y Growth Domestic Product in South Sulawesi province increased to 8.681756 million IDR when X1, X2, X3, X4, and X5 are zero, and the value of Y Growth Domestic Product in Maluku Province increased to 7.701298 million IDR when X1, X2, X3, X4, and X5 were zero.

## 4.2 Hypothesis Testing

From the regression of Common Effect, Fixed Effect and Random Effect, the researcher found that the most suitable model to analyze this research was fixed effect model (Table 4.2). Hypothesis testing of fixed effect model can be seen below.
#### 4.2.1 T-test

The hypothesis presented in this test is the respective coefficients of the equation, that is zero or  $\beta i = 0$ . It means that independent variable has no influence on dependent variable. Whereas the alternative hypothesis was  $\beta i \neq 0$ , which means there were influences from each of the independent variable on the dependent variable. This testing was done by comparing the t-test and t-critical or by looking at the value of the probability of t-test. If the value t-test > t critical or if the value of the probability t <  $\alpha = 0.05$ . H0 would be rejected. Thus, the conclusion is independent variables had partial and significant influence on the dependent variable.

H0: independent variable has no partial influence on dependent variable.

H1: independent variable has partial influence on dependent variable.

The t-test results can be seen in table 4.2 If the value of prob. T-statistic (shown in Prob.) is smaller than the error rate a= 0.05, it can be said that the independent variables had significant influence on the dependent variable, while when the value of the prob. t statistic is greater than 0.05 error rate it can be said that the independent variables did not have significant influence on the dependent variable.

The conclusion of t-test results:

#### a. t-statistic test on Export Use the following Hypothesis

- H0:  $\beta 1 \ge 0$
- H1: β1 <0

Export (X1) had the probability result of 0.0231 or less than  $\alpha$  5%. It rejected H0 which means that it had significant influence. Therefore, the export influenced the Economic Growth in Eastern Indonesia from 2010-2014.

#### b. t-statistic test on Consumer Price Index Use the following Hypothesis

- H0:  $\beta 1 \ge 0$
- H1: β1 <0

Regional consumer Price Index (X2) had the probability result of 0.0780 or more than  $\alpha$  5%. It accepted H0 which means that it had no significant influence. Therefore, the Consumer Price Index had significant and negative influence on Economic Growth in Eastern Indonesia from 2010-2014.

#### c. t-statistic test on Labor Force Use the following Hypothesis

- H0: β1 ≥0
- H1: β1 <0

Labor Force (X3) had the probability result of 0.0077 or less than  $\alpha$  5%. It rejected H0 which means that it had significant influence. Therefore, the labor force had significant influence on Economic Growth in Eastern Indonesia from 2010-2014.

- d. t-statistic test on Foreign Direct Investment (FDI) Use the following Hypothesis
  - H0: β1 ≥0
  - H1: β1 <0

Foreign Direct Investment (X4) had the probability result of 0.8557 or more than  $\alpha$  5%. It accepted H0 which means that it had no significant influence. Therefore, the foreign direct investment had no significant influence on Economic Growth in Eastern Indonesia from 2010-2014.

### e. t-statistic test on Local Investment Use the following Hypothesis

- H0:  $\beta 1 \ge 0$
- H1: β1 <0

Local Investment (X5) had the probability result of 0.0101 or less than  $\alpha$  5%. It rejected H0 which means that it had significant influence. Therefore, the local investment had significant influence on the Economic Growth in Eastern Indonesia from 2010-2014.

### 4.2.2. Coefficient determination $R^2$

Coefficient determination  $(R^2)$  was used to see the level of appropriateness or suitability of the estimation model formed (goodness of fit). That was done by looking at the value of  $R^2$  in the model. Table 4.2 showed coefficients determination  $(R^2)$  generated by the model of 0.987063. This figure meant variable Economic Growth was explained by variable of Export (X1), Consumer Price Index (X2), Labor Force (X3), Foreign Direct Investment (X4), and Local Investment (X5) number of 98.71 % and the residual of 1.29 % as described by the other variables outside the model.

#### 4.2.3 F-test

F test described the evaluation of the simultaneous influence of independent variables on dependent variable. In the other words, F test was

done to evaluate the influence of all independent variables on the dependent variable (significant or not significant). The result from the multiple linear regression estimation value or probability of f-statistic was 0.000000 at  $\alpha$  5%. It rejected H0. It means that the Export, Consumer Price Index, Labor Force, Foreign Direct Investment, and Local Investment number had simultaneous and significant influence on the Economic Growth in Eastern Indonesia from 2010-2014

Therefore, it could be concluded that the best regression equation model was as follow:

 $(\text{GRDP})_{\text{it}} = 8.073624 + 0.057804X_1 - 0.001880X_2 + 0.659469X_3 - 0.011537X_4 + 0.041664X_5 + e_{\text{it}}$ 

GRDP	: Gross Regional Domestic Product
EX	: Export (X1)
CPI	: Consumer Price Index (X2)
LF	: Labor Force (X3)
FDI	: Foreign Direct Investment (X4)
LI	: Local Investment (X5)
i	: province of Eastern Indonesia
t	: 2010-2014 series
e <sub>it</sub>	: error term

#### 4.3 Discussion

#### a. Export

Based on panel data regression model, the probability of Export was 0.0231. It was less than 5%. Export had significant influence on the Growth Domestic Product in Eastern Indonesia. The coefficient of Export was 0.057804. It meant that by increasing the number of Export would increase 0.057804 million in Growth Domestic Product. In other word, Export and Gross Domestic Product in Eastern Indonesia had significant and positive relationship.

This result showed that Export had significant and positive influence on Gross Domestic Product. This result had similarity with the first hypothesis that assumed Export had significant and positive influence on Gross Domestic Product. It happened because Export is one of the tools for Eastern Indonesia to increase their government revenue was export and sell the local product in other country. When export increased the Gross Domestic Product in Eastern Indonesia would be increased as well.

#### **b.** CPI (Consumer Price Index)

According to the data obtained, the result of probability value of regional CPI was 0.0780. It was greater than 5%. It meant that consumer price index had significant and negative influence on Gross Domestic Product in Eastern Indonesia by the significant level under 5%. The regression estimation panel data model obtained the coefficient of consumer price index of - 0.001880. It meant that increasing in 1 IDR of consumer price index would

decrease - 0.001880 million of Gross Domestic Product in Eastern Indonesia. In other words, consumer price index and Gross Domestic Product in Eastern Indonesia had no significant and negative relationship.

From the result showed that consumer price index was not essential factors in determining economic growth. Because, in Eastern Indonesia still lacked of field work, it means the income for each individual still lower caused they were jobless. In another word, consumer price index in Eastern Indonesia had negative influence on Gross Domestic Product.

#### c. Labor Force

The panel data regression showed that labor force had influence on Gross Domestic Product in Eastern Indonesia with the probability value of 0.0077. It was smaller than 5%. It meant that the total number of labor force influenced the number of Gross Domestic Product in Eastern Indonesia. Based on the result showed that labor force were the factor in determining Gross Domestic Product in Eastern Indonesia. It meant that when the number of Labor Force increased, it would influence the number of Gross Domestic Product in Eastern Indonesia.

#### d. Foreign Direct Investment (FDI)

The panel data regression showed that Foreign Direct Investment had significant influence on Gross Domestic Product in Eastern Indonesia with the probability value of 0.8557. It showed that the probability was greater than 5%. It meant that the labor force in Eastern Indonesia had no significant influence on Gross Domestic Product. The calculation result shows that FDI variable give influence negative to gross domestic product in eastern Indonesia. This is not in line with the hypothesis that FDI will have a positive effect on economic growth. This condition is based on the fact that investment in eastern Indonesia is very volatile. There are still many sectors in eastern Indonesia that still use traditional production tools, for example in the agricultural sector. The eastern Indonesian population still lacks the understanding of technology to produce goods. This has made East Indonesia not a priority as a place to invest capital from foreign investors. In addition, the performance and potential of foreign investor inflows are also categorized as low.

The many barriers to entry for foreign investors, less efficient bureaucracy and less supportive infrastructure are some of the reasons why Indonesia is less attractive to foreign investors. Therefore the decline of FDI in Indonesia needs to be observed as a warning for the government to pay more attention to the policy of this sector in order to encourage better economic improvement. However, investment policy will be directly related to industry policy, trade, and other non-economic policies. The relationship between economic and non-economic variables will be better if there is good commitment of all components of the nation to work together to catch up from other countries.

#### e. Local Investment

The panel data regression showed that the local investment in Eastern Indonesia had no influence on Gross Domestic Product. The probability value was 0.0101 with the coefficient of local investment of 0.041664. It meant that the local investment had positive significant influence on economic growth in Eastern Indonesia.

#### **CHAPTER V**

#### **CONCLUSIONS & RECOMMENDATIONS**

### 5.1 Conclusion

Based on the analysis results of determinant of Gross Domestic Product in Eastern Indonesia from 2010-2014, it can be concluded as follows:

- Factors that had significant influence on Gross Domestic Product in Eastern Indonesia from 2010-20154 were Export, Labor Force, and Local Investment. The factors that had no significant influence on Gross Domestic Product in Eastern Indonesia from 2010-2014 were Consumer Price Index (CPI) and Foreign Direct Investment (FDI).
- Export had positive influence on Gross Domestic Product. The increasing of export would have an influence on the increasing of the number of Gross Domestic Product in Eastern Indonesia from 2010-2014.
- Consumer Price Index (CPI) had negative influence on Gross Domestic Product. The Increasing of consumer price index would have an effect on the decreasing of the number of Gross Domestic Product in Eastern Indonesia from 2010-2014.
- Labor force had significant influence on Gross Domestic Product in Eastern Indonesia from 2010-2014.
- Foreign Direct Investment (FDI) had no significant influence on Gross Domestic Product in Eastern Indonesia from 2010-2014.
- Local Investment had significant influence on Gross Domestic Product in Eastern Indonesia from 2010-2014.

#### 5.2 **Recommendations**

Based on the conclusions of the research, there are some recommendations as follow:

- Export, labor force, and local investment have positive influence on Gross Domestic Product in Eastern Indonesia. Through export, people in Eastern Indonesia had the chance to increase their income by exporting their product to other country. Government must pay more attention to increase the export, labor force, and local investment in Eastern Indonesia.
- 2. Foreign Direct Investment and Consumer Price Index have negative influence on Gross Domestic Product in Eastern Indonesia. The government needs to make a new regulation for foreign direct investment and consumer price index, to be the factor that will have a positive influence on Gross Domestic Product in Eastern Indonesia.
- 3. The government should be wise and aware to control the economic activity in Eastern Indonesia not only Western Indonesia. The government should pay more attention to all part of Indonesia in order to make the Indonesian economy more stable. Thus, it can increase the welfare.

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# Appendix 1

## Data Growth Domestic Product, Export, Consumer Price Index, Labor Force, Foreign Direct Investment, and Local Investment in Eastern Indonesia 2010-2014

PROVINCE	YEAR	GDP (Million)	EXPORT (Million)	CPI (Million)	LF (Million)	FDI (Million)	LI (Million)
	2010	18428584.55	111.6	115.04	651339	2888.9	72.30
	2011	21367857.82	130.3	130.26	653481	13103.6	1114908.1
Maluku	2012	21367857.82	130.4	130.71	652953	13095.6	1114908.1
	2013	27834442.10	134.9	139.73	672304	52762.4	1333383.80
	2014	31656482.62	166.7	147.74	701893	8518.10	3022414.49
	2010	93749349.70	494914	116.44	1924874	482085	252798.2
	2011	104612189.30	576331	121.12	2046149	378295.8	2313379.1
Bali	2012	117987403.30	589234	128.53	2083896	430856.1	2313424.8
	2013	134407529.20	605100	134.25	2100705	447163.3	2984666.6
	2014	156395732.20	628159	143.25	2316758	462037.8	3107955.1
	2010	171740744.10	1459.85	106.89	2107094	370927.7	2318863.4
	2011	198289084.82	1675.77	111.3	2468192	389563.7	2412298.3
SulawesiSelatan	2012	228285473.12	1947.91	127.6	3571317	441750.7	3921017.4
	2013	258836416.19	2318.81	132.82	3612424	462775.8	3986302.6
	2014	298033804.83	190401	170.41	3715801	482579.2	4149546.8
	2010	48401152.38	70589.94	116.16	768949	53972.2	89205.1
	2011	55758554.87	95862.48	125.33	875879	66995.3	99041.7
SulawesiTenggara	2012	64693984.56	826379.56	133.35	997678	75723.2	107340.3
	2013	71041253.61	941543.78	139.21	1026548	86418.1	1049906.8
	2014	78622151.49	975891.38	146.29	1037419	91797	1261621.5
	2010	110808176.62	3116512789	120.15	1436728	2102432.6	538000.2
	2011	108188756.41	2529674059	116.18	1310176	2029609	494676.1
Papua	2012	112812560.53	3728043282	125.19	1485434	2160603.5	549854.8
	2013	122857170.47	4657427418	128.31	1575113	2212049.6	584253.1
	2014	133329981.21	5080211565	137.87	1688876	2359999.7	677850.8
	2010	51752070.61	97.25	100.21	1006297	238450.8	95833.7
	2011	60716294.86	107.14	123.8	1127819	370357.6	853572.6
SulawesiTengah	2012	69637920.82	162.38	131.99	1396799	806531	902808.7
	2013	79842224.70	286.33	242.34	2428589	855027.9	1705344.9
	2014	90246273.54	441.92	453.12	4763228	1494162.7	2620174.6

### **Appendix 2**

#### **Result of Panel Data Regression Using E-views 9.0**

#### HAUSMAN TEST

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

Test Summary	Chi-Sq. Statistic Chi-S	Chi-Sq. Statistic Chi-Sq. d.f.		
Cross-section random	61.151894	5	0.0000	

\*\* WARNING: estimated cross-section random effects variance is zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(EXPORT?)	0.057804	0.027340	0.000526	0.1842
CPI?	-0.001880	-0.003950	0.000001	0.0288
LOG(LF?)	0.659469	1.177131	0.045824	0.0156
LOG(FDI?)	-0.011537	0.003986	0.003473	0.7922
LOG(LI?)	0.041664	0.038558	0.000092	0.7467

Cross-section random effects test equation: Dependent Variable: LOG(GDP?) Method: Panel Least Squares Date: 04/11/18 Time: 08:44 Sample: 2010 2014 Included observations: 5 Cross-sections included: 6 Total pool (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C LOG(EXPORT?)	8.073624 0.057804	2.918319 0.023383	2.766532 2.472097	0.0123 0.0231
CPI?	-0.001880	0.001009	-1.862641	0.0780
LOG(EI?) LOG(FDI?) LOG(LI?)	-0.011537 0.041664	0.062585 0.014594	-0.184346 2.854843	0.8557 0.0101

**Effects Specification** 

Cross-section fixed (dummy variables)					
R-squared	0.987063	Mean dependent var	18.23389		
Adjusted R-squared	0.980254	S.D. dependent var	0.734840		
S.E. of regression	0.103261	Akaike info criterion	-1.426548		
Sum squared resid	0.202592	Schwarz criterion	-0.912776		
Log likelihood	32.39823	Hannan-Quinn criter.	-1.262188		
F-statistic	144.9637	Durbin-Watson stat	1.331826		
Prob(F-statistic)	0.000000				

### If the random cross section value <0.05, the exact model to use is fixed effect model

## CHOW TEST

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	12.230379	(5,19)	0.0000
Cross-section Chi-square	43.184536	5	

Cross-section fixed effects test equation: Dependent Variable: LOG(GDP?) Method: Panel Least Squares Date: 04/11/18 Time: 08:44 Sample: 2010 2014 Included observations: 5 Cross-sections included: 6 Total pool (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.202889	1.138544	1.056515	0.3013
LOG(EXPORT?)	0.027340	0.008281	3.301512	0.0030
CPI?	-0.003950	0.000637	-6.205285	0.0000
LOG(LF?)	1.177131	0.103419	11.38214	0.0000
LOG(FDI?)	0.003986	0.038501	0.103539	0.9184
LOG(LI?)	0.038558	0.020063	1.921843	0.0666
R-squared	0.945424	Mean depe	ndent var	18.23389
Adjusted R-squared	0.934054	S.D. depen	dent var	0.734840
S.E. of regression	0.188706	Akaike info	o criterion	-0.320397

Sum squared resid	0.854638	Schwarz criterion	-0.040158
Log likelihood	10.80596	Hannan-Quinn criter.	-0.230746
F-statistic	83.15123	Durbin-Watson stat	0.435537
Prob(F-statistic)	0.000000		

## If the value of chi square cross section <0.05, the right model of fixed effect model

## **COMMON EFFECT**

Dependent Variable: LOG(GDP?) Method: Pooled Least Squares Date: 04/11/18 Time: 08:43 Sample: 2010 2014 Included observations: 5 Cross-sections included: 6 Total pool (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C LOG(EXPORT?) CPI? LOG(LF?) LOG(FDI?)	1.202889 0.027340 -0.003950 1.177131 0.003986	1.138544 0.008281 0.000637 0.103419 0.038501	1.056515 3.301512 -6.205285 11.38214 0.103539	0.3013 0.0030 0.0000 0.0000 0.9184
LOG(LI?)	0.038558	0.020063	1.921843	0.0666
R-squared Adjusted R-squared S.E. of regression Sum squared resid Log likelihood F-statistic Prob(F-statistic)	$\begin{array}{c} 0.945424\\ 0.934054\\ 0.188706\\ 0.854638\\ 10.80596\\ 83.15123\\ 0.000000\\ \end{array}$	Mean depe S.D. depen Akaike info Schwarz cr Hannan-Qu Durbin-Wa	ndent var dent var o criterion iterion inn criter. itson stat	18.23389 0.734840 -0.320397 -0.040158 -0.230746 0.435537

## **RANDOM EFFECT**

Dependent Variable: LOG(GDP?) Method: Pooled EGLS (Cross-section random effects) Date: 04/11/18 Time: 08:43 Sample: 2010 2014 Included observations: 5 Cross-sections included: 6 Total pool (balanced) observations: 30 Swamy and Arora estimator of component variances

$\begin{array}{ccccccc} C & 1.202889 & 0.623015 & 1.930754 & 0.0654 \\ LOG(EXPORT?) & 0.027340 & 0.004531 & 6.033428 & 0.0000 \\ CPI? & -0.003950 & 0.000348 & -11.34000 & 0.0000 \\ LOG(LF?) & 1.177131 & 0.056591 & 20.80056 & 0.0000 \\ LOG(FDI?) & 0.003986 & 0.021068 & 0.189215 & 0.8515 \\ LOG(LI?) & 0.038558 & 0.010979 & 3.512120 & 0.0018 \\ Random Effects & & & & & & & & \\ (Cross) & & & & & & & & \\ MALUKU-C & 0.000000 & & & & & & & \\ SULAWESISELA & & & & & & & & \\ TAN-C & 0.000000 & & & & & & & & \\ SULAWESITENG & & & & & & & & \\ GARA-C & 0.000000 & & & & & & & \\ SULAWESITENG & & & & & & & & \\ AH-C & 0.000000 & & & & & & & \\ SULAWESITENG & & & & & & & \\ AH-C & 0.000000 & & & & & & & \\ & & & & & & & & &$	Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	С	1.202889	0.623015	1.930754	0.0654
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	LOG(EXPORT?)	0.027340	0.004531	6.033428	0.0000
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	CPI?	-0.003950	0.000348	-11.34000	0.0000
LOG(FDI?) 0.003986 0.021068 0.189215 0.8515 LOG(LI?) 0.038558 0.010979 3.512120 0.0018 Random Effects (Cross) _MALUKUC 0.000000 _BALIC 0.000000 _SULAWESISELA TANC 0.000000 _SULAWESITENG GARAC 0.000000 _PAPUAC 0.000000 _SULAWESITENG AHC 0.000000 _SULAWESITENG _S.D. Rho _S.D. Rho _S.D. Rho _S.D. 0.00000 _SULAWESITENG _S.D. 0.00000 _SULAWESITENG _S.D. 0.00000 _SULAWESITENG _S.D. 0.00000 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.00000 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.00000 _SULAWESITENG _S.D. 0.00000 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _SULAWESITENG _SULAWESITENG _SULAWESITENG _SULAWESITENG _SULAWESITENG _SULAWESITENG _S.D. 0.03261 _SULAWESITENG _SULAW	LOG(LF?)	1.177131	0.056591	20.80056	0.0000
LOG(LI?) 0.038558 0.010979 3.512120 0.0018 Random Effects (Cross) _MALUKUC 0.000000 _BALIC 0.000000 _SULAWESISELA TANC 0.000000 _SULAWESITENG GARAC 0.000000 _PAPUAC 0.000000 _SULAWESITENG AHC 0.000000 Effects Specification Effects Specification Cross-section random Idiosyncratic random Weighted Statistics R-squared 0.945424 Mean dependent var 18.23389 Adjusted R-squared 0.934054 S.D. dependent var 0.734840 S.E. of regression 0.188706 Sum squared resid 0.854638 F-statistic 83.15123 Durbin-Watson stat 0.435537 Prob(F-statistic) 0.000000	LOG(FDI?)	0.003986	0.021068	0.189215	0.8515
Random Effects  (Cross)    _MALUKUC  0.000000    _BALIC  0.000000    _SULAWESISELA  TANC    TANC  0.000000    _SULAWESITENG  GARAC    GARAC  0.000000    _PAPUAC  0.000000    _SULAWESITENG  AHC    AHC  0.000000    _SULAWESITENG  S.D.    Refects Specification  S.D.    Keighted Statistics  N.000000    Weighted Statistics  1.0000    R-squared  0.945424  Mean dependent var  18.23389    Adjusted R-squared  0.934054  S.D. dependent var  0.734840    S.E. of regression  0.188706  Sum squared resid  0.854638    F-statistic  83.15123  Durbin-Watson stat  0.435537    Prob(F-statistic)  0.000000	LOG(LI?)	0.038558	0.010979	3.512120	0.0018
(Cross)  _MALUKUC  0.000000    _BALIC  0.000000    _SULAWESISELA  TANC  0.000000    _SULAWESITENG  GARAC  0.000000    _PAPUAC  0.000000	Random Effects				
_MALUKUC  0.000000    _BALIC  0.000000    _SULAWESISELA  TANC    TANC  0.000000    _SULAWESITENG  GARAC    GARAC  0.000000    _PAPUAC  0.000000    _SULAWESITENG  Effects Specification    AHC  0.000000    _Cross-section random  0.000000    Idiosyncratic random  0.103261    Weighted Statistics  18.23389    Adjusted R-squared  0.945424  Mean dependent var  18.23389    Adjusted R-squared  0.934054  S.D. dependent var  0.734840    S.E. of regression  0.188706  Sum squared resid  0.854638    F-statistic  83.15123  Durbin-Watson stat  0.435537    Prob(F-statistic)  0.000000  0.000000  0.435537	(Cross)				
_BALIC  0.000000    _SULAWESISELA  TANC  0.000000    _SULAWESITENG  GARAC  0.000000    _PAPUAC  0.000000	_MALUKUC	0.000000			
_SULAWESISELA TANC 0.000000 _SULAWESITENG GARAC 0.000000 _PAPUAC 0.000000 _SULAWESITENG AHC 0.000000 Effects Specification Cross-section random 0.000000 0.0000 Idiosyncratic random 0.103261 1.0000 Weighted Statistics R-squared 0.945424 Mean dependent var 18.23389 Adjusted R-squared 0.934054 S.D. dependent var 0.734840 S.E. of regression 0.188706 Sum squared resid 0.854638 F-statistic 83.15123 Durbin-Watson stat 0.435537 Prob(F-statistic) 0.00000	_BALIC	0.000000			
TANC  0.000000    _SULAWESITENG  0.000000    _PAPUAC  0.000000    _SULAWESITENG  0.000000    _SULAWESITENG  Effects Specification    AHC  0.000000    Cross-section random  0.000000    Idiosyncratic random  0.000000    Weighted Statistics    R-squared  0.945424    Adjusted R-squared  0.945424    0.103261  1.0000    S.E. of regression  0.188706  Sum squared resid    F-statistic  83.15123  Durbin-Watson stat  0.435537    Prob(F-statistic)  0.000000  0.00000  0.00000	_SULAWESISELA				
_SULAWESITENG    GARAC  0.000000    _PAPUAC  0.000000    _SULAWESITENG  0.000000    _AHC  0.000000    Effects Specification  S.D.    Cross-section random  0.000000    Idiosyncratic random  0.000000    Weighted Statistics    R-squared  0.945424    Adjusted R-squared  0.945424    S.E. of regression  0.188706    Sum squared resid  0.854638    F-statistic  83.15123    Prob(F-statistic)  0.000000	TANC	0.000000			
GARAC  0.000000    _PAPUAC  0.000000    _SULAWESITENG  AHC    AHC  0.000000    Effects Specification  S.D.    Cross-section random  0.000000    Idiosyncratic random  0.000000    Weighted Statistics    R-squared  0.945424    Adjusted R-squared  0.934054    S.E. of regression  0.188706    Sum squared resid  0.854638    F-statistic  83.15123    Prob(F-statistic)  0.000000	_SULAWESITENG				
_PAPUAC 0.000000 _SULAWESITENG AHC 0.000000 Effects Specification Cross-section random Idiosyncratic random 0.00000 0.0000 Idiosyncratic random 0.103261 1.0000 Weighted Statistics R-squared 0.945424 Mean dependent var 18.23389 Adjusted R-squared 0.934054 S.D. dependent var 0.734840 S.E. of regression 0.188706 Sum squared resid 0.854638 F-statistic 83.15123 Durbin-Watson stat 0.435537 Prob(F-statistic) 0.00000	GARAC	0.000000			
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Weighted StatisticsR-squared0.945424Mean dependent var18.23389Adjusted R-squared0.934054S.D. dependent var0.734840S.E. of regression0.188706Sum squared resid0.854638F-statistic83.15123Durbin-Watson stat0.435537Prob(F-statistic)0.000000	Idiosyncratic random	1		0.103261	1.0000
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Adjusted R-squared0.934054S.D. dependent var0.734840S.E. of regression0.188706Sum squared resid0.854638F-statistic83.15123Durbin-Watson stat0.435537Prob(F-statistic)0.000000	R-squared	0.945424	Mean depe	ndent var	18.23389
S.E. of regression0.188706Sum squared resid0.854638F-statistic83.15123Durbin-Watson stat0.435537Prob(F-statistic)0.000000	Adjusted R-squared	0.934054	S.D. depen	dent var	0.734840
F-statistic83.15123Durbin-Watson stat0.435537Prob(F-statistic)0.000000	S.E. of regression	0.188706	Sum square	ed resid	0.854638
Prob(F-statistic) 0.000000	F-statistic	83.15123	Durbin-Wa	tson stat	0.435537
	Prob(F-statistic)	0.000000			

Unweighted Statistics					
R-squared	0.945424	Mean dependent var	18.23389		
Sum squared resid	0.854638	Durbin-Watson stat	0.435537		

#### **MODEL FIXED EFFECT**

Sum squared resid

Log likelihood

Prob(F-statistic)

F-statistic

Dependent Variable: LOG(GDP?) Method: Pooled Least Squares Date: 04/11/18 Time: 08:41 Sample: 2010 2014 Included observations: 5 Cross-sections included: 6 Total pool (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	e Prob.
С	8.073624	2.918319	2.766532	2 0.0123
LOG(EXPORT?)	0.057804	0.023383	2.472097	0.0231
CPI?	-0.001880	0.001009	-1.862641	0.0780
LOG(LF?)	0.659469	0.221419	2.978376	6 0.0077
LOG(FDI?)	-0.011537	0.062585	-0.184346	6 0.8557
LOG(LI?)	0.041664	0.014594	2.854843	3 0.0101
<b>Fixed Effects</b>				
(Cross)				
_MALUKUC	-0.372326			
_BALIC	-0.044089			
_SULAWESISELA				
TANC	0.608132			
_SULAWESITENG	ŕ			
GARAC	-0.065318			
_PAPUAC	-0.290560			
_SULAWESITENG	ŕ			
AHC	0.164161			
	Effects Spe	ecification		
Cross-section fixed	(dummy varia	ables)		
R-squared	0.987063	Mean dependent var 18.23389		
Adjusted R-squared	0.980254	S.D. dependent var 0.734840		
S.E. of regression	0.103261	Akaike info criterion -1.426548		

0.202592

32.39823

144.9637

0.000000

Schwarz criterion

Durbin-Watson stat

Hannan-Quinn criter. -1.262188

-0.912776

1.331826