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Determinant of Economic Growth in Bali

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Abstract-This study aims to investigate the determinants of economic growth in Bali for the period 2001-2016. To analyze the influence of determinant of economic growth hence researcher use regresi analysis through Eviews 9. result of research found that wage have positive and significant effect to economic growth, inflation does not influence to economic growth, unemployment has no effect to economic growth. Researchers suggest that the government remains focused on improving people's ability to compete with migrant workers, monetary policy policy on prices and interest rates.

Keyword : Wage, Inflation, Unemployment, Economic Growth, Government, Monetary

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1 BACKGROUND

Bali relies on the tourism sector to support the regional economy. At a time when the world is experiencing economic crisis in the last 8 years, but Bali still has economic growth above 5 percent every year. The high economic growth resulted in the people of Bali have a high purchasing power so that it has the potential to high inflation. The potential for high inflation is also potential because Bali is unable to produce its own goods needs, but relies more on goods from other regions in Indonesia as well as exported goods from other countries. From economic history data, inflation in Bali is very fluctuating but inflation is still below 10 percent every year. The government is trying to control inflation by monitoring the price of goods and keeping the inventory to be consumed by everyone in Bali.

The attractiveness of Bali is so extraordinary that many people in Indonesia and from abroad want to work in Bali so that unemployment in Bali is still high. Bali is almost the same area as Singapore, but the population of migrants living and working in Bali is increasing every year. Competition between local labor and migrant populations is becoming increasingly sharp. Local workers have challenges in managing their working time due to having to practice Balinese customs, while migrant residents have the freedom of time to work without having the same duty in carrying out their customs during their stay in Bali. In the presence of local labor competition with migrant workers, almost all indigenous villages in Bali make regulations and apply the standard composition of migrant labor migrants and migrant workers between 30% and 50% should use local labor for every company in Bali. Rules on the use of local labor are often burdensome to every employer due to the unavailability of labor in accordance with the entrepreneur's wishes. The rules made by each indigenous village in Bali constitute a regulation binding and recognized by the Government.

Every year the wages of workers in Bali are always increasing where the formulation of wage workers involves the Government, Employers and Trade Unions. The determination of wages in Bali considers aspects of economic growth and rising prices of goods going on. Agreement on the prevailing wage in Bali has been running well. Changes in wages of workers between 5% and 10% each year will encourage workers to increase consumption of goods. Bali consumption spending above 48% is the main factor supporting the growth of Bali (BPS, 2017) [1]. The phenomenon of big sale in Bali is one of the efforts of entrepreneurs to maintain high sales in order to be able to win fixed costs which always increase especially from the increase of workers' wage (Christimulia, 2016) [2].

2 THEORITICAL FRAMEWORK

Classical economists relied on competitive conditions in product, labor, and capital markets, and flexible prices, wages, and interest rates to keep the economy operating around full employment. Economic growth can be enhanced by increasing the quantity or quality of labor available for production. (Stone, 2008:48,172) [3].

The neoclassical growth model was developed by Solow (1956) and Swan (1956). It is built upon an aggregate, constant-returns-to-scale production function that combines labor and capital (with diminishing marginal returns) in the production of a composite good. (Agenor & Montiel, 2007:604) [4]

Before the 1970s were over, Robert Lucas, Thomas Sargent, and Neil Wallace were arguing that the rational expectations of economic actors (consumers and business) would eliminate even the short-run relationship thought to exist between inflation and unemployment. Taken to its logical conclusion, this new classical model suggests that public macroeconomic policy is totally ineffective, incapable of influencing either unemployment or output. No profession stands idly by as its very reason for being is logically assaulted from within. Thus, several new Keynesian economists challenged the rational expectations model, striking up a debate that continues to this day. (Stone,2008:332) [3]

The achievement of growth and the full use of resources is not easy, however, as demonstrated by the periods of high unemployment and stagnation that have occurred from time to time throughout the world (for example, in the 1930s, the early 1980s, the early 1990s and the period from early 2008). Furthermore, attempts by government to stimulate growth and employment have often resulted in inflation and a large rise in imports. Even when societies do achieve growth, it can be short-lived. Economies have often experienced cycles where periods of growth alternate with

periods of stagnation, such periods varying from a few months to a few years. (Sloman & Wride, 2009:6) [5]

Productivity Growth Is (Almost) Everything in the Long Run In the long run, rising productivity has always improved the standard of living for both workers and the owners of other factors of production. As we indicated in one of our Ideas for Beyond the Final Exam, in the long run nothing contributes more to the economic well-being of the nation than rising productivity. Today workers enjoy far longer lives, better health, more education, and more luxury goods than they did a century ago or in any previous period in history. The fact that an hour of labor today can produce a large multiple of what our ancestors could create in an hour can increase everyone's average income. In the short run, labor-saving technological change sometimes cuts employment and holds down wages. (Baumol & Blinder, 2010:423)[6]

The classical theory reminds us that our physical resources are limited and that with no advances in technology, we must eventually hit diminishing returns. Neoclassical theory reaches essentially the same conclusion, but not because of a population explosion. Instead, it emphasizes diminishing returns to capital and reminds us that we cannot keep growth going just by accumulating physical capital. We must also advance technology and accumulate human capital. We must become more creative in our use of scarce resources. New growth theory emphasizes the possible capacity of human resources to innovate at a pace that offsets diminishing returns. (Parkin, et.al, 2005:695) [7]

High employment facilitates economic growth.With high employment,businesses are likely to be more confident that demand for their products will remain strong,and so will be willing to engage in the long-term investment necessary for growth.With high unemployment,businesses have unused productive capacity and are much less likely to engage in long-term investment. Policy makers attempt to encourage stable economic growth because a stable business environment allows firms and households to plan accurately and encourages the long-term investment that is needed to sustain growth. (Hubbard, 2012:368-369) [8]

New Keynesians believe that wages and prices are not flexible in the short run. They believe that the economy is not always in equilibrium. For instance, if the demand for labor falls, we would expect the equilibrium price of labor (the wage) to fall and, because fewer people want to work at a lower wage, the number of people employed to fall. New Keynesians argue that wages do not tend to fall, because firms choose to lay off workers rather than decrease wages. Businesses retain high wages for their remaining employees in order to maintain morale and productivity. As a result, wages are quite rigid. This wage rigidity is reflected in price rigidity in goods markets, according to new Keynesian economics. (Boyes & Melvin, 2011:346) [9]

Economists who incline towards a Keynesian approach to the economy still believe that when an economy has spare productive capacity and unemployment, investment and output can be stimulated so as to increase employment without necessarily creating inflationary pressure. (Nellis & Parker, 2004:67) [10]

An economy's level of output depends on its level of total spending relative to its production capacity. When the level of total spending matches the economy's production capacity, human and property resources are fully employed and prices in general are stable. But sometimes total spending is either inadequate or excessive and the result is either unemployment or inflation. (McConnell & Brue, 2008:74) [11]

Unemployment is a serious personal and social economic problem for two main reasons. It results in 1) Lost incomes and production, 2) Lost human capital : Prolonged unemployment permanently damages a person's job prospects by destroying human capital. Lost production means lower consumption and a lower investment in capital, which lowers the living standard in both the present and the future. (Parkin, 2012:116) [12]

Unexpected inflation that raises firms' profits brings a rise in investment and a boom in production and employment. Real GDP rises above potential GDP and the unemployment rate falls below the natural rate. But this situation is temporary. Profitable investment dries up, spending falls, real GDP falls below potential GDP and the unemployment rate rises. Avoiding these swings in production and jobs means avoiding unexpected swings in the inflation rate. An unexpected deflation has even greater

consequences for real GDP and jobs. Businesses and households that are in debt (borrowers) are worse off and they cut their spending. A fall in total spending brings a recession and rising unemployment. (Parkin, 2012:116) [12]

Shanying, et.al (2015) design a wage distribution mechanism to simulate the impact of wage distribution on economic cycles. It is found that there is an inherent relationship between economic growth cycles and the ratio of minimum wage to average wage. Through the empirical analysis using data from the United States between 1982 and 2013, existence of this relationship is confirmed. [13]

Gerardo, et.al (2014) applies vector autoregressive and error correction models, in order to explore the effect of average wages growth on economic growth, inflation and unemployment rate in the United States from the first quarter of 1964 to the first quarter of 2013. We found that average wage growth increases economic growth, reduces inflation and does not affect unemployment. [14]

Adudu & Ojonye (2015) attempts an investigation of the relationship between real wage and employment and their effect on economic growth. The critical question being addressed in this study is whether Keynes was right in his proposition that wage reductions are necessary to induce employment in the short run. Using a Granger – causality cointegration framework, this study finds a statistical evidence for a long-run relationship between real wage and employment for the period 1990 – 2009 and firmly rejects the hypothesis that wages cause employment in the short-run. It supports the Keynesian view that real wage fall because employment increases probably due to an increase in demand.[15]

Watanabe (2013) examined the relationship between economic growth and minimum wage. We show that economic growth is promoted with an increase in minimum wage and the ratio of public investment to tax revenue. [16]

Khaliq, et.al (2014) to examine the relationship between unemployment and GDP growth in Arab countries. We consider 9 Arab Countries between 1994 and 2010. The model adopted for testing the relationship is the Pooled

EGLS (Cross-section SUR). It has been found that economic growth has negative and significant effect upon the unemployment rate it means that 1% increase in economic Growth will decrease the unemployment rate by 0.16%. [17]

Sa'idu & Muhammad (2015) to examine how unemployment and inflation substantially affect economic growth. To achieve this, three models were thoroughly subjected to quantitative analysis, namely; Ordinary Least Square (OLS) method, Augmented Dickey-Fuller (ADF) technique and Granger causality test. The result of the regression revealed that the coefficient of inflation is positive and statistically significant while unemployment is positive but has no significant effect on economic growth. [18]

Increase Onwachukwu Chinedu (2015) to examine the impact of unemployment on the economic growth of Nigeria from 1985 to 2010. The Ordinary Least Squares (OLS) and Augmented Dickey-Fuller methods are used to estimate the model of one dependent variable (Real GDP growth rate) and two explanatory variables (inflation and unemployment). It was found that unemployment does not have a significant impact on the economic growth of Nigeria. Inflation, however, was found to significantly impact on the economic growth of Nigeria. [19]

Akeju & Olanipekun (2014) to examine the relationship between unemployment rate and economic growth, Error Correction Model (ECM) and Johasen cointegration test were employed to determine both the short run and long run relationships among the variables employed in the study. Empirical findings show that there is both the short and the long run relationship between unemployment rate and output growth in Nigeria. [20]

Nwankwo & Ifejiofor (2014) to find out the causes of unemployment in Nigeria and how it has impeded the economic development. Descriptive research design was adopted. The population includes all the unemployed youth from the three selected Local Government Council (Oyi, Idemili North and South) which its figure is estimated to be about 2.3 million youth (NPC, 2006). 30 youths were drawn from each of the Local Government Council. Convenience sampling technique was applied. Both primary and secondary data source was used. Pearson correlation test was used for the test of hypotheses. The results of the test hypotheses

revealed that unemployment impedes the economic growth and development of Nigeria. [21]

Oye, et.al (2011) examines the role played by unemployment on the making of the Nigerian Gross Domestic Product (GDP) for a period of nine years (2000 - 2008). The objectives of the study are to examine the effects of unemployment on the Nigerian GDP for the selected years, to observe the kind of association that existing between the unemployment and the makings of the Nigerian GDP Data was collected and analyzed using the regression analysis. Findings showed that unemployment has an enormous effect (over 65%) on the making of the Nigerian GDP and there exist an inverse relationship between the model (unemployment) and the GDP - increase in the model leads to decrease on the GDP and vice versa. [22]

Jajere (2016) research work focused on the Effect of Unemployment on Economic Growth in Nigeria modeling Gross Domestic Product (GDP) against Unemployment rate, Government Expenditure and Money supply between 1980 – 2010. The research make use of Ordinary Least Square regression technique, the result shows that unemployment does not significantly affect economic growth, but a good performance of an economy in terms of per capita growth may therefore be attributed to the other factors affecting economic growth in the country. [23]

Madurapperuma (2016) examine the impact of inflation on economic growth in Sri Lanka for the period of 1988 – 2015 using the framework of Johansen cointegration test and Error Correction model. The results show that there is a long run negative and significant relationship between economic growth and inflation in Sri Lanka.[24]

Umaru & Zubairu (2012) investigates the impact of inflation on economic growth and development in Nigeria between 1970- 2010 through the application of Augmented Dickey-Fuller technique in testing the unit root property of the series and Granger causality test of causation between GDP and inflation. The results of unit root suggest that all the variables in the model are stationary and the results of Causality suggest that GDP causes inflation and not inflation causing GDP. The results also revealed that inflation possessed a positive impact on economic growth through encouraging productivity and output level and on evolution of total factor productivity.[25]

Majumder (2016) to investigate the relationship between inflation and economic growth in Bangladesh. To test unit root or stationary, Augmented Dickey Fuller Test is used. This study uses Granger causality and then error correction model to investigate the relationship between economic growth and inflation in Bangladesh during the period of 1975 –2013. To analyse the data the model is formed by taking economic growth of gross domestic product as dependent variable and three variables (i.e. inflation, money supply and remittance) as independent variables. Results of the unit root test indicate that only inflation rate has stationary and other three variables have unit root problem or non- stationary at level. But when these three variables are tested at first difference then the problem of unit root has disappeared and hence they have become stationary at first difference. The VECM presents that there exists a statistically significant long run positive relationship between inflation rate and economic growth of gross domestic product. Bangladesh has indicated a statistically significant long run positive relationship between the rate of inflation and economic growth of GDP. [26]

Hussain (2011) empirically explores the nexus between inflation and economic growth in the context of Pakistan economy. Annual data for the period of 1960-2006 has been used. According to the results of the study, inflation is positively related with economic growth in Pakistan and vice versa. As for as, the concern of causality between these two variables, it is found to be uni-directed. In other words, inflation is causing growth but not vice versa. To examine the extent to which economic growth is related to inflation and vice versa, Error Correction Models (ECM) have been employed. With the help of this procedure, it is possible to examine the short-run and long-run relationship between two variables. The Error Correction Model (ECM) test is essential to see whether an economy is converging towards equilibrium in the short- run or not. According to the outcome of the study, inflation is away from its equilibrium value. For instance, the error correction term -0.49 implies that 49 percent of the adjustments towards the short-run equilibrium relation for Pakistan occur within a year through changes in growth rates. On the other hand, 58 percent (error correction

term -0.58) of the deviation of the inflation from its short-run equilibrium level is corrected each year. [27]

Ayyoub, et.al (2011) re-examine the existence of inflation growth relationship in the economy of Pakistan and to analyze empirically the impact of inflation on GDP growth of the economy. It is, further, to investigate whether it encourages or hurts the economic growth in a uniform way or it behaves differently under different levels. Annual time-series data for the period 1972-73 to 2009-10 have been taken and analysis is made by employing the method of Ordinary Least Squares (OLS). A negative and significant inflation growth relationship has been found to be existed in the economy of Pakistan. The results of the study show that prevailing inflation is harmful to the GDP growth of the economy after a certain threshold level. [28]

Osuala, et.al (2013) to evaluate the impact of inflation on economic growth in the context of an emerging market using empirical evidence from Nigeria. Using time series data spanning forty one years (1970-2011) which was obtained from the Central Bank of Nigeria (CBN) statistical bulletin volume 22, and Central Bank of Nigeria official website, the nature of the relationship existing between the focus variables-economic growth (proxied by real Gross Domestic Product, GDP) and inflation rate was explored. The Augmented Dickey Fuller (ADF) and Philip-Perron (PP) tests were used to test for the stationarity of the variables while the granger causality test was employed to ascertain the direction of influence between inflation and economic growth in Nigeria. The results show that there exists a statistically significant positive relationship between inflation and economic growth in Nigeria.[29]

Shuaib (2015) examined the impact of inflation rate on the economic growth in Nigeria. The study explored secondary data for the period of 1960 to 2012 and used E-view 7.2 statistical window in processing and analyzing the time series data. The empirical result of the test showed that for the periods, 1960-2012, there was no co-integrating relationship between Inflation and economic growth for Nigeria data. [30]

Ayesha & Faiza (2015) to examine whether it support or hurts the economic growth in a consistent way or it acts in a different way in unusual levels. Panel time-series data for the period 2005-15 have been taken and analysis is

made by applying the method of Co-relation and Linear Regression. A moderate and significant inflation rate and economic growth relationship has been found to be present in the economy of Pakistan. The result of this study shows that current inflation rate is dangerous to the growth of the economy after a firm threshold point.[31]

Jeremiah & Emmanuel (2015) to investigate the nature of relationship between inflation rate and economic growth rate. The study made use of secondary data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the National Bureau of Statistics (NBS). The Ordinary Least Square (OLS) logged multiple regression was employed with Gross Domestic Product (GDP) as the dependent variable and Inflation Rate (INFR), Exchange Rate (EXCHR), Input of Labour and Input of Capital served as the explanatory variables. Our results showed that inflation rate in line with apriori expectations had a positive relationship but non-significant with the economic growth rate. [32]

3 RESEARCH METHODOLOGY

This study uses Bali as research objects. The data used comes from the time series data for 16 years beginning in 2001-2016. Variable data were taken from BPS Bali and Bank Indonesia. Variable data were analyzed by Eviews 9 to test the effect of independent variables with the dependent variable. There are four variables used in this study to find the determinants of economic growth in Bali. Economic Growth variable is used as the dependent variable while the independent variables are inflation, unemployment, and wage. The dependent variable used in this study is economic growth (Y). The models in this study are as follows: $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$, (1) where:

X_1 = inflation in percent;
X_2 = unemployment in percent;
X_3 = wage in Rupiah;
Research Hypothesis:
Inflation significantly affect to economic growth
Unemploymen significantly affect to economic growth
Wage significantly affect to economic growth

4 RESULTS AND DISCUSSION

1. Serial Correlation Test To detect the presence of serial correlation by comparing the count value X2 with X2 table, namely:

a. If the value of X2 count> X2 table (5.99), then the hypothesis that the model is free of the problem of serial correlation is rejected

b. If the value of X2 count <X2 table (5.99), then the hypothesis that the model is free of the problem of serial correlation accepted

Value Obs * R-squared (X2 count value) 9.80 > 5.99 X2 table so that the free model of serial correlation problem. Value Obs * R-squared (X2 count value) can be found in appendix 1.

2. Normality Test Data To detect whether the residual distribution is normal or not by comparing the value of Jarque Bera (JB) with X2 table is:

a. If the value JB> X2 table, then the residual distribution is not normal

b. b. If the value JB <X2 table, then the residual normal distribution.

Analysis of the output, that JB value of 1.53 < 5.99 X2 table it can be concluded that the residuals were normally distributed. JB value can be found in appendix 2.

3. Test linearity To detect whether or not a linear model by comparing the value of the F-Statistic with F-Table are:

a. If the value of F-Statistic> F-table, then the hypothesis that the linear model is rejected

b. b. If the value of F-Statistic <F-table, then the hypothesis that the linear model is accepted

Analysis of output results, that the value of F-Statistic amounted to 24.10 < 3.49 F-table so that the linear model can be accepted. F-Statistic value can be found in Appendix 3.

4. Test Multicollinearity Stages testing via Eviews 9 program with partial correlation approach with the following steps.
Conditions:
If the value of VIF > 5 the model is not found their multicolinearity
If the value of VIF < 5 the model is found some multicolinearity
The analysis of output results show that VIF > 5 so the model is not found their multicolinearity. VIF be found in appendix 4.

5. Test Heteroskedasitas Heteroskedasitas test using white test with the following conditions:
If the value of X2 count (value Obs * R squared)> value X2 table it can be concluded that the model does not pass the test heterokedasitas
If the value of X2 count (Obs * R squared value) <value X2 table it can be concluded that the model passes the test heterokedasitas

X2 count value 0.973 < 5.99 value X2 table it can be concluded that the model passes the test heterokedasitas. Value Obs * R-squared (X2 count value) can be found in Appendix 5.

6. Multiple Linear Regression Test Results Multiple regression equation as follows.

$Y = -89.217 + 8.03E\text{-}06X1 + 0.000119X2 + 2.4E\text{-}07X3$

The results showed that the X1 does not significantly affect Y where significant level of 0.7588 above 5%. This means that inflation does not significantly affect economic growth. Inflation in Bali was not caused by the fluctuation of economic growth. Values significant level of research can be found in appendix 6.

The results showed that the X2 does not significantly affect Y where significant level of 0.8232 above 5%. This means that unemployment does not significantly affect economic growth. Unemployment in Bali was not caused by fluctuations in Economic Growth. The value of a significant level of research can be found in appendix 6.

The results showed that the X3 does significantly affect Y where significant level of 0.8232 above 5%. This means that unemployment does not significantly affect economic growth. Unemployment in Bali was caused by fluctuations in Economic Growth. The value of a significant level of research can be found in appendix 6.

The government's work in controlling inflation has not been able to boost economic growth. The government needs to build an integrated system to monitor and anticipate future inflation. The government should have a sensitivity to price increases that occur in the market, especially large entrepreneurs who have inventory. There are considerable allegations of the big game entrepreneurs who joined in the oligopoly market in regulating the price of goods in the market. Many cases are revealed that big businessmen cheat by doing the game price of goods so they get punishment from the government. The results of this study are similar to the findings of Jeremiah & Emmanuel (2015) research in Nigeria.

The industrial trends in Bali are already using technology. The technology used further accelerate the process of work productivity and produce more products so that Business more efficient in finance. This is due to the higher fixed costs due to the standard wage of workers set by the government always meningakt every year.

The use of technology to be one alternative to accelerate production and efficient in cost. The government needs to make efforts to improve the quality of human resources ready to become an entrepreneur so that people can create business. This government effort will have an impact in reducing unemployment and encouraging economic growth in the nesting period.

The ever-increasing wage of workers has driven economic growth in Bali. This happens because the people of Bali are more likely to behave consumptively than saving and investing. Consumptive community behavior also needs to be watched by the government because on the one hand this behavior encourages economic growth and on the other hand will also encourage inflation. The government needs to make the right monetary policy to control the money circulating in the community.

This study has the limitations of only testing inflation, unemployment and wages of workers on economic growth in Bali. Other researchers can develop research variables that we have designed to identify other variables that can drive economic growth.

5   CONCLUSIONS AND RECOMMENDATIONS

Bali based on the tourism sector has a high economic growth between 2001-2016. The results of the study found that 1) Inflation did not significantly affect on economic growth, 2) Unemployment did not significantly affect on economic growth, 3) Wages had an effect on economic growth. As for the recommendations that can be given are 1) The government should have an appropriate inflation policy so that low inflation can encourage economic growth, 2) The government seeks to improve the quality of society through knowledge and skills and encourage the community to become entrepreneurs, 3) The government needs to make the right monetary policy so that people's consumptive behavior does not endanger the increase in inflation.

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Apendix 1

Breusch-Godfrey Serial Correlation LM Test:

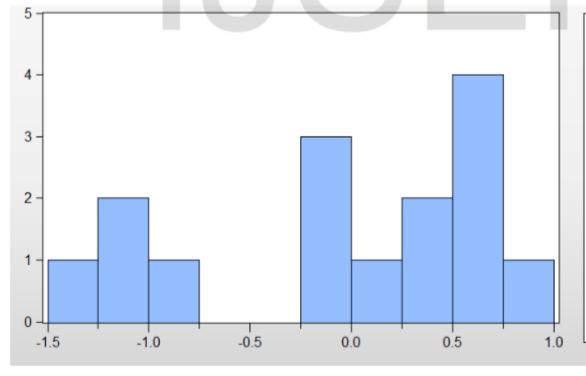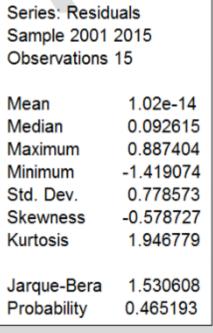|			
F-statistic	8.501720	Prob. F(2,9)	0.0084
Obs*R-squared	9.808379	Prob. Chi-Square(2)	0.0074

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 09/13/17   Time: 10:39
Sample: 2001 2015
Included observations: 15
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-40.42468	280.2137	-0.144264	0.8885
INFLATION	3.49E-05	1.87E-05	1.867162	0.0947
UNEMPLOYMENT	2.15E-05	0.000381	0.056552	0.9561
WAGE	-5.34E-07	5.67E-07	-0.942423	0.3706
RESID(-1)	1.383911	0.341853	4.048264	0.0029
RESID(-2)	-0.690094	0.387786	-1.779573	0.1088

R-squared	0.653892	Mean dependent var	1.02E-14
Adjusted R-squared	0.461610	S.D. dependent var	0.778573
S.E. of regression	0.571278	Akaike info criterion	2.007294
Sum squared resid	2.937232	Schwarz criterion	2.290515
Log likelihood	-9.054708	Hannan-Quinn criter.	2.004278
F-statistic	3.400688	Durbin-Watson stat	2.204380

Apendix 2

Series: Residuals	
Sample 2001 2015	
Observations 15	
Mean	1.02e-14
Median	0.092615
Maximum	0.887404
Minimum	-1.419074
Std. Dev.	0.778573
Skewness	-0.578727
Kurtosis	1.946779
Jarque-Bera	1.530608
Probability	0.465193

Apendix 3

Ramsey RESET Test
Equation: EQ01
Specification: ECONOMIC_GROWTH C INFLATION UNEMPLOYMENT
    WAGE
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	4.909504	10	0.0006
F-statistic	24.10323	(1, 10)	0.0006
Likelihood ratio	18.40210	1	0.0000

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	5.997997	1	5.997997
Restricted SSR	8.486459	11	0.771496
Unrestricted SSR	2.488462	10	0.248846

LR test summary:

	Value	df
Restricted LogL	-17.01224	11
Unrestricted LogL	-7.811188	10

Unrestricted Test Equation:
Dependent Variable: ECONOMIC_GROWTH
Method: Least Squares
Date: 09/13/17   Time: 10:56
Sample: 2001 2015
Included observations: 15

Apendix 4

Variance Inflation Factors
Date: 09/13/17   Time: 10:34
Sample: 2001 2015
Included observations: 15

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	147624.4	2870222.	NA
INFLATION	6.50E-10	6508.268	1.110998
UNEMPLOYMENT	2.71E-07	2812942.	2.022765
WAGE	7.04E-13	9.634775	1.983347

Apendix 5

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.254591	Prob. F(3,11)	0.8565
Obs*R-squared	0.973886	Prob. Chi-Square(3)	0.8076
Scaled explained SS	0.247930	Prob. Chi-Square(3)	0.9695

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 09/13/17   Time: 11:00
Sample: 2001 2015
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.369952	271.9219	-0.027103	0.9789
INFLATION	-1.42E-05	1.80E-05	-0.784418	0.4494
UNEMPLOYMENT	2.45E-05	0.000368	0.066478	0.9482
WAGE	2.63E-07	5.94E-07	0.442253	0.6669

R-squared	0.064926	Mean dependent var	0.565764
Adjusted R-squared	-0.190095	S.D. dependent var	0.569825
S.E. of regression	0.621630	Akaike info criterion	2.110235
Sum squared resid	4.250663	Schwarz criterion	2.299049
Log likelihood	-11.82676	Hannan-Quinn criter.	2.108224
F-statistic	0.254591	Durbin-Watson stat	1.473571
Prob(F-statistic)	0.856489		

Apendix 6

Dependent Variable: ECONOMIC_GROWTH
Method: Least Squares
Date: 09/13/17   Time: 10:22
Sample: 2001 2015
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-89.21746	384.2192	-0.232205	0.8206
INFLATION	8.03E-06	2.55E-05	0.314814	0.7588
UNEMPLOYMENT	0.000119	0.000520	0.228893	0.8232
WAGE	2.42E-06	8.39E-07	2.884893	0.0148

R-squared	0.585520	Mean dependent var	5.414667
Adjusted R-squared	0.472480	S.D. dependent var	1.209338
S.E. of regression	0.878349	Akaike info criterion	2.801632
Sum squared resid	8.486459	Schwarz criterion	2.990445
Log likelihood	-17.01224	Hannan-Quinn criter.	2.799621
F-statistic	5.179767	Durbin-Watson stat	0.628630
Prob(F-statistic)	0.017893		