THE INFLUENCE OF INFLATION, GROSS DOMESTIC PRODUCT, AND MINIMUM WAGE TOWARD UNEMPLOYMENT IN INDONESIA YEAR 2000-2013

A THESIS

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

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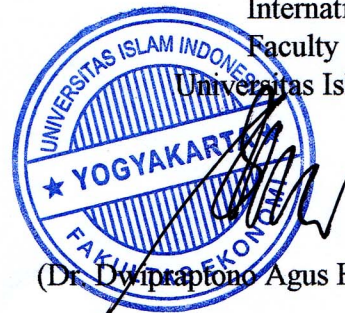Rokhedi Priyo Santoso, S.E.,MIDEc.   February 23, 2017

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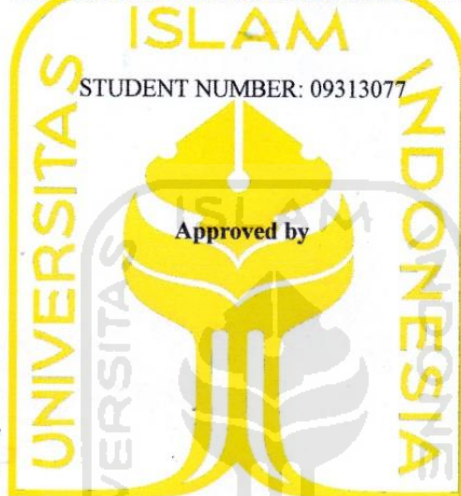Faculty of Economics
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DECLARATION OF AUTHENTICITY

Herein I declare the originality of the thesis; I have not presented anyone else's work to obtain my university degree, nor have I presented anyone else's words, ideas or expression without acknowledgement. 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, March 6, 2017

Ratn   ri Liviani

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بسم الله الرحمن الرحيم

The true prays is only belong to Allah who give me the power to finish this thesis with the title "THE INFLUENCE OF INFLATION, GROSS DOMESTIC PRODUCT, AND MINIMUM WAGE TOWARD UNEMPLOYMENT IN INDONESIA YEAR 2000-2013". The Writer realizes that many parties involved helped me so much in completing this thesis, especially for my advisors. I would like to thanks to you all who help me so much as possible to:

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The writer realizes that this thesis is not perfect. Therefore, the writer needs some criticism and suggestion to improve of the content of this thesis. I hope that this thesis brings the benefits for the entire component who related with this thesis.

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Dedication

❖ For my parents who give me support and pray everything what I do. Your love is filling the soul of my life. I hope, God always protect you all and God given heaven as the best place for you, Mom and Dad.

❖ For my brother, Hasta Valensa, thanks to support your sister, and be better for your future than me. Never angry with Mom and Dad yaa my lovely brother. ☺
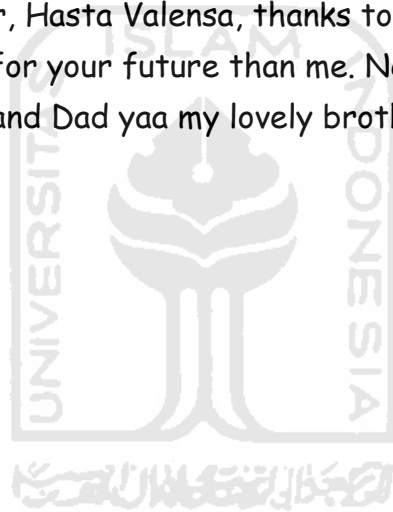
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CHAPTER I: INTRODUCTION

1.1.Background

Unemployment has been a serious issue in most of developing countries, although, the coverage and definition of unemployed might be varied across countries. Among the lower-middle income countries in South-East Asia Region, Indonesia's unemployment rate fluctuate around 6% for the last 5 years, which placed Indonesia as the second country with the highest unemployment rate after Philippines. This indicates that the struggle Indonesia faces regarding unemployment problem has not reached the suitable solution yet. Table 1.1 will show the historical of unemployment data throughout South-East Asia Countries.

Table 1.1. Unemployment rate across South-East Asia Countries

Country	Income level	2011	2012	2013
Philippine	Lower-Middle	7.0	7.0	7.1
Indonesia	Lower-Middle	6.6	6.1	6.3
Timor-Leste	Lower-Middle	3.7	4.1	4.3
Brunei Darussalam	High	3.7	3.8	3.8
Myanmar	Lower-Middle	3.4	3.3	3.3
Malaysia	Upper-Middle	3.1	3.0	3.2
Singapore	High	2.9	2.8	2.8
Vietnam	Lower-Middle	2.0	1.8	2.2
Laos	Lower-Middle	1.4	1.3	1.4
Thailand	Upper-Middle	0.7	0.7	0.7
Cambodia	Low	0.3	0.2	0.3

Source: The World Bank, 2016

To find the fit solution for unemployment, the main cause/s should be found first. At a glance unemployment is related to the well-being of one country's economy which is usually measured byGross Domestic Product (GDP) of the country itself. A sound economy could provide jobs for its citizen and -with

it- suppress unemployment rate. Therefore when unemployment level is high, one can say that the economy is "hurt". The soundness of a country's economy and its relation to the unemployment is explicated in Okun's law.

The soundness of economy may and may be not the only cause/measurement of unemployment. Inflation has been addressed as the other tip of unemployment trade off. Collaborates with wage, inflation rate has been believed to have negative relationship with unemployment. The ill relationship between inflation (together with wage) and unemployment is referred to Phillip Curve.

But is it fair to judge that the causes of Indonesia's unemployment problem must be the not so well economic condition and high inflation? Do the two theories actually happen in Indonesia? India for example, as the second of world most populous countries and same income level with Indonesia, has been keeping up the GDP since 2011 no matter how fluctuated its GDP and Inflation. With the total population of 1.295 billion, India has not decreased its unemployment rate at 3.6% since 2012, this number is slightly higher from the country's 2011 unemployment rate of 3.5%. Table 1.2 shows India economic data since 2011 and table 1.3 shows historical data of Indonesia since 2011.

Table 1.2. Historical Economic data of India

India	2011	2012	2013
Unemployment (%)	3.5	3.6	3.6
GDP (%)	6.6	5.1	6.9
Inflation (%)	8.9	9.3	10.9

Source: The World Bank, 2016

Table 1.3. Historical Economic data of Indonesia

Indonesia	2011	2012	2013
Unemployment (%)	6.6	6.1	6.3
GDP (%)	6.17	6.03	5.56
Inflation (%)	3.79	4.3	8.38

Source: World Bank, 2016

The brief reading of data indicated that there is no track of Phillip's curve and Okun's law in India's economic phenomena.The fact that India more or less has similarity with Indonesia, in terms of unemployment, gross domestic product, and inflation, brings the prejudice that Indonesia can also experience the absence of Phillip's curve and Okun's law in its economy.

Although we cannot be sure whether Phillip's curve and Okun's law happen in Indonesia's unemployment phenomena, we also cannot ignore that Indonesia consists of 33 provinces and it has large range diversity in terms of regional income and regional minimum wage. Each province in Indonesia has different income source and thus living cost which determine the minimum wage. Thus it will be unfair to equalize the analysis for all provinces and see only national data. So, this study will analyze the presence of Phillip's curve and Okun's law in Indonesia through each province data.

1.2.Problem Identification

From the above study, the researcher intends to analyze the influence of inflation, gross domestic product, and minimum wage toward unemployment in Indonesia year 2000-2013.

1.3. Problem Formulation

Based on the background and the problem identification, the main questions of this research are:

1. What is the influence of inflation toward unemployment in Indonesia in between 2000-2013?

2. What is the influence of gross domestic product toward Unemployment in Indonesia in between 2000-2013?

3. What is the influence of minimum wage toward unemployment in Indonesia in 2000 until 2013?

1.4. Problem Limitation

This study will limit its scope and stay focus only to points:

1. Independent Variables are Inflation, Gross Domestic Regional Product, and Minimum Wage.

2. Dependent Variable is Unemployment.

3. Only inflation rate is used as inflation variable from various inflation measurement data provided statistics Indonesia.

4. Gross Domestic Product Used is Gross Domestic Regional Product by expenditure.

5. The Usage of wage is small industries and provincial average minimum wage.

6. The range of data is restrained to only start from 2000 until 2013.

7. This study will use panel data regression model.

1.5. Research Objectives

This research tries to identify whether there is an influence inflation, Gross Domestic Regional Product, and minimum wage:

1. To analyze the influence of inflation toward unemployment in Indonesia between 2000-2013

2. To analyze the influence of Gross Domestic Regional Product toward unemployment in Indonesia in 2000 until 2013

3. To analyze the influence of minimum wage toward unemployment in Indonesia in 2000-2013

1.6. Research Contributions

1. Government or policymaker

   Hopefully, by using the result of this research, the Government and policy taker will provide the right policy to reduce the unemployment, add to GDP and increase the minimum wage to the welfare of the citizen.

2. Almamater

   The researcher presents this research to enrich the university library, especially in Economics Department. The researcher hopes that this research can be used as a reference for the next researches who are interested in macroeconomic major, especially in unemployment, inflation, Gross Domestic Product, and Minimum Wage.

3. Researcher

Through this study, the researcher expects to get more understanding about the theory inflation, gross domestic product, and minimum wage toward the unemployment in Indonesia.

CHAPTER II: REVIEW OF RELATED LITERATURE

2.1. Unemployment

2.1.1. Definition of Unemployment

Unemployment is people who are out of work and/or seeking for job, or those who are working but less than two days in a week. According to International Labor Organization, unemployment covers people who are out of work, jobseeker who are seeking for work in the previous four weeks and are available to start work within the next fortnight, or out of work and have accepted a job that they are waiting to start in the next fortnight.

Statistics Indonesia (2016) has defined unemployment in more specific explanation, which consists of:

1. Jobseeker.

   jobseeker is a person who is during the survey looking for work, such as:

   a. Those who never work and look for a work.

   b. Those who had worked, but resigned or dismissed from her/his work because of some reasons and are trying to find a job again.

   c. Those who work or have a job, but still try to look for another job because of some reasons.

   This activity is not limited to the survey period, but for those who have been trying to look for a job by sending the application for more than a week before the survey is also considered for looking for a job as long as they are

still expecting a job last week. For those who are working and still trying to look for another work is not categorized as unemployment.

2. Person without work who have established a new business/firm.

A person who established a new business/firm is he/she who has established a new business/firm in obtaining profit at his/her own risk with or without being paid or unpaid worker. It means those who do a real effort such as: collecting capitals, preparing equipment, looking for business location, applying for business permission letter, that had been done or being done by someone.

3. Person without work who do not look for work, because they do not expect to find work.

4. Person who have made arrangements to start working on a date subsequent to the reference period (future starts).

This definition does not include people who just have plans to do, intend, or follow a course/training to prepare a business/firm. This type of unemployment refers to those who want to be a worker or an employer on their own account assisted by temporary worker/unpaid worker a person who works at her/his own risk and assisted by temporary worker/unpaid worker)or employer assisted by permanent worker/paid worker(a person who does his/her business at her/his own risk at least one assisted by paid permanent worker).This effort is not only during previous weeks, but could have been done some time ago but they are still trying to establish the new business/firm in the previous week.

2.1.2. Causes of Unemployment

The main factor that may cause unemployment is a decrease in aggregate expenditure. To reach the maximal profit, households produce more goods and services. The greater the demand, the more goods and services produced and it absorb more unemployment. So, there is a tight relationship between national income and the use of labor force; the greater of national income, the greater the use of labor force in economy. Generally, aggregate expenditure in economy is lower than aggregate expenditure needed to achieve the full of labor force.

The other factors that cause unemployment is to get a better job. According Samuelson (1992), 1 % of all of the labor force are unemployed because they leave the old job. Another 2 or 3% are new comers in labor force (they just graduated from university), or those are who come back to the labor force to get a new job.

The use of modern technology in companies is also the cause of increasing unemployment. They replace the employment with the high technology. Besides that, skills of workers no longer match with the skill needed in industry (Sukirno, 2013).

2.1.3. Kind of Unemployment

Samuelson and Nordhaus (1992) distinguished unemployment based on Economic Interpretation, they are:

a. Frictional Unemployment, it occurs because people are looking for a job that is appropriate with expectation and passion of each worker takes time.

b. Structural Unemployment, it occurs because the available jobs in various labor markets are not enough for all job seekers.

c. Cyclical Unemployment, it happens if the demand of labor force is low. If the total of expenditure and output decreases, the unemployment will increase.

Another unemployment categorization from (Samuelson and Nordhaus 1992) is Micro Economic Based Theory, they are:

a. Voluntary Unemployment occurs if wage rates are perfectly flexible. Price and wage rates will increase or decrease to balance the market

b. Involuntary Unemployment, wages are not flexible or rigid causes a lot of forced unemployment. Higher wages and the numbers job seekers exceeded the numbers of available job opportunities.

On the other hand, (Sukirno,2013) classified unemployment based on its characteristic, they are:

a. Seasonal Unemployment, someone who is unemployed because there is economic fluctuation in short-term.

b. Open Unemployment, it happens because the number of available jobs are lower than number of job seekers.

c. Invisible Unemployment, is the number of worker in economic activity that is larger than what they really needed so that can do efficiently

d. Underemployment, are those who work less than four hours in a day.

2.1.4. Impact of Unemployment

(Samuelson and Nordhaus,1992) proved the causality of unemployment from two perspectives, they are:

a. Economic Impact

Community considers that the work has its own value. High unemployment lead to a lot of lost output, declining public income, and community mental suffering due to loss of confidence.

b. Social Impact

A high unemployment rate is certainly adding to the burden of feeling, psychological and social. In fact, according to Dr. M Harvey Brenner, high unemployment rate will result in high mortality rates.

2.1.5. Unemployment Measurement Method

Statistics Indonesia (2016) classifies adult (above 15 years old) into four, they are:

a. Employed isa person who worked for assisting others in obtaining profit for 35 hours a week during the survey week. This category also includes aperson who had a job, but was temporarily absent from

work for some reasons during the survey week, i.e. sick, on leave, waiting for harvest season, on strike, etc.

b. Underemployed is a person who worked under the normal working hours (less than 35 hours a week),it consists of:

1. Underemployment is a person who worked under the normal working hours (less than 35 hours a week), and is still looking for a job or available for work (called involuntary underemployment).

2. Part-time Worker: is a person who worked under the normal working hours (less than 35 hours a week), but he/she is not looking for a job or unavailable for work (called voluntary underemployment).

c. Unemployed is people who do not have jobs

d. Out of labor force, people who are not included in labor force, such as students, housewives, retired, unable to work, or others exclude personal activity

The calculation for labor force is:

Labor Force = Number of Working + Number not working

And calculation for labor-force participation rate is the percentage from all of the adult population that include in labor force.

Labor-force participation rate = (Labor-Force / adult population) x100

It means that unemployment rate is the percentage from labor force that are not working.

Unemployment rate = (Number of Unemployment / Labor Force) x 100

2.2 Inflation

2.2.1. Definition of Inflation

Inflation is a process of increasing prices on prevailing of economic (Sukirno,2013).Inflation is the contiuous increase in general price level. Increase in price of one or two goods cannot be called inflation, except if itcauses the increasing price in other goods and services in general (Central Bank, 2016).

Inflation is a trend of prices for increasing in general and continuously. However, the increase is not inluenced by seasonal conditions,such as great holiday or harvest season. The increase of price in one or two goods and services and does not conduce the increases in other price can not be called of inflation (Boediono,2015).

Cited from (Samuelson and Nordhaus,1992, p.307), inflation is the increase in general price level. Inflation rate is the level changes of general price level, and it isformulated as:

Inflation rate (year t) =

((price (year t) – price (year t-1)) / price (year t-1) x 100.

2.2.2. Inflation Theory

There are three main theories of inflation, Quantity theory (Irving Fisher), Keynes, and Structural.

1. Theory of Quantity

This theory emphasizes on money value, itdoes not emphasize on total value of goods. This theory also gives emphasis on the circulation of the number of money and the society's expectation regarding the increasing in price toward inflation. In this theory, inflation happens when the volume of money increases (both of fiat or fiduciary money).

2. Theory of Keynes

According to Keynes (cited in Boediono, 2015), inflation happens because of the society's life style. They consume beyond the limits of their financial ability. As the result, the aggregate demand exceeds supply of goods.

3. Mark-Up Model

This theory depends on two components, they are cost of production and profit margin. The relationship can be formulated as:

$$Price = Cost + Profit\ Margin$$

2.2.3. Kinds of Inflation

(Boediono,2015) described inflation into three kinds based on its severity, its causal, and its source.

1. Based on severity

   a. Low (creeping inflation) : if the increasing in price under 10 percent per year

   b. Average (Moderate Inflation) : increasing in price between 10% - 30% per   year

c. High (Galloping Inflation) : inflation between 30% until 100% per year

d. Hyperinflation: uncontrollable inflation, its more than 100% per year.

2. Based on Causal of Inflation

a. Demand Pull Inflation: inflation happens because increasing in total aggregate demand. While the production has been in the full or almost full employment.

b. Cost Push Inflation: it was due to scarcity of production or / and distribution, or the increase in production cost.

3. Based on source of inflation

a. Domestic Inflation.

It happens because deficit in budget that was funded by printing new money, crop failure, etc.

b. Imported Inflation

It happens because of the increasing price in our business partner countries. Increasing import price caused increase in living cost index directly. Indirectly, there exists an increase in price index through the increase in production cost (and then sell price increase) of various goods including raw machine that must be imported. Indirectly there is an increase price in domestic country because the imported price increases, so the government spending increase too.

2.2.4. The Impact of Inflation

There are two main impacts of inflation caused by the relative prices, when prices and wages do not move at the same level, they are:

1. Redistribution of income and wealth between the different categories.
2. The distortion of relative prices and output from different goods, or sometimesin output and job opportunity in the economy as a whole.

2.2.5. The Relationship between Unemployment and Inflation

The idea of relationship between inflation and unemployment known as Philips curve is introduced by A.W.Phillips at 1958 from the result of field study about the relationship between the increases of wages rate and unemployment in England in 1861 until1957. Phillips curve is short-term relationship between inflation and unemployment and it indicates the negative relationship. Phillips curve shows that the years with low unemployment tend to be accompanied with the high inflation. There is a tradeoff between inflation and unemployment, so the policy maker can not have target both low inflation and low unemployment at the same time. Figure 2.1 illustrate Phillips curve mechanism.
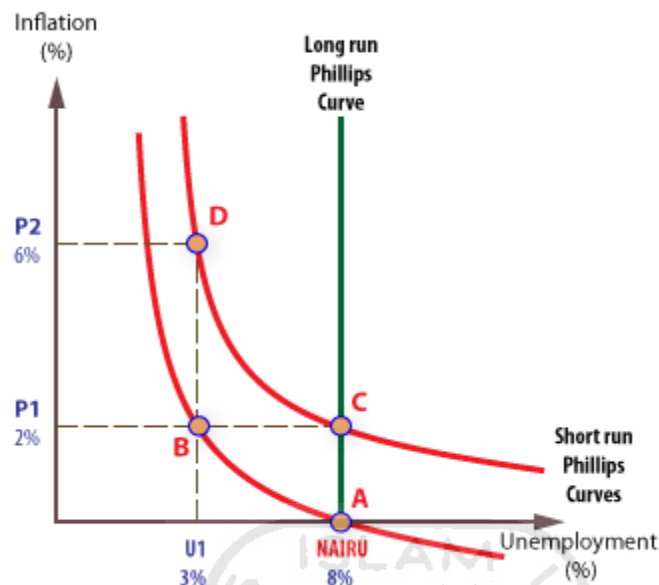
Figure 2. 1. *Phillips curve*

Source: Samuelson (1992)

2.3. Gross Domestic Product

2.3.1. Definition

Statistics Indonesia (2016) has defined Gross Domestic Product as the total value added generated by all business units within a particular country, or a total value of final goods and services produced by all economic units. Indonesia classifies GDP data into two groups, GDP based on output and GDP based on business fields. According to (Mankiw,2006), GDP is the market value from all of the final goods and services that are produced in a country at one period (one year).

GDP includes all of the national spending of goods and services. To be able to know how economy uses rare sources, the economist is interested to learn the condition of GDP from many kind of expenditure. Therefore, GDP (Y) is divided into four component; Consumption (C), Investment (I), Government Expenditure (G), and Net Export (NX).

$$Y = C + I + G + NX$$

Where:

Consumption (C) is the spending of goods and services by household.

Investment (I) is the purchase of the goods which will be used to produce more goods and services. Investment is the number of purchasing the capital equipment, stock, building and structure.

Government Expenditure (G) includes the purchase of goods and services by local government, states, and central government. Government spending includes the wages for government worker and public spending.

Net Export (NX) is the domestic product (export) purchased by foreigner minus the foreigner product purchased by domestic (import)

2.3.2. Real GDP and Nominal GDP

According (Mankiw, 2006), Nominal GDP is the production of goods and services measured by today's prices. While, real GDP is the production of goods and services measured by fix prices.

Nominal GDP uses the current price to measure the value of the production of goods and services in economy. Nominal GDP at current prices indicates the ability of economic production resources in the country. GDP is considerable economic resources, and greater than or equal to show the opposite. On the other hand, Real GDP uses the basic price to determine the value of production of goods and services in economy, because Real GDP is not influenced by exchange price, it just shows the exchange of goods and services production.

Real GDP is an instrument to measure the economic performance, while the Nominal GDP is to measure the economic growth. So, real GDP is better to measure the economic welfare than nominal GDP.

2.3.3. The Relationship between Unemployment and GDP

The relationship between GDP and unemployment is explained by Okun Law. Okun law is proposed by Arthur Okun in 1962, it basically claimed that if GDP grows rapidly unemployment rate declines.If growth is very low or negative, unemployment rate rises,and if growth equals GNP potential, unemployment rate remains unchanged. Okun law says that for every two pecent of GNP in relative to the GNP's potential, the unemployment rate would rise one percent.

2.4. Minimum Wage

Minimum wage is one of the factors that affect citizens' income. Government uses the policies of minimum wage to ensure citizens or individuals minimum quality of life. The policies about minimum wage laws can have the

positive or negative effects in the country. One of the negative effects is unemployment.

2.4.1. Wage Efficiency Theory

Wage Efficiency is wages above the level of balance that is paid by the company to increase the productivity of workers. Wage Efficiency Theory emphasize four points, they are:

1. The relationship between wage and health of workers. The workers who get the high wage have a better health and they are more productive. Productive worker will give the high benefit to company.
2. The relationship between wage and workers rotation. The worker is easy to enter or leave their company because of the incentive that they faced. If the company pays with the higher wage, the workers will stay longer in the company, so the company can alleviate the rotation of worker with the high wages.
3. The relationship between wage and worker effort. High wages make the worker have willingness to keep their job, it also encourages the worker to work hard.
4. The relationship between wage and quality of worker. With the high wage, the company can hire worker with the best quality.

2.4.2. The Relationship between Unemployment and minimum Wage

Classical Economic divided unemployment into three categories. First, unemployment that is caused by a shift in output from various sectors and have temporal impact (frictional unemployment). Second, seasonal unemployment that

are working in certain season, and the last, unemployment by choice or voluntarily, for example, because of the regulation of minimum wage. Labor union action that asked higher wage rate unite the supply and demand of labor supply with job offer.

In modern economy, the wage level is not easy to discharge because there are labor unions that try to defend the level of minimum wage and fight for the worker's better quality of life. They will challenge every policy that will discharge the minimum wage. This power cause the minimum wage is not easy to discharge and the unemployment is difficult to remove.

A.W. Phillips, the famoust economist, found the inverse relationship between unemployment and change in wage in his observation on more than a century data. He discovered that wage tend to increse when the unemployment level is low, and vise versa (Samuelson P.A. & Nordhaus W.D, 1992). This finding is drawn in figure 2.1. However, many see this finding only applicable for short term only.

Figure 2. 2. *Phillis Curve depict the relationship between wage and unemployment*

Source : Samuelson P.A. & Nordhaus W.D, (1992)

2.5. Previous Study

Ningsih (2010) studied about inflation and economic growth effect on unemployment in Indonesia from 1998 to 2008. Using unemployment as dependent variable and inflation together with economic growth as independent variable, Ningsih used multiple linear regressions with ordinary least square analysis method for processing the data. The result showed there is no influence between inflation and unemployment in Indonesia during the observation. The study also found positive and significant influence between economic growth and unemployment in Indonesia in the observed year.

Sarimuda and Soekarnoto (2014) observed the influence of GDP Regional, minimum wage, inflation, and investment in districs/cities within East Java during 2007-2011. They used technique of panel data and regression method to analyze the variable observed. The study indicated that GDP Regional, minimum wage, inflation and investment have significant influence toward open unemployment simultaneously. But partially, GDP Regional and minimum wage have significant influence toward open unemployment, while Inflation and Investment have no significant influence toward open unemployment.

Wijayanti and Karmini(2014) tried to find the influence of the inflation rate, economic growth and minimum wage toward open unemployment in Bali Province both of simultaneously and partially from 2001 to 2013. Using associative method and regression analysis, the study revealed that inflation, economic growth, and minimum wage have significant influence toward the open unemployment simultaneously. While partially, the test obtained that the inflation and minimum wage have a negative and significant influence toward the open unemployment and in the other hand the economic growth does not have effect on open unemployment.

2.6 Research Hypotheses

This research will be conducted under hypotheses written as:

1. Inflation has negative effect and significant for unemployment

2. Gross Domestic Regional Product has negative and significant effect toward unemployment

3. Minimum Wage has negative and significant effect toward unemployment.

CHAPTER III: RESEARCH METHOD

3.1. Research Approach

This research is a quantitative method, where there are independent and dependent variables. Inflation, Gross Domestic Product, and Minimum Wage are independent variables, while unemployment is dependent variable. The calculation of the data is limited to secondary data which are published by official institution namely Statistics Indonesia.

3.2. Data Source

In this research, the researcher uses secondary data. It is gathered from legal institution that has been published from Statistics Indonesia, books, journals, internet and other data that are relevant to this research. The kind of data used is pooled data from 33 Provinces in Indonesia ranges from 2000 to 2013. Pooled data means the combination of time series data and cross-section data. The secondary data needed are:

a. Inflation

b. Gross Domestic Regional Product

c. Minimum Wage

d. Unemployment (open unemployment)

3.3. Literature Study

The collection of data is done by studying literatures or books related to the problem that is being investigated by the researcher as well as collecting the data needed.

3.4. Technique of Data Analysis

3.4.1. Classical Model Assumption

Classical assumption test is intended to ensure that the model obtained fulfill the basic assumptions in the multiple linear regression analysis which includes the assumption of multicollinearity, normality, freedom from autocorrelation and freedom from heteroscedasticity.

1. Multicollinearity

One assumption of Classical linear regression model is that there is no Multicollinearity among the regression included in the regression model (Gujarati, Basic Econometrics, 2003). The reason is, if Multicollinearity is perfect in the sense of the regression coefficients of the X variables that are inderteminate and their standar errors are infinite. If Multicollinearity is less than perfect, the regression coefficient, although determinate, posses large standar errors (in relation to the coefficients themselves), which means the coefficients cannot be estimated with great precision or accuracy.

2. Heteroscedasticity

A critical assumption of the classical linear regression model is that the disturbances u_i have all the same variance σ^2. If this assumption is not satisfied, there is heteroscedasticity. Heteroscedasticity does not destroy the unbiasedness and consistency properties of OLS estimator.

3. Autocorrelation

Autocorrelation is the correlation between members of series of observations ordered in time (as in time series data) or space (as in cross-section data). In the regression context, the classical linear regression model assumes that such autocorrelation does not exist in the disturbances u_i. simbolically:

$$E(u_i\, u_j) = 0 \qquad\qquad i \neq j$$

4. Normality Assumption

Normality test is used to determine whether the dependent and independent variables have normal distribution or not.

3.4.2. Panel Data Analysis

The researcher uses panel data regression. Panel Data is the element of both time series data and cross-section data. Substantially, with the combination of both data, panel data is be able to reduce the omitted-variables, the model ignores the relevant variables. There are three methods to analyze the panel data, such as Pooled Least Square (PLS) which also called as Common Effect, Fixed Effect (FE), and Random Effect (RE).

1. Pooled Least Square (PLS) or Common Effect

Pooled Least Square means to estimate the data with the Ordinary Least Square Data. It is the simplest method to combine both time series data and cross section data.

Model of Panel Data Regression in written is as formulated below:

$$U_{it} = \beta_1 + \beta_2 + \beta_3 I_{it} + \beta_4 G_{it} + \beta_5 W_{it} + \beta_n X_{nit} + \mu_{it}$$

Where:

U   = Dependent Variable (Unemployment)

β_1 = Constant

β_2 to β_5 = Coefficient

I   = Inflation

G   = Gross domestic Regional Product

W   = Minimum Wage

μ = Error Term

i   = Observation

t   = Year
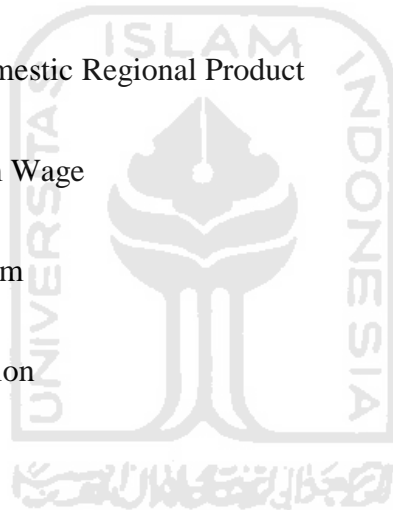
2. Fixed Effect Model (FE)

This method is to reduce the possibility of omitted-variables that brings the change of intercept time series or cross section. These models add the dummy variable to allow the change of intercept. Model of Fixed Effect is written as:

$$Uit = \alpha_1 + \alpha_2 I + \alpha_3 G + \alpha_4 W + \beta_2 I_{it} + \beta_3 G_{it} + \beta_4 W_{it} + \mu_{it}$$

Where:

U   = Dependent Variable (Unemployment)

α_1 = Constant

$\alpha_{2\ to}\ \alpha_4$ = Coefficients

I   = Inflation

G   = Gross domestic Regional Product

W   = Minimum Wage

$\beta_2 to\beta_4$ $_=$ Coefficients

ε = Error Term

i   = Observation

t   = Year

3. Random Effect (RE)

Random Effect is a model to improve the efficiency of least square processed by taking into account the error of cross-section and time series. The formula of Random Effect is:

$$U_{it} = \beta_1 + \beta_2 I_{it} + \beta_3 G_{it} + \beta_4 W_{it} + \varepsilon_{it} + \mu_{it}$$

Where:

U   = Dependent Variable (Unemployment)

β_1 = Constant

$\beta_2 \text{to} \beta_4$ = Coefficient

I   = Inflation

G   = Gross domestic Regional Product

W   = Minimum Wage

ε and μ = Error Term

i   = Observation

t   = Year

3.5. Significant Test of Model

3.5.1. F Test

It is used to determine the method between Pooled Least Square and Fixed Effect. F-test is formulated as:

$$F = ((R^2_{ur} - R^2_{r})/m) / ((1 - R^2_{r}) / (n-k))$$

Where:

R^2_{r} = R^2 of Pooled Least Square Model

R^2_{ur} = R^2 of Fixed Effect

m   = Number of restricted variable

n   = Number of Sample

k   = Number of explanatory variable

The Hypothesis from restricted of F test are:

H_0 = Pooled Least Square (restricted)

H_1 = Fixed effect (unrestricted)

Basic Decision Making:

H_0 is Accepted if significance value is more than 5% (F value > F table)

H_0 is Rejected if significance value is less than 5% (Fvalue< F table)

3.5.2. Hausman Test

Hausman Test is used to choose the method between fixed effect approach method or Random effect (Ajija & Setianto, 2011)

The Hypothesis from Hausman test is:

H_0 = Random effect

H_1 = Fixed effect

Where H_0 is rejected if chi square of value is more than chi square of the table, and p-value is significant. From that result, fixed effect is the appropriate method to count the panel data.

3.5.3. Hypothesis Testing

1. Simultaneous (F Test)

F-Statistic Test is used to test the influence of all independent variables together or simultaneous toward the dependent variable(Widarjono, 2016). Hypothesis of the F-test is all the independent variablesthat are not influencedby the dependent variable, $\beta_0 = \beta_1 = ... = \beta_k = 0$, so the F-test can be formulated as:

$$F = \frac{R2(k-1)}{(1-R2):(N-k)}$$

Where:

R^2 = Coefficient determination

k = the number of parameters in the model

n = the number of sample or data

The steps of F-test:

a. Make the null hypothesis (H_0) and alternative hypothesis ($H\alpha$)

    $H_0 : \beta1 = \beta2 ... = \beta k = 0$

    $H\alpha$: at least one of the $\beta k \neq 0$ where k = 1,2,3,...k

b. Looking for the F statistic with those formula above and F table from distribution table F. The value of F-table based on α and df is determined by numerator (k-1), and df for denumerator is (n-k).

c. The decision to reject or accept H_0 is as follows:

    If the F-statistic >F-table, so $H_0$is rejected and vice versa if the F-statistic < F-table, so it fails to reject the H_0.

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2. Partial Test (t Test)

T-Statistic test is used to test the coefficients regression partially from the independent variables. The steps of t Test are:

a. Make the hypothesis $H_0 : \beta_1 = 0$, $H\alpha : \beta_1 \neq 0$. Repeat this step to β_2 and so on.

b. Calculate the t-statistic for β_1 and β_2. The formula to calculate the t-statistic as follows:

$t = \frac{\beta_1 - \beta_1^*}{se\ (\beta_1)}$ Where is the β_1^* is the value on the null hypothesis

c. Compare the t-statistic with the t-table. Decision making to reject or fail to reject the H_0 is as follows:

If the value of t-statistic > value of t-table, so H_0 is rejected or accept the $H\alpha$

If the value of t-statistic < value of t-table, so H_0 is fail to rejected.

3. Coefficient of Determination (R^2)

It is used to measure the influence of independent variables toward dependent variable. The value of R^2 in range 0-1 or $0 \leq R^2 \leq 1$

CHAPTER IV: DATA ANALISYS AND DISCUSSIONS

4.1. Data Description

This research is to analyze the influence of Inflation, gross domestic product, and minimum wage toward unemployment in Indonesia in 2000 until 2013. The type of data is secondary data. It is gathered from legal institutions that has been published, such BPS, Central Bank, etc. The kinds of data used are panel data from 33 provinces in Indonesia in 2000-2013. This research uses computer software Eviews 6 as a tool to process the panel data.

4.2.Reliability and Validity Test

4.2.1. Classical Assumption Test

Classical assumption test is a test that is done ensure the analyzed data is valid and unbiased. There are 4 classical assumption test:

1. Multicolinearity

Tabel 4. 1 The Result of Multicolinearity

	I	G	W
I	1.000000	0.032146	-0.459515
G	0.032146	1.000000	-0.579786
W	-0.459515	-0.579786	1.000000

Source: data processes by Eviews 6.0, 2016

Based on table 4.1.we can seen that the correlation between Inflation (I) and Gross Domestic Regional Product (G) is 0. 032146, the correlationbetween inflation (I) and minimum wage (W) is -0.459515, the correlation between Gross

Domestic Regional Product (G) and Minimum Wage (W) is -0.579786. From the result above, it can be concluded that there is no multicolinearity

2. **Heteroskedasticity**.

Tabel 4. 2. The result of Heteroskedasticity test

Heteroskedasticity Test: White			
F-statistic	1.288319	Prob. F(9,4)	0.4324
Obs*R-squared	10.40908	Prob. Chi-Square(9)	0.3184
Scaled explained SS	5.840617	Prob. Chi-Square(9)	0.7558

Source: data processed by using Eviews 6.0, 2016

H_0 = No Heteroskedasticity

H_1 = Heteroskedasticity

α = 5%

If P-value obs*R-square < α, it means H_0 rejected.

From the result showed in table 4.2. P-value obs*R-square is 0.3184 > 0.05, so H_0 is Accepted. The other way to read the heteroskedasticity above is:

If the probability Chi square is 0.7558 (75.58%) larger that α = 5% (0.05) it means that there is no heteroskedasticity

3. Autocorrelation Test

Tabel 4. 3. The result of autocorrelation test by Breusch-Godfrey

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.211470	Prob. F(2,8)	0.3471
Obs*R-squared	3.254472	Prob. Chi-Square(2)	0.1965

Source: data processed by using Eviews 6.0, 2016

H_0 = there is no serial correlation

H_1 = There is correlation

If Chi squares $(\chi^2) > \alpha$, H_0 is accepted. It means there is no autocorrelation

If Chi squares $(\chi^2) < \alpha$, H_0 is rejected or there is autocorrelation.

Based on that regression result, Chi squares $(\chi^2) = 0.1965$ and $\alpha = 0.01$.

It means that Chi squares (χ^2) is more than α, $0.1965 > 0.01$, so H_0 is accepted because there is no autocorrelation.

4. Normality

Jarque-Bera is the way to see the data is normal distributed or not. If the Jarque-Berais less than χ^2, it means the data is normal distributed and vice versa, if the Jarque-berais more than χ^2, it means the data is not normal distributed.

	Series: Residuals
	Sample 2000 2013
	Observations 14
Mean	9.52e-16
Median	0.086011
Maximum	2.504257
Minimum	-3.790835
Std. Dev.	1.659203
Skewness	-0.480260
Kurtosis	3.199544
Jarque-Bera	0.561410
Probability	0.755251
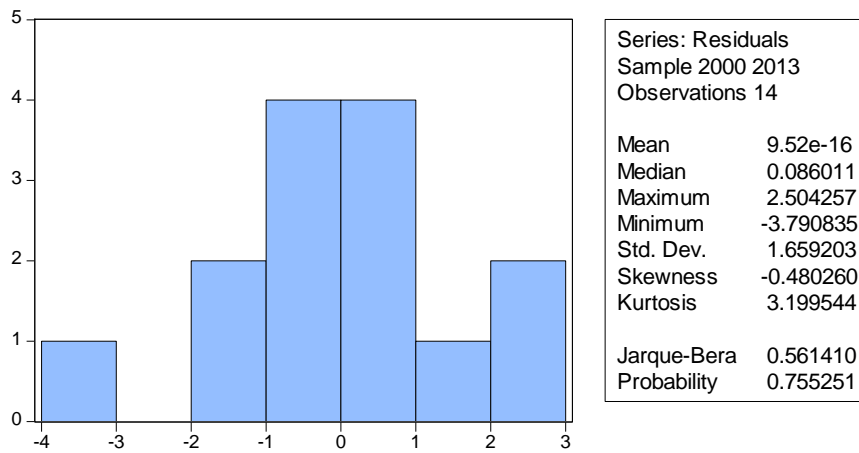
Figure 4. 1.*The result of normality test by Jarque-Bera*

Source: data processed by using Eviews 6.0, 2016

Based on figure 4.1 result, the value of Jarque–Bera is 0.561410 and α = 5 percent (0.05) with the degree of freedom (df) 2. So χ^2 = 5.99.

Jarque-Bera$<\chi^2$, 0.561410 < 5.99. It means that the error term is normally distributed.

The other way to see the normality is using probability is:

H_0 = error term is distributed

H_1 = error tem is not distributed

If P-value < α, H_0 is rejected.

Based on data process, P-value = 0.755251, α = 5 percent (0.05), means that P-value > α, so H_0 is accepted. The error term is normally distributed.

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4.2.2. Panel Data Regression Model

Tabel 4. 4. Common Effect Model (Pooled Least Square)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.154854	0.558462	11.02107	0.0000
I?	0.097041	0.043540	2.228764	0.0263
G?	1.52E-05	1.86E-06	8.203560	0.0000
W?	-0.000542	0.000458	-1.184763	0.2367

Tabel 4. 5. Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.291692	0.487274	17.01650	0.0000
I?	0.046167	0.031934	1.445727	0.1490
G?	-1.26E-05	6.35E-06	-1.975851	0.0488
W?	-0.000856	0.000401	-2.137281	0.0332

Tabel 4. 6. Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.404261	0.563959	13.12907	0.0000
I?	0.056691	0.031857	1.779537	0.0758
G?	6.55E-06	3.67E-06	1.785034	0.0749
W?	-0.001293	0.000369	-3.502418	0.0005

Based on the data panel process in table 4.4, 4.5, and 4.6, to get the best models then it is necessary do the chow test and Hausman test. Chow test was conducted to compare the Pooled Least Square model and Fixed effect model, while the Hausman test is a test to compare the fixed effect model and random effect.

1. Chow test

Chow test is a test to compare the best model between Common Effect Model and Fixed Effect Model.

H_0 = Common Effect Model

H_1 = Fixed Effect Model

Tabel 4. 7. Chow Test Result

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	13.525873	(32,411)	0.0000
Cross-section Chi-square	321.551860	32	0.0000

Cross-section fixed effects test equation:
Dependent Variable: (U?)
Method: Panel Least Squares
Date: 08/02/16   Time: 01:57
Sample: 2000 2013
Included observations: 14
Cross-sections included: 33
Total pool (unbalanced) observations: 447

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.154854	0.558462	11.02107	0.0000
I?	0.097041	0.043540	2.228764	0.0263
G?	1.52E-05	1.86E-06	8.203560	0.0000
W?	-0.000542	0.000458	-1.184763	0.2367

R-squared	0.142828	Mean dependent var		7.401306
Adjusted R-squared	0.137024	S.D. dependent var		3.439100
S.E. of regression	3.194805	Akaike info criterion		5.169837
Sum squared resid	4521.602	Schwarz criterion		5.206549
Log likelihood	-1151.459	Hannan-Quinn criter.		5.184311
F-statistic	24.60533	Durbin-Watson stat		0.406424
Prob(F-statistic)	0.000000			

If Chi Square >0.05 , H_0 is Accepted

If Chi Square < 0.05, H_0 is rejected

Based on the result of regression, chi square is $0.000 < 0.05$, H0 is rejected.

It can be concluded that the best model is Fixed Effect Model

2. Hausman Test

Hausman Test is a test to choose the best model between Random Effect Model and Fixed Effect Model.

H_0 = Random Effect Model

H_1 = Fixed Effect Model

Tabel 4. 8. Hausman Test Result

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

Cross-section random effects test equation: Test Summary Dependent Variable: (U?)	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Method: Panel Least Squares Cross-section random Date: 07/26/16 Time: 19:43	22.948422	3	0.0000

Sample: 2000 2013

Included observations: 14
Cross-section random effects test comparisons:
Cross-sections included: 33

Total pool (unbalanced) observations: 447 Variable	Fixed	Random	Var(Diff.)	Prob.
Variable (I?)	Coefficient 0.046167	Std. Error 0.056691	t-Statistic 0.000005	Prob. 0.0000
(G?) C (W?) I?	-0.000013 8.291692 -0.000856 0.046167	0.000007 0.487274 -0.001293 0.031934	0.000000 17.01650 0.000000 1.445727	0.0002 0.0000 0.9051 0.1490
G?	-1.26E-05	6.35E-06	-1.975851	0.0488
W?	-0.000856	0.000401	-2.137281	0.0332

	Effects Specification	

Cross-section fixed (dummy variables)

R-squared	0.582501	Mean dependent var	7.401306

Adjusted R-squared	0.546947	S.D. dependent var	3.439100
S.E. of regression	2.314831	Akaike info criterion	4.593659
Sum squared resid	2202.319	Schwarz criterion	4.924066
Log likelihood	-990.6827	Hannan-Quinn criter.	4.723920
F-statistic	16.38380	Durbin-Watson stat	0.793684
Prob(F-statistic)	0.000000		

If

Chi

Square >0.05, H_0 is Accepted

If Chi Square < 0.05, H_0 is rejected

Based on the result of regression, chi square is 0.000 < 0.05, H0 is rejected.

It can be concluded that the best model is Fixed Effect Model as can be seen in table 4.9 below:

Tabel 4. 9. Summary of Fixed Effect Model

Variable	Coefficient	t-statistic	Probability	Explanation
C	8.291692	17.01650	0.0000	
Inflation	0.046167	1.445727	0.1490	Not significant
GDRP	-0.0000126	-1975851	0.0488	Significant
Wage	-0.000856	-2.137281	0.0332	Significant
Adj R square	0.546947			
F-statistic	16.38380			
Probability	0.00000			

Source, data process, 2016

$$U = 8.291692 + 0.046167 \ I - -0.0000126GDRP - -0.000856W$$

$$t= (17.01650) \ (1.445727) \ (-1975851) \ (-2.137281)$$

$$R^2 = 0.582501$$

4.2.2.1. Hyphotesis Testing of Panel Data Regression

1. F test

F-test is performed to determine whether there is significant influence between dependent variable and independent variable. The hypothesis testing is as follows:

H_0 = The independent variables does not affect the dependent variable

H_1 = The Independent variables affect the dependent variable.

If the F-statistic > F-table, H_0 is rejected. If The F-statistic < F-table, H_0 is accepted. From the fixed effect regression, the Chi Square is 0.000 less than the probability (0.05). Because of chi square is less than probability, it can

be conclude that the H_0 is rejected, it means that H_1 is accepted, the independent variables significantly affect the dependent variable.

2. T test

   T-test is a test to show how far the influence of the independent variable individually in explaining the variation of the dependent variable. The result of t-test sample can be used to verify the truth or an error of the null hypothesis (H_0). The decision making to accept or reject H_0 are:

H_0 = the independent variables do not affect the dependent variable

H_1 = the independent variables affect the dependent variable.

The probability of the inflation is 0.149 is more than the alpha (0.149>0.05), so H_0 is accepted. It means that inflation does not effect the unemployment.

   The probability of the gross domestic regional product is 0.0488, which is less than alpha (0.0488<0.05), then H_0 is rejected. Gross domestic regional product effect the on unemployment.

   The probability of the minimum wage is 0.0488 which is less than alpha (0.0488<0.05), then H_0 is rejected. Thus minimum wage effect the on unemployment.

3. Coefficient Determination

   R^2 obtained from Panel Data Regression Model estimation is 0.582501. It means that 58.25% of the variation of unemployment can be explained by inflation, gross domestic regional product, and minimum wage, and the rest is explained by other variables outside the model.

Adjusted R-squares ($\bar{R}^2$) is 0.546947. It means that the coefficient of ($\bar{R}^2$) should be less than 0.546947

4.2.2.2. Discussion

Based on the panel data regression, inflation has positive and insignificant influence on unemployment, while both of Gross Domestic Regional Product and minimum wage has negative and significant effect on unemployment.

The relationship between inflation and unemployment is explained by Philips curve that shows that they have negative relationship. When the inflation is high, the number of unemployment is low. But, in panel regression, it shows the result of inflation has positive and insignificant effect on unemployment. Positive sign means that if the inflation rises, the unemployment will increase too.

Both of the gross domestic regional product and minimum wage have negative and significant effect toward unemployment. It means that if the gross domestic regional product increases 1 billion and minimum wage also increases 1 thousand, and the unemployment will decrease 0.00126 percent and 0.0856 percent.

4.2.2.3. Interpretation of Fixed Effect Model

Tabel 4. 10. Summary of Fixed Effect Model Provincial Intepretation

	Coefficient	Intercept
Constanta	8.291692	
DKI Jakarta	9.013346	17.305038
Jabar	7.248359	15.540051
Banten	5.812495	14.104187
Kaltim	3.572955	11.864647

Sulsel	3.007043	11.298735
Sulut	2.936138	11.227830
Sumut	2.584488	10.876180
Maluku	2.049007	10.340699
Riau	1.900455	10.192147
Aceh	1.693188	9.984880
Jatim	1.630479	9.922171
Sumbar	1.392712	9.684404
Jateng	0.689139	8.980831
Sulsel	0.409120	8.700812
Gorontalo	-0.775987	7.515705
Lampung	-0.832851	7.458841
Maluku Utara	-0.937235	7.354457
Kalsel	-1.339919	6.951773
Sultengga	-1.463637	6.828055
NTB	-1.518973	6.772719
Sulteng	-1.828217	6.463475
Kalbar	-1.867833	6.423859
Kepulauan riau	-1.960490	6.331202
Jambi	-2.319243	5.972449
Papua	-2.539553	5.752139
Bangka Belitung	-2.570609	5.721083
DIY	-2.656275	5.635417
Bengkulu	-2.942083	5.349609
Kalteng	-3.003438	5.288254
Papua Barat	-3.827698	4.463994
Sulbar	-3.852072	4.439620
Bali	-4.079958	4.211734
NTT	-4.326993	3.964699

Source: Data Processed 2016

Figure 4. 2.*Interpretation of Fixed Effect Model*

Based on the fixed effect model in table 4.10, gross domestic regional product and minimum wage are statistically significant at α = 5 percent, but the signs are negative. It means that both of the variables negatively influence unemployment. While, the inflation is not significant at α = 10 percent.

The result of fixed effect model shows the positive coefficient, it means that the level of dependent variable (unemployment) in all independent variables and all provinces are constant at 8.291692.

The result of the estimation shows that the fixed effect model is able to explain that each province has different intercept coefficient. From the table 4.10 above it shows that DKI Jakarta has the highest coefficient (17.305038) and NTT has the lowest coefficient (3.964699).

CHAPTER V: CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

This research explains the influence of inflation, gross domestic product, and minimum wage toward unemployment in Indonesia in 2000-2013 using Panel Data Regression.

Based on the Panel Data regression, the best model used fixed effect model. The result of this regression is inflation, gross domestic regional product and minimum wage affect unemployment significantly. Partially, inflation has positive and insignificant influence toward unemployment. Both gross domestic regional product and minimum wage have negative and significantly do not affect unemployment.
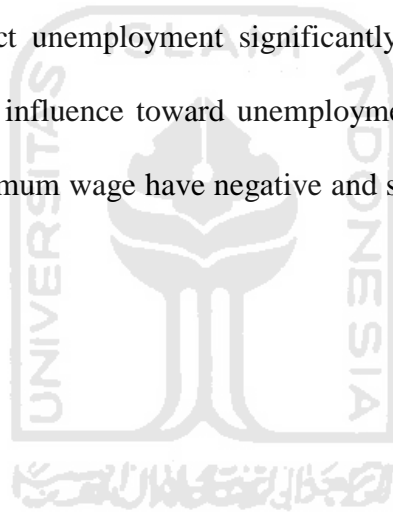
5.2. Recommendations

1. The future research may use more independent variables, such investment and add more periode to make more accurate result.

2. Variable inflation shows the positive and significant effect to unemployment. If the inflation increases, the unemployment will increase to. So the government must create the right policy to keep the inflation stable.

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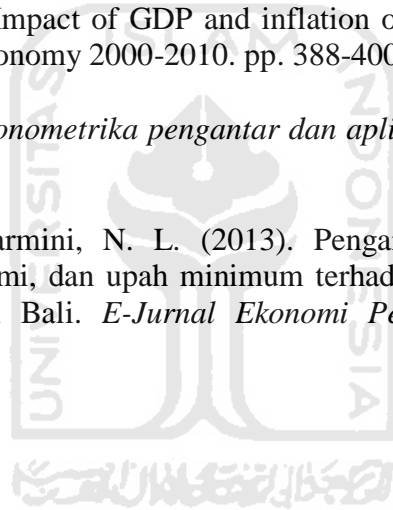
Appendices

1. Provincial Unemployment data 2000-2013 (%)

a. Provincial Unemployment data 2000-2006

	2000	2001	2002	2003	2004	2005	2006
Aceh	4.80	7.71	9.34	8.97	9.35	13.25	11.26
Sumut	8.52	9.09	10.30	11.02	11.08	11.44	13.17
Sumbar	4.38	8.74	9.62	10.38	12.74	12.42	12.40
Riau	5.93	6.43	9.57	10.74	15.25	13.04	10.85
Jambi	3.68	5.61	5.78	6.50	6.04	9.67	7.20
Sumsel	5.73	6.32	8.14	9.08	8.37	10.69	10.71
Bengkulu	3.25	6.01	6.45	7.48	6.29	7.53	6.48
Lampung	5.24	6.39	8.32	9.14	7.38	7.66	9.44
kepulauan BB	-	7.08	5.23	7.37	7.14	7.65	7.47
Kepri	-	-	-	-	-	-	11.47
DKI Jakarta	12.08	15.07	14.39	14.86	14.70	15.25	12.86
Jabar	8.99	11.77	13.19	12.49	13.69	15.13	14.54
Jateng	4.86	6.17	6.66	7.02	7.72	9.02	8.11
DIY	3.45	5.18	5.21	5.62	6.26	6.32	6.28
Jatim	4.39	6.51	6.43	8.79	7.69	8.48	7.95
Banten	-	12.32	14.15	14.18	14.31	15.41	17.62
Bali	2.96	2.89	4.52	5.36	4.66	4.67	5.68
NTB	4.30	5.82	6.94	6.34	7.48	9.61	8.93
NTT	2.46	4.26	4.35	4.02	4.48	5.14	4.31

Kalbar	4.23	4.84	8.57	6.53	7.90	8.37	7.80
Kalteng	3.70	6.14	6.38	7.59	5.59	4.88	5.91
Kalsel	3.97	5.91	9.22	7.67	6.02	6.76	8.83
Kaltim	8.88	6.81	11.76	9.69	10.39	10.10	12.77
Sulut	8.66	10.21	11.35	10.79	10.91	14.22	14.15
Sulteng	5.09	8.25	8.06	4.64	5.85	7.67	9.60
Sulsel	6.44	10.39	12.29	17.32	15.93	14.75	12.54
Sultengga	3.10	7.51	8.33	10.30	9.35	9.93	8.55
Gorontalo	-	7.78	13.17	10.17	12.29	11.91	8.69
Sulbar	-	-	-	-	-	-	5.54
Maluku	-	11.28	8.08	12.63	11.67	13.66	14.74
Maluku Utara	-	9.32	15.25	7.50	7.53	10.98	7.72
Papua Barat	-	-	-	-	-	-	10.67
Papua	3.62	5.82	6.01	6.21	8.00	7.22	5.16

b. Provincial Unemployment data 2007-2013 (%)

	2007	2008	2009	2010	2011	2012	2013
Aceh	10.06	9.38	9.01	8.49	8.81	8.50	9.23
Sumut	10.37	9.32	8.35	7.72	7.82	6.35	6.27
Sumbar	10.67	8.88	7.93	7.26	7.76	6.57	6.71
Riau	10.09	8.77	8.76	7.96	6.80	4.83	4.84
Jambi	6.48	5.52	5.37	4.92	4.30	3.45	3.82
Sumsel	9.87	8.27	8.00	6.60	6.45	5.63	5.12
Bengkulu	4.90	4.44	5.19	4.33	3.46	2.90	3.11
Lampung	7.93	6.72	6.40	5.76	5.95	5.20	5.38
kepulauan BB	6.93	5.89	5.48	4.93	3.59	3.13	3.44
Kepri	8.94	8.25	7.96	7.06	6.29	5.39	5.84
DKI Jakarta	12.92	11.61	12.07	11.19	11.27	10.13	9.13
Jabar	13.79	12.18	11.41	10.45	9.99	9.46	9.02
Jateng	7.90	7.24	7.30	6.53	6.62	5.75	5.77
DIY	6.09	5.71	6.00	5.85	4.97	3.94	3.50
Jatim	7.12	6.33	5.48	4.58	4.81	4.13	4.14
Banten	15.93	14.66	14.94	13.91	13.68	10.31	9.65
Bali	4.33	3.94	3.03	3.32	2.98	2.16	1.88
NTB	7.02	5.66	6.19	5.53	5.35	5.23	5.29
NTT	3.85	3.71	3.38	3.41	2.94	2.79	2.68
Kalbar	6.78	5.95	5.54	5.06	4.92	3.48	3.56
Kalteng	5.06	4.69	4.58	4.01	3.69	2.93	2.41
Kalsel							

	7.46	6.55	6.55	5.57	6.01	4.77	3.77
Kaltim	12.45	11.26	10.96	10.28	11.16	9.25	8.44
Sulut	12.69	11.50	10.59	10.05	9.92	8.27	7.14
Sulteng	7.70	6.35	5.27	4.75	5.54	3.85	3.43
Sulsel	11.63	9.77	8.82	8.18	7.51	6.29	5.49
Sultengga	6.66	5.89	5.06	4.69	4.57	3.67	3.91
Gorontalo	7.21	6.35	5.48	5.11	5.85	4.70	4.33
Sulbar	4.77	5.12	4.72	3.68	3.06	2.13	2.18
Maluku	13.29	10.86	10.47	9.55	9.50	7.65	8.44
Maluku Utara	7.20	6.75	6.69	6.03	5.57	5.16	4.65
Papua Barat	9.82	8.47	7.64	7.72	6.77	5.99	4.38
Papua	5.27	4.62	4.10	3.81	4.43	3.37	3.03
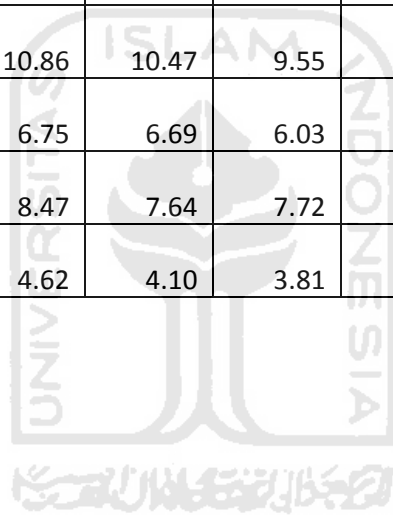
2. Inflation data 2000-2013

Year	Inflation in %
2000	9.35
2001	12.55
2002	10.03
2003	5.06
2004	6.4
2005	17.11
2006	6.6
2007	6.59
2008	11.06
2009	2.78
2010	6.96
2011	3.79
2012	4.3
2013	8.38

3. Gross Domestic Regional Product 2000-2013 (Billion Rupiah)

a. Gross Domestic Regional Product 2000-2004

	2000	2001	2002	2003	2004
Aceh	39501.35	35262.98	42338.75	44677.16	40374.28
Sumut	69154.11	71908.36	75189.14	78805.61	83328.95
Sumbar	22889.61	23727.37	24840.19	26146.78	27578.14
Riau	69576.97	69477.70	71328.29	73077.96	75216.72
Jambi	9569.24	10205.59	10803.42	11343.28	11953.89
Sumsel	41317.80	42337.43	43643.28	45247.40	47344.40
Bengkulu	4868.10	5070.10	5310.02	5595.03	5896.26
Lampung	23245.98	24079.61	25433.28	26898.05	28262.29
kepulauan BB	6451.09	6819.15	7279.31	8147.53	8414.98
Kepri	--	--	--	26775.79	28509.06
DKI Jakarta	227861.24	238656.14	250331.16	263624.24	278524.82
Jabar	195943.00	202131.38	209731.19	219525.22	230003.50
Jateng	114701.30	118816.40	123038.54	129166.46	135789.87
DIY	13480.60	14055.07	14687.28	15360.41	16146.42
Jatim	203236.96	210868.20	218886.43	229341.93	242721.07
Banten	52927.54	55018.23	57281.66	60187.06	63572.98
Bali	17969.82	18603.81	19167.87	19853.64	20771.65
NTB	12192.58	13085.32	13544.50	14073.34	14928.17
NTT	7873.14	8249.61	8656.19	9053.93	9537.10
Kalbar	19378.78	19900.33	20806.35	21455.28	22483.02
Kalteng	11039.68	11365.35	11967.77	12555.44	13253.08
Kalsel	18706.95	19484.05	20224.46	21109.04	22171.33
Kaltim	82447.05	86348.11	87850.40	89483.54	91050.43
Sulut	10655.73	10882.37	11244.56	11603.37	12097.30
Sulteng	8824.46	9274.09	9794.89	10403.36	11146.84
Sulsel	28258.97	29735.72	30948.82	32627.38	34345.08
Sultengga	5774.65	6063.99	6468.06	6957.66	7480.18
Gorontalo	1473.27	1554.97	1655.33	1769.19	1891.76
Sulbar	0.00	0.00	0.00	0.00	0.00
Maluku	2769.26	2768.29	2847.74	2970.47	3102.00
Maluku Utara	1879.63	1911.04	1957.72	2032.57	2128.21
Papua Barat	0.00	0.00	4297.39	4627.37	4969.21
Papua	18409.76	20046.52	21078.93	21019.42	16282.97

b. Gross Domestic Regional Product 2005-2009 (Billion Rupiah)

	2005	2006	2007	2008	2009
Aceh	36287.92	36853.87	35983.09	34097.99	32219.09
Sumut	87897.79	93347.40	99792.27	106172.36	111559.22
Sumbar	29159.48	30949.95	32912.97	35176.63	36683.24
Riau	79287.59	83370.87	86213.26	91085.38	93786.24
Jambi	12619.97	13363.62	14275.16	15297.77	16274.91
Sumsel	49633.54	52214.85	55262.11	58065.46	60452.94
Bengkulu	6239.36	6610.63	7037.40	7441.87	7859.92
Lampung	29397.25	30861.36	32694.89	34443.15	36256.30
kepulauan BB	8707.31	9053.55	9464.54	9899.93	10270.11
Kepri	30381.50	32441.00	34713.81	37014.74	38318.83
DKI Jakarta	295270.54	312826.71	332971.25	353723.39	371469.50
Jabar	242883.88	257499.45	274180.31	291205.84	303405.25
Jateng	143051.21	150682.65	159110.25	168034.48	176673.46
DIY	16910.88	17535.75	18291.51	19212.48	20064.26
Jatim	256905.22	271797.92	288404.31	305538.69	320861.17
Banten	67310.58	71057.64	75349.61	79700.68	83453.73
Bali	21926.96	23084.30	24449.89	25910.33	27290.95
NTB	15183.79	15603.77	16369.22	16831.60	18874.40
NTT	9867.31	10368.50	10902.40	11429.77	11920.60
Kalbar	23322.41	24541.15	26019.74	27438.79	28756.88
Kalteng	14034.63	14853.73	15754.51	16726.46	17657.79
Kalsel	23292.54	24452.26	25922.29	27593.09	29051.63
Kaltim	93938.00	96612.84	98386.38	103206.87	105564.94
Sulut	12744.55	13473.11	14344.30	15902.07	17149.62
Sulteng	11990.36	12928.30	13961.15	15047.43	16207.60
Sulsel	36421.79	38867.68	41332.43	44549.82	47326.08
Sultengga	8026.86	8643.33	9331.72	10010.59	10768.58
Gorontalo	2027.72	2175.82	2339.22	2520.67	2710.74
Sulbar	3106.72	3321.15	3567.82	3998.50	4239.46
Maluku	3259.24	3440.11	3633.48	3787.27	3993.14
Maluku Utara	2236.80	2359.48	2501.18	2651.11	2812.04
Papua Barat	5307.33	5548.90	5934.32	6399.53	7286.98
Papua	22209.19	18402.20	19200.30	18931.84	23138.44

c. Gross Domestic Regional Product 2010-2013 (Billion Rupiah)

	2010	2011	2012	2013
Aceh	33103.08	34704.82	36487.88	38012.97
Sumut	118718.90	126587.62	134461.51	142537.12
Sumbar	38862.14	41293.35	43925.82	46640.24
Riau	97735.60	102665.96	106298.73	109073.14
Jambi	17471.69	18963.52	20373.53	21979.28
Sumsel	63859.14	68008.50	72095.88	76409.76
Bengkulu	8339.75	8878.82	9464.83	10052.31
Lampung	38389.90	40858.94	43526.87	46123.35
kepulauan BB	10884.95	11592.89	12257.11	12905.01
Kepri	41075.86	43809.83	46796.68	49667.22
DKI Jakarta	395622.44	422242.25	449805.42	477285.25
Jabar	322223.82	343193.56	364752.40	386838.84
Jateng	186992.99	198270.12	210848.42	223099.74
DIY	21044.04	22131.77	23308.56	24567.48
Jatim	342280.76	366983.28	393662.85	419428.45
Banten	88552.19	94198.17	99992.41	105856.07
Bali	28882.49	30757.78	32804.38	34787.96
NTB	20072.64	19533.26	19318.51	20417.22
NTT	12546.82	13252.31	13969.78	14746.06
Kalbar	30328.70	32141.38	34007.56	36075.10
Kalteng	18805.68	20078.09	21420.48	22999.68
Kalsel	30675.43	32552.60	34413.31	36196.22
Kaltim	110953.45	115489.85	120085.76	121990.49
Sulut	18376.82	19735.47	21286.58	22872.16
Sulteng	17624.17	19230.92	21007.97	22979.40
Sulsel	51199.90	55093.74	59718.50	64284.43
Sultengga	11653.91	12698.12	14020.35	15040.86
Gorontalo	2917.49	3141.46	3383.82	3646.55
Sulbar	4743.66	5233.06	5704.33	6112.65
Maluku	4251.36	4509.17	4861.35	5111.31
Maluku Utara	3035.65	3230.05	3445.50	3656.30
Papua Barat	9361.36	11890.14	13780.12	15061.52
Papua	22400.09	21207.82	21436.17	24616.65

4. Provincial Minimum Wage 2000-2013 (In Thousand Rupiah)

a. Provincial Minimum Wage 2000-2006

	2000	2001	2002	2003	2004	2005	2006
Aceh	265.0	300.0	330.0	425.0	550.0	620.0	820.0
Sumut	254.0	340.5	464.0	505.0	537.0	600.0	737.8
Sumbar	200.0	250.0	385.0	435.0	480.0	540.0	650.0
Riau	250.7	329.0	394.0	437.5	476.9	551.5	637.0
Jambi	173.0	245.0	304.0	390.0	425.0	485.0	563.0
Sumsel	190.0	255.0	331.5	403.5	460.0	503.7	604.0
Bengkulu	173.0	240.0	295.0	330.0	363.0	430.0	516.0
Lampung	192.0	240.0	310.0	350.0	377.5	405.0	505.0
kepulauan BB	190.0	255.0	345.0	379.5	447.9	560.0	640.0
Kepri	300.0	421.5	0.0	0.0	0.0	557.0	760.0
DKI Jakarta	286.0	426.3	591.3	631.6	671.6	711.8	819.1
Jabar	230.0	245.0	280.8	320.0	366.5	408.3	447.7
Jateng	185.0	245.0	314.5	340.4	365.0	390.0	450.0
DIY	194.5	237.5	321.8	360.0	365.0	400.0	460.0
Jatim	214.5	220.0	245.0	274.0	310.0	340.0	390.0
Banten	230.0	245.0	360.0	475.0	515.0	585.0	661.6
Bali	214.0	309.8	341.0	410.0	425.0	447.5	510.0
NTB	180.0	240.0	320.0	375.0	412.5	475.0	550.0
NTT	184.0	275.0	330.0	350.0	400.0	450.0	550.0
Kalbar	228.0	304.5	380.0	400.0	420.0	445.2	512.0
Kalteng	285.0	362.0	362.0	425.0	482.3	523.7	634.3
Kalsel	200.0	295.0	377.5	425.0	482.2	536.3	629.0
Kaltim	233.0	300.0	500.0	540.0	572.7	600.0	684.0
Sulut	186.0	372.0	438.0	495.0	545.0	600.0	713.5
Sulteng	203.0	245.0	350.0	410.0	450.0	490.0	575.0
Sulsel	200.0	300.0	375.0	415.0	455.0	510.0	612.0
Sultengga	210.0	275.0	325.0	390.0	470.0	498.6	573.4
Gorontalo	186.0	372.0	375.0	410.0	430.0	435.0	527.0
Sulbar	n.a	n.a	n.a	n.a	n.a	n.a	612.0
Maluku	180.0	230.0	285.0	370.0	450.0	500.0	575.0
Maluku Utara	180.0	230.0	322.0	370.0	400.0	440.0	528.0
Papua Barat	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua	315.0	400.0	530.0	600.0	650.0	700.0	822.5

b. Provincial Minimum Wage 2007-2013 (in Thousand Rupiah)

	2007	2008	2009	2010	2011	2012	2013
Aceh	850.0	1,000.0	1,200.0	1,300.0	1,350.0	1,400.0	1,550.0
Sumut	761.0	822.2	905.0	965.0	1,035.5	1,200.0	1,375.0
Sumbar	750.0	800.0	880.0	950.0	1,055.0	1,150.0	1,350.0
Riau	710.0	800.0	901.6	1,016.0	1,120.0	1,238.0	1,400.0
Jambi	658.0	724.0	800.0	900.0	1,028.0	1,142.5	1,300.0
Sumsel	753.0	743.0	824.7	927.8	1,048.4	1,195.2	1,350.0
Bengkulu	644.8	683.5	728.0	780.0	815.0	930.0	1,200.0
Lampung	555.0	617.0	691.0	767.5	855.0	975.0	1,150.0
kepulauan BB	830.0	813.0	850.0	910.0	1,024.0	1,110.0	1,265.0
Kepri	805.0	833.0	892.0	925.0	975.0	1,015.0	1,365.1
DKI Jakarta	816.1	972.6	1,069.9	1,118.0	1,290.0	1,529.0	2,200.0
Jabar	447.7	568.2	628.2	671.5	732.0	n.a	n.a
Jateng	500.0	547.0	575.0	660.0	675.0	n.a	n.a
DIY	460.0	586.0	700.0	745.7	808.0	892.7	947.1
Jatim	448.5	500.0	570.0	630.0	705.0	n.a	n.a
Banten	661.6	837.0	917.5	955.3	1,000.0	1,042.0	1,170.0
Bali	622.0	682.7	760.0	829.3	890.0	967.5	1,181.0
NTB	550.0	730.0	832.5	890.8	950.0	1,000.0	1,100.0
NTT	600.0	650.0	725.0	800.0	850.0	925.0	1,010.0
Kalbar	560.0	645.0	705.0	741.0	802.5	900.0	1,060.0
Kalteng	666.0	765.9	873.1	986.5	1,134.6	1,225.0	1,553.1
Kalsel	745.0	825.0	930.0	1,024.5	1,126.0	1,327.4	1,337.5
Kaltim	766.5	815.0	955.0	1,002.0	1,084.0	1,177.0	1,752.1
Sulut	750.0	845.0	929.5	990.0	1,050.0	1,250.0	1,550.0
Sulteng	615.0	670.0	720.0	777.5	827.5	885.0	995.0
Sulsel	673.2	740.5	905.0	1,000.0	1,100.0	1,200.0	1,440.0
Sultengga	640.0	700.0	770.0	860.0	930.0	1,032.3	1,125.2
Gorontalo	560.0	600.0	675.0	710.0	762.5	837.5	1,175.0
Sulbar	691.5	760.5	909.4	944.2	1,006.0	1,127.0	1,165.0
Maluku	635.0	700.0	775.0	840.0	900.0	975.0	1,275.0
Maluku Utara	660.0	700.0	770.0	847.0	889.4	960.5	1,200.6
Papua Barat	0.0	0.0	0.0	1,210.0	1,410.0	1,450.0	1,720.0
Papua	987.0	1,105.5	1,216.0	1,316.5	1,403.0	1,515.0	1,710.0

5. Multicolinearity Test Result

	I	G	W
I	1.000000	0.032146	-0.459515
G	0.032146	1.000000	-0.579786
W	-0.459515	-0.579786	1.000000

6. Heteroskedasticity Test Result

a. Heteroskedasticity Test Result in Graph
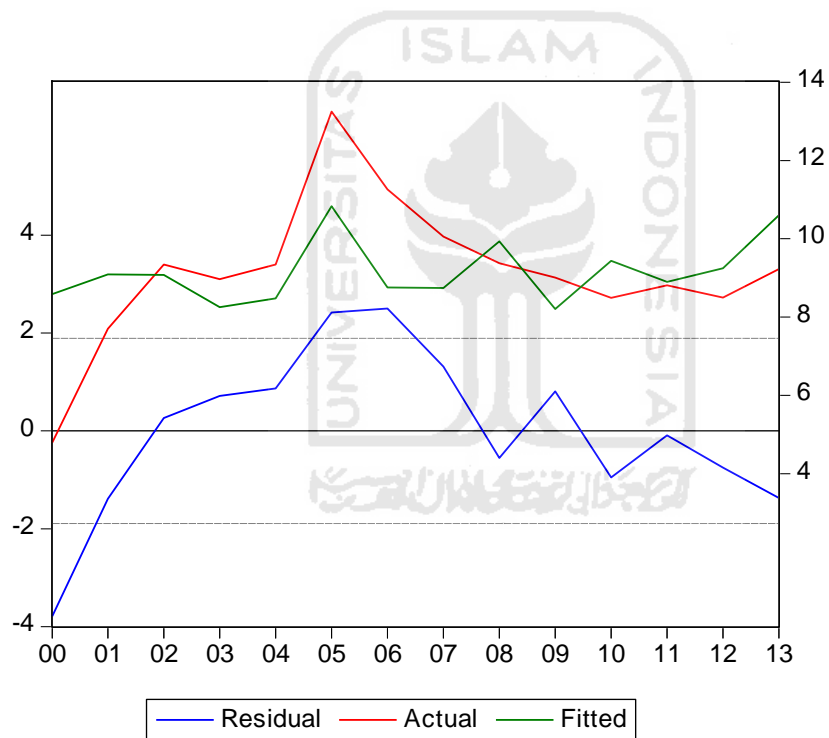
b. Heteroskedasticity Test Result in Table

Heteroskedasticity Test: White

F-statistic	1.288319	Prob. F(9,4)	0.4324
Obs*R-squared	10.40908	Prob. Chi-Square(9)	0.3184
Scaled explained SS	5.840617	Prob. Chi-Square(9)	0.7558

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 07/25/16   Time: 03:58
Sample: 2000 2013
Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-520.4868	292.7382	-1.777994	0.1500
I	-7.927650	7.153757	-1.108180	0.3299
I^2	0.214313	0.110452	1.940336	0.1243
I*G	-1.78E-06	0.000155	-0.011459	0.9914
I*W	0.004414	0.002147	2.056196	0.1089
G	0.030992	0.014292	2.168511	0.0960
G^2	-3.98E-07	1.68E-07	-2.375922	0.0763
G*W	-2.80E-06	2.05E-06	-1.362267	0.2448
W	0.008584	0.077465	0.110809	0.9171
W^2	2.75E-05	1.32E-05	2.081208	0.1059

R-squared	0.743505	Mean dependent var	2.556316
Adjusted R-squared	0.166393	S.D. dependent var	3.934352
S.E. of regression	3.592146	Akaike info criterion	5.571185
Sum squared resid	51.61406	Schwarz criterion	6.027655
Log likelihood	-28.99830	Hannan-Quinn criter.	5.528931
F-statistic	1.288319	Durbin-Watson stat	2.355377
Prob(F-statistic)	0.432364		

7. Auto-Correlation Test Result

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.211470	Prob. F(2,8)	0.3471
Obs*R-squared	3.254472	Prob. Chi-Square(2)	0.1965

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 07/25/16   Time: 04:01
Sample: 2000 2013
Included observations: 14
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
I	0.010655	0.158628	0.067168	0.9481
G	-4.38E-05	0.000257	-0.170566	0.8688
W	-0.000380	0.001733	-0.219192	0.8320
C	1.828245	11.02712	0.165795	0.8724
RESID(-1)	0.541563	0.400089	1.353606	0.2129
RESID(-2)	-0.088393	0.517872	-0.170685	0.8687

R-squared	0.232462	Mean dependent var	9.52E-16
Adjusted R-squared	-0.247249	S.D. dependent var	1.659203
S.E. of regression	1.853003	Akaike info criterion	4.369020
Sum squared resid	27.46897	Schwarz criterion	4.642901
Log likelihood	-24.58314	Hannan-Quinn criter.	4.343667
F-statistic	0.484588	Durbin-Watson stat	1.493777
Prob(F-statistic)	0.779487		

8. Common Effect Model (Pooled Least Square) Process
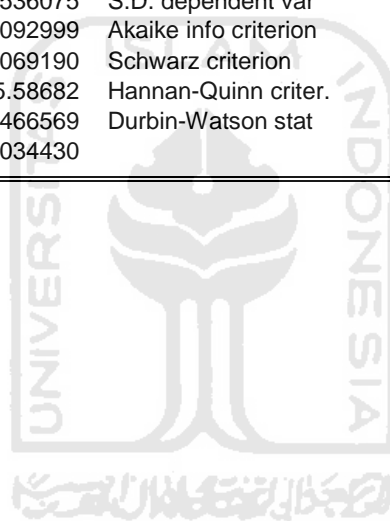
Dependent Variable: LOG(U)
Method: Least Squares
Date: 07/25/16   Time: 04:08
Sample (adjusted): 2001 2013
Included observations: 13 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.441202	4.235949	0.576306	0.5803
LOG(I)	0.141869	0.061296	2.314486	0.0493
LOG(G)	-0.118186	0.376223	-0.314139	0.7615
LOG(W)	-0.045023	0.076731	-0.586764	0.5735
LOG(U(-1))	0.487317	0.137701	3.538953	0.0076

R-squared	0.690717	Mean dependent var	2.240983
Adjusted R-squared	0.536075	S.D. dependent var	0.136538
S.E. of regression	0.092999	Akaike info criterion	-1.628741
Sum squared resid	0.069190	Schwarz criterion	-1.411453
Log likelihood	15.58682	Hannan-Quinn criter.	-1.673404
F-statistic	4.466569	Durbin-Watson stat	2.459259
Prob(F-statistic)	0.034430		

9. Fixed Effect Model Process

Dependent Variable: (U?)
Method: Pooled Least Squares
Date: 07/26/16   Time: 19:37
Sample: 2000 2013
Included observations: 14
Cross-sections included: 33
Total pool (unbalanced) observations: 447

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.291692	0.487274	17.01650	0.0000
I?	0.046167	0.031934	1.445727	0.1490
G?	-1.26E-05	6.35E-06	-1.975851	0.0488
W?	-0.000856	0.000401	-2.137281	0.0332
Fixed Effects (Cross)				
_ACEH--C	1.693188			
_SUMUT--C	2.584488			
_SUMBAR--C	1.392712			
_RIAU--C	1.900455			
_JAMBI--C	-2.319243			
_SUMSEL--C	0.409120			
_BENGK--C	-2.942083			
_LAMP--C	-0.832851			
_KEPBB--C	-2.570609			
_KEPRI--C	-1.960490			
_DKIJAK--C	9.013346			
_JABAR--C	7.248359			
_JATENG--C	0.689139			
_DIY--C	-2.656275			
_JATIM--C	1.630479			
_BANTEN--C	5.812495			
_BALI--C	-4.079958			
_NTB--C	-1.518973			
_NTT--C	-4.326993			
_KALBAR--C	-1.867833			
_KALTENG--C	-3.003438			
_KALSEL--C	-1.339919			
_KALTIM--C	3.572955			
_SULUT--C	2.936138			
_SULTENG--C	-1.828217			
_SULSEL--C	3.007043			
_SULTENGGA--C	-1.463637			
_GORONTALO--C	-0.775987			
_SULBAR--C	-3.852072			
_MALUKU--C	2.049007			
_MALUT--C	-0.937235			
_PAPBAR--C	-3.827698			
_PAPUA--C	-2.539553			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.582501	Mean dependent var	7.401306

Adjusted R-squared	0.546947	S.D. dependent var	3.439100
S.E. of regression	2.314831	Akaike info criterion	4.593659
Sum squared resid	2202.319	Schwarz criterion	4.924066
Log likelihood	-990.6827	Hannan-Quinn criter.	4.723920
F-statistic	16.38380	Durbin-Watson stat	0.793684
Prob(F-statistic)	0.000000		

10. Random Effect Model Process

Dependent Variable: (U?)
Method: Pooled EGLS (Cross-section random effects)
Date: 07/26/16   Time: 19:39
Sample: 2000 2013
Included observations: 14
Cross-sections included: 33
Total pool (unbalanced) observations: 447
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.404261	0.563959	13.12907	0.0000
I?	0.056691	0.031857	1.779537	0.0758
G?	6.55E-06	3.67E-06	1.785034	0.0749
W?	-0.001293	0.000369	-3.502418	0.0005
Random Effects (Cross)				
_ACEH--C	1.971763			
_SUMUT--C	1.648493			
_SUMBAR--C	1.711851			
_RIAU--C	1.255618			
_JAMBI--C	-1.377250			
_SUMSEL--C	0.413864			
_BENGK--C	-1.842552			
_LAMP--C	-0.372257			
_KEPBB--C	-1.502835			
_KEPRI--C	-1.370059			
_DKIJAK--C	3.517486			
_JABAR--C	2.988024			
_JATENG--C	-1.071123			
_DIY--C	-1.797130			
_JATIM--C	-2.318546			
_BANTEN--C	4.999545			
_BALI--C	-3.176023			
_NTB--C	-0.693913			
_NTT--C	-3.174009			
_KALBAR--C	-1.196665			
_KALTENG--C	-1.991553			
_KALSEL--C	-0.652541			
_KALTIM--C	2.559207			
_SULUT--C	3.453422			
_SULTENG--C	-0.950417			
_SULSEL--C	3.019649			
_SULTENGGA--C	-0.517023			
_GORONTALO--C	0.213454			
_SULBAR--C	-2.333837			
_MALUKU--C	2.786842			
_MALUT--C	0.075631			
_PAPBAR--C	-2.711999			
_PAPUA--C	-1.565119			

Effects Specification		
	S.D.	Rho
Cross-section random	1.998058	0.4269

Idiosyncratic random			2.314831	0.5731

	Weighted Statistics		
R-squared	0.047241	Mean dependent var	2.214519
Adjusted R-squared	0.040789	S.D. dependent var	2.412548
S.E. of regression	2.366257	Sum squared resid	2480.433
F-statistic	7.321784	Durbin-Watson stat	0.713612
Prob(F-statistic)	0.000084		

	Unweighted Statistics		
R-squared	0.091507	Mean dependent var	7.401306
Sum squared resid	4792.322	Durbin-Watson stat	0.369355