

## **GROSS DOMESTIC PRODUCT IN EASTERN INDONESIA**

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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.

## 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 divided by 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 using panel data analysis, the researcher take four provinces from central Indonesia but the location is near from eastern area. Those four provinces are 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 84.55	93749349. 70	17174074 4.10	48401152 .38	11080817 6.62	51752070 .61
2011	213678 57.82	10461218 9.30	19828908 4.82	55758554 .87	10818875 6.41	60716294 .86
2012	213678 57.82	11798740 3.30	22828547 3.12	64693984 .56	11281256 0.53	69637920 .82
2013	278344 42.10	13440752 9.20	25883641 6.19	71041253 .61	12285717 0.47	79842224 .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).

## **THEORITICAL FRAMEWORK**

### **1. 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. 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.

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.

## **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.

#### **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.

#### **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.

#### **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 large-scale 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.

## **RESEARCH METHOD**

### **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:

1. Gross Regional Domestic Product data of Eastern Indonesia by districts from 2010-2014.
2. Export data of Eastern Indonesia by districts from 2010-2014.
3. Consumer Price Index (CPI) data of Eastern Indonesia by districts from 2010-2014.
4. Labor Force data of Eastern Indonesia by districts from 2010-2014.
5. Foreign Direct Investment (FDI) data of Eastern Indonesia from 2010-2014.
6. Local Investment data of Eastern Indonesia from 2010-2014.

Pengumpulan data sekunder dari penelitian ini bersumber dari:

- a. Badan Pusat Statistik Provinsi Banten.
- b. Studi pustaka yaitu dengan mempelajari teori dari buku-buku dengan melakukan analisis yang sesuai dengan penelitian ini.

c. Sumber-sumber lain yang mendukung penelitian ini.

### **1. 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.

### **2. 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. 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.

### **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.

### **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**

### **2. 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).

### **3. 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 ( $H_0$ ) 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.

### **4. 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:

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

$H_1$  : 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,  $H_0$  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.

### 5. 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.

### 6. 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:

$$H_0 : \beta_i = 0,$$

$$H_1 : \beta_i \neq 0.$$

If the probability value  $t < \alpha = 0.05$ ,  $H_0$  is rejected. It means that independent variable influenced partially and significantly on dependent variable.

### 7. 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.

### 8. 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:

$$H_0: \beta_1 = \beta_2 = \dots = 0$$

$$H_1 : \beta_1 \neq \beta_2 \neq \dots \neq 0$$

If F-test is greater than F-critical,  $H_0$  is rejected. It means that there is minimum of one independent variable that influence dependent variable.

### 9. 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)

$X_1, X_2, X_3, X_4, X_5$  : Export ( $X_1$ ), Consumer Price Index (CPI)( $X_2$ ), Labor Force ( $X_3$ ), Foreign Direct Investment ( $X_4$ ), Local Investment( $X_5$ )

$\beta_0$  : Constanta

$\beta_1, \beta_2, \dots, \beta_n$  : The magnitude of the influence of independent variable

toward the dependent variable

$i$  : Regions and cities in Banten province

$t$  : Series 2010-2014

$e_{it}$  : *error term*

## DISCUSSION

### 4.1 Panel Data Result

Panel data regression had three standard estimation models. They were Pooled 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.
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 dependent var	18.23389	
Adjusted R-squared	0.934054	S.D. dependent var	0.734840	
S.E. of regression	0.188706	Akaike info 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			

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**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	8.073624	2.918319	2.766532	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	0.0077
LOG(FDI?)	-0.011537	0.062585	-0.184346	0.8557
LOG(LI?)	0.041664	0.014594	2.854843	0.0101
Fixed Effects (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.
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			
_BALI—C	0.000000			
_SULAWESISELA TAN—C	0.000000			
_SULAWESITENG GARA—C	0.000000			
_PAPUA—C	0.000000			
_SULAWESITENG	0.000000			

AH—C

Effects Specification			
		S.D.	Rho
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)	0.000000		
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**

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	0.0000

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

The result of the Chow test obtained the probability value of 0.0000 or smaller than  $\alpha = 0.05$ . It means  $H_0$  was rejected. If  $H_0$  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 2018)

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**

Provinces	Ci	C	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	8.073624	8.008306

C			
_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 from fixed effect model shows that South Sulawesi has the highest value among others by 8.681756 and the lowest value is Maluku Province by 7.701298. It means the value of Y Growth Domestic Product in South Sulawesi province is increased 8.681756 million IDR when X1, X2, X3, X4, and X5 are zero, and the value of Y Growth Domestic Product in Maluku Province is increased 7.701298 million IDR when X1, X2, X3, X4, and X5 are 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  $t < \alpha = 0.05$ .  $H_0$  would be rejected. Thus, the conclusion is independent variables had partial and significant influence on the dependent variable.

$H_0$ : independent variable has no partial influence on dependent variable.

$H_1$ : 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  $\alpha = 0.05$ , 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.

### 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:

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

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
$e_{it}$	: error term

##### 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.

## **CONCLUSION**

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

- a. Factors that had significant influence on Gross Domestic Product in Eastern Indonesia from 2010-2014 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).
- b. 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.
- c. 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.
- d. Labor force had significant influence on Gross Domestic Product in Eastern Indonesia from 2010-2014.
- e. Foreign Direct Investment (FDI) had no significant influence on Gross Domestic Product in Eastern Indonesia from 2010-2014.
- f. Local Investment had significant influence on Gross Domestic Product in Eastern Indonesia from 2010-2014.

## **IMPLICATION:**

1. 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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