Future Academy®
Offering excellence in Social and Behavioural Sciences

Impact of Macroeconomic Policy Instruments and External Shock on Unemployment Rate in Malaysia

Gurmit Kaur[a], & Nur Asyiqin Bt. Zaharudin[b]*

* Corresponding author: Nur Asyiqin Bt. Zaharudin, asyinqinzaharudin@gmail,com

[a]*Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam, Selangor, Malaysia*
gurmit601@salam.uitm.edu.my
[b]*Faculty of Business and Management, Universiti Teknologi MARA, Puncak Alam, Selangor, Malaysia,*
asyinqinzaharudin@gmail,com.

Abstract

http://dx.doi.org/10.15405/epsbs.2016.11.02.8

This paper examines the impact of macroeconomic policy instruments and external shock on unemployment rate in Malaysia. Using the quarterly data from 2006(Quarter 1) to 2015 (Quarter 4) the study found that GDP growth, price of oil, broad money supply and average overnight interbank rate have significant and negative impact on unemployment rate in Malaysia. The findings of the study also indicate the existence of Okun's law which postulates A positive relationship between GDP and unemployment. Policy makers could formulate policies related to the above macroeconomic variable to enhance unemployment reduction. On the other hand, the inflation rate shows a positive effect but is not significant.

Keywords: Macroeconomic policy variables, External shocks, Monetary policy, Unemployment.

1. Introduction

Unemployment is a major concern of all economies. Unemployment is the result of imbalance in the labour market in the demand-supply framework. At micro level it depends on wages, productivity of labour and price level. In the context of macroeconomics, it is influenced by economic activities, population, rate of technology growth and external factors. It is crucial for policy makers to understand the dynamics of macroeconomic variables and its effect on unemployment, as prolonged unemployment affects the economy growth adversely. It aggravates inequality of income, loss of

human capital, misallocation of resources and poverty. Studies done by Scarpetta, Sonnet and Manfredi, (2010), O'Higgins, (2012); Brada, Marelli and Signorelli, (2014) revealed the implication of long-run consequences of unemployment on youth. They found that unemployment led to loss of work experience, reduce earnings for the entire life and poor job quality. Labour hours and productivity loss has an effect on the advancement of an economy and for it to be internationally competitive.

With respect to labour force, comprising of household in the age group of 15- 64 years who are economically active, has been increasing over the years. Malaysia's labour force in 2015 increased by 1.8% compared to 2014. Along with it the number of unemployed in 2015 increase from 411.1(000) in 2004 to 450.3 (000) in 2015, an increase by 9.5% (latest release, n.d.). As such there is a profound need to develop sound macroeconomic policies to create and safeguard employment in the economy. A study on the impact of macroeconomic policy instrument and external shock will enable policy makers to formulate effective policies.

The macroeconomic policy instruments enable the economy to achieve the natural rate of unemployment. The potential GDP is reached when natural rate of unemployment is attained. The macroeconomics policy instruments that are of interest in this study are GDP growth rate, inflation rate, money supply, interest rates. Studies have showed that these variables have an impact on unemployment. The well-known Okun's law associates a relationship between GDP growth and unemployment. Study done by Noor, Nor and Ghani (2007) validated the existence of Okun's Law in Malaysia. This law postulates that the positive output shock reduces unemployment as more workers are hired. On the other hand, during recession, as income and production falls, unemployment increases and workers are laid off. The relationship between inflation and unemployment is based on Phillips curve which envisage a trade-off between them. Money supply and interest rate are the monetary instruments incorporated to analyse relationship between monetary policy and unemployment. Studies have showed that money supply and interest rates have an effect on unemployment. Study done by Djivre and Ribon (2003) found that a tight monetary policy increases unemployment. Indicating an increase in money supply and a reduction of interest rate will reduce unemployment. The other variable taken into consideration is the price of oil. This variable is added to capture the external shock. Study conducted by Keane and Prasad (1996) indicated negative relationship between price of oil and employment in the short run, but positive in the long run. This relationship is crucial as Malaysia's economy is an open economy or export-dependent, the unemployment rate is vulnerable to external shocks. During the Asian Financial Crisis (AFC) (1998) and Global Financial Crisis (GFC) (2008) the unemployment rate rose to 4.9% and 3.6% respectively. As a net importer of oil, fluctuation in prices of oil has an effect on unemployment. As such unemployment rate responds differently to various macroeconomic policy instruments and external shock.

2. Problem Statement

Malaysia's economy is highly open and in the upper middle income advancing towards high income industry status. It has developed from agriculture dominated economy in the 70s to a diversified

economy and a leading exporter of electrical and electronic appliances. Basically the above scenario has changed the requirement of skilled labour. In view of this, there is a need to balance the demand and supply of the labour in the economy. Other factor that needs to be considered is the increase in population and labour force. The population is increasing at 1.5% and the labour force at 1.8%. As such providing jobs for the newly skilled labour and new entrance into the labour market is pertinent. Policies to create employment in the economy are crucial as unemployment is the loss of productive effort and affects the economy adversely. In the macro framework it is important to achieve the natural rate of unemployment and eventually the potential output level. Understanding the determinants of unemployment in this framework will enable policy makers to implement strategic policies to reduce unemployment.

This study examines the impact and significant of macroeconomic policy instruments and external shock on unemployment rate. The macroeconomic policy instruments are GDP growth rate, inflation rate, money supply, interest rate and external shock variable is price of oil.

To enable the economy to reduce unemployment, policy makers need to strengthen strategies with respect macroeconomic variables to cushion the economy and achieve the natural rate of unemployment. Previous studies, tend to limit their study to a certain variables of interest. As such this study takes into consideration a greater number of variables.

3. Research Questions

The above discussion has generated the following three research questions:

i)   What is the association between macroeconomic policy instrument and unemployment rate?

ii)   What is the association between external shock on unemployment rate?

iii)   Which of the variables have a significant effect on unemployment rate?

4. Purpose of Study

To the researchers' knowledge, no study has been done to examine relationship between unemployment rate and the macroeconomic policy instrument and external shocks using multivariate regression analysis. In light of this, the purpose of this study is to examine the effect of four independent macroeconomic policy instruments: GDP growth rate, inflation rate, money supply, interest rate and external shock variable price oil on dependent variable unemployment rate. The study seeks to further establish a significant relationship, if any, between the dependent and independent variables. An analysis of this relationship can facilitate the formulation of effective employment targeting policy for the country.

5. Literature Review

5.1 Gross Domestic Product (GDP)

A number of studies on the relationship between GDP and unemployment were done to validate the Okun's Law. Studies on the relationship between growth rate and unemployment had single variable and others included more variables. Studies also have used different method to establish the relation. Ang and Loganathan (2013) examined the relationship between GDP and unemployment rate for developed and developing Asian countries, based on Okun's law. Using co-integration dynamic and Granger causality for relationship between GDP growth and unemployment rate, the findings showed that unemployment and growth rate are positively related in the long run and the short run for both the developed and developing Asian countries. The findings were consistent with the Law. Another research has been conducted by Thayaparan (2014) concluded that that GDP has a significantly negative affect on the unemployment in Sri Lanka. Dell'Anno and Solomon (2008) studied the applicability of Okun's Law in the context of shadow economy and found that there is a significant positive relationship between shadow economy and unemployment. Their finding explained that the loss of jobs during a downturn in the official economy activities drives the unemployed into shadow activities. On the other hand, study done by Plehn-Djowich (2012) used two variables, that is, the effect of growth and entrepreneurship to estimate the effect on unemployment, concluded that growth has a positive effect on unemployment.

Studies were further extended to gender. A gender specification unemployment study was conducted by Brincikova and Darmo (2015) by employing annual year based data for the period of 2000-2013. The aim of this study was to identify the asymmetric relationship between change in output and unemployment by estimating Okun's coefficient in EU countries, as well as for selected group of EU countries. The result showed that male unemployment is more sensitive towards the change in GDP compared to female. In addition, it showed that the effect is more visible on countries with lower economic performance.

5.2 Inflation rate

Phillips curve represents inverse relationship between unemployment rate and inflation rate in economy. According to Phillip, when unemployment is high, wages increase slowly; when unemployment low, wages increase rapidly. However, there has been criticism with regard to this theory and Friedman (1968) indicated that there is no trade-off between unemployment and inflation.

Greenwood and Huffman (1987) conducted a study by constructing stochastic general equilibrium model to investigate the covariance properties between inflation and unemployment upon the state of exogenous real and monetary factor; both conditioned and unconditioned. The result satisfies the validity of Philips Curve theory that there is a negative relationship between inflation and unemployment. The result has been supported by Todorova (2012) using Blanchard treatment with additional explanation where inflation affect unemployment negatively.

Puzon (2009) examined the validity of Philips curve in ASEAN-4 countries: Malaysia, Thailand, Indonesia and Philippines for the period of 1980-2005. The model was tested using Ordinary Least Square (OLS) and Instrumental Variables, the empirical evidence shows that there is no stable one-to-one trade-off between inflation and unemployment rate for ASEAN-4 countries. Accordingly, Thayaparan (2014) found a negative relationship between inflation and unemployment. Other studies validating the relationship between unemployment and inflation are Furuoka (2007) and Resurreccion (2014). According to Furuoka (2007), by applying Johansen co-integration and Grange Causality methods, Malaysia is proved to have long-run and causal relationship for both variables.

Study done by Umoru and Anyiwe (2013) revealed a positive relationship between inflation and unemployment in Nigeria for 27 years. By employing three methods, Engle-Granger test, Johansen Maximum Likelihood (JML) Test and Vector Error Correction Model (VECM). The result showed an insignificant and positive relationship between both variables since 1986. This result has been upheld by further investigation carried out by Orji Anthony-Orji and Okafor (2015) by using distributed lag model for the period of 1970-2011. The empirical result show that the relationship is significant; rising in inflation will increase unemployment. This shows that Nigerian economy does not support the theory of Philips Curve.

5.3 Price of Oil

Theoretically, the increasing of oil price burdens oil importing country. This is due to the increase in the cost of production consequently, increase the unemployment rate. In contrast, it will be a great return to the oil exporter country. Therefore, arguments arise whether the impact will be different according to the role of the country.

Umar and Kilishi (2010) conducted a study on oil exporting country, Nigeria. By using Dated Brent as the proxy for the price of oil, Variance Autoregressive model was employed to test the model. The result concluded a significant and negative relationship between oil price and unemployment rate. The empirical finding was supported by Ahmad (2013). The further study done in Pakistan employing 238 observations from 1991:01-2012:1 showed a significantly negative relationship between oil price and unemployment.

A study by Kin, Syden and Asrat (2015) on oil price impact on sectorial employment in South Africa concluded that there is positive and significant relationship between oil and employment.

Keane and Prasad (1996) investigated the effect of oil price on employment and real wages at aggregate and industry levels in the United States of America. The findings had mixed results. In the short run the effect on employment was negative whereas in the long run effect it was positive. Similar results were concluded by Senzangakhona and Choga (2015).

Mellquist and Femermo (2007) posted inconclusive findings as some coefficient estimate showed mixed relationship using Granger Causality test.

5.4 Broad Money Supply

Monetary policy is one of the means to regulate the economy. The availability of money supply in the economy plays an important role in promoting economic activities. Chicheke (2009) study examined the relationship between monetary policy and inflation on unemployment in South Africa from 1980-2008. The monetary tools used is broad money supply and interest rate. Both monetary tools indicate a significant negative impact on unemployment in South Africa. In addition, the study reveals that 10% increase in money supply reduce the unemployment by 3.83%.

Research conducted by Amassoma and Esther (2015) with slight changes to original model by Chimezie aims to ascertain the effectiveness of monetary policy in reducing unemployment rate in Nigeria. The result shows that exchange rate, broad money supply and treasury bills positively influence unemployment while monetary policy rate and consumer price index negatively influence unemployment in Nigeria. In addition, the result proves that exchange rate and consumer price index influence the unemployment rate in Nigeria. While monetary policy rate, broad money supply and treasury bills do not.

Loganathan, Yussof and Kogid (2012), conducted a study on monetary policy and unemployment shock in Malaysia with broad money supply as a proxy to monetary policy. However, this study concludes that there is no causality between monetary policy and unemployment in Malaysia.

Zavodny and Zha (2000) investigated the relationship between monetary policy and black unemployment. Their findings concluded a negative relationship between monetary policy and unemployment rate. The decreasing of money supply (M2) has led to increasing in overall and black unemployment. The study also reveals that tight monetary policy leads to high unemployment while the looser policy leads to declining in unemployment rate. In addition, the effect of exogenous movement of monetary policy is more visible on black unemployment.

5.5 Average Overnight Interbank Rate

Modeste and Mustafa (2002) conducted a study to investigate the causal linkage between interbank rate (federal-funds rate) and unemployment rate for the period of 1955-1999 in U.S. Cointegration technique had been used to test for co-movement while error correction methodology was used to address the causality issue between two variables. The result shows that there is positive relationship between federal-funds rate and unemployment rate. Both variables are cointegrated and there is bi-directional causality between federal fund rate and unemployment. The study is supported by Djivre and Ribon (2003) in Israeli between 1990 and 1999.

Based on the study done by Berument, Dogan and Tansel (2009), adopting VAR model using time series data for the period of 1988: Q1-2004:Q4, the outcomes that positive interbank rate shock increase unemployment rate in all economic sectors but drives down the unemployment rate in agriculture and community services sectors. Another study by Dogan (2012) confirms the empirical finding he concludes that interbank rate influenced unemployment positively.

However, contradicting   findings were indicated by a study conducted by Bremmer & Kesselring (2005). By employing the data sample consists of 262 decisions made by the Federal Open Market Committee (FOMC) between August 17, 1983 and December 13, 2005, the data is regress using ordinary least squares. The statistical result shows that the targeted level of the federal funds rate is inversely related to changes in the unemployment rate. This result had been supported by Hsing (2005). Unit root test and VAR model had been applied to U.S. data. The sample ranges from 1983:Q1 to 2003:Q1. The result shows that federal-funds rate reacts positively towards output gap, inflation gap and long-term interest rate. On the other hand, federal fund rate responds negatively towards unemployment rate and exchange rate. In addition, unemployment rate explains 26.8% of the variation in federal-fund rate.

6. Research Methodology

This section is divided into three sub sections and the discussion will focus on the theoretical framework and econometric model. The first subsection focus on the data description and the source of data, the second model specification and the third on regression evaluation.

6.1 Data Description

This study examines the relationship between the dependent and independent using time series data. Quarterly data was from year 2006 to 2015, comprising of 40 observations for six variables. The independent variable is unemployment rate and the five dependent variables are GDP growth rate, inflation rate, price of oil, broad money supply and interest rate. The independent variables are divided into two categories namely macroeconomic policy instrument and external shock variables. The macroeconomic policy instrument refers to GDP growth rate, inflation rate and two monetary tools: broad money supply and average overnight interbank rate. Price of oil is the proxy used to measure external shock.   The data for unemployment rate was obtained from Monthly Statistical Bulletin of Department of Statistics Malaysia. The independent variables GDP growth, broad money supply and average overnight interbank rate were extracted from Bank Negara Malaysia electronic database. Meanwhile inflation rate and price of oil data were obtained from Asian Development Bank and Index Mundi electronic database.

The GDP growth is a percentage increase of gross domestic product from one period to another. This study used quarterly growth rate based on Dogan (2012). The inflation rate is measured by the consumer price index and define as an annual percentage change in the cost of the average basket of goods and service. While Crude oil price is defined as the spot price of various barrels of oil. Dated Brent is the valid and acknowledged indicator of worldwide sweet raw crude oil economics which suited the type of Malaysia crude oil. The price expressed in US dollar. As of 1st June 2011 Malaysia used Dated Brent as a benchmark for oil price (Montepeque,2011) The monetary tools, the broad money supply or also known as M2 is defined as the combination of the narrow money (M1) and narrow quasi-money (Bank Negara Malaysia). It is more liquid than M3 but less liquid than M1. The data is expressed in local currencies. Lastly, the average overnight interbank rate is defined as the

individual rate being weighted accordingly to by the volume of transaction in which the rate of interest charged on short-term loans between banks where the transaction happens during the overnight.

6.2 Model Specification

A study on macroeconomics model used in this study is adapted from a study done by Berument (2008) with some adjustment with respect to Malaysia's economy. To make it relevant to Malaysia's economy some variables have been changed. The adapted model includes average interbank rate and broad money supply and the price of oil.

In order to examine the impact of macroeconomic variables on unemployment in Malaysia multivariate regression analysis is used. Multivariate regression is said to more widely use to establish economic relationship. As single variable regression would be incomplete and could result in incorrect estimates (Petersen, Lewis, Kaur. & Ng, 2010). Ordinary Least Square (OLS) method was used and the model is specified as below.

The formulated empirical model is in linear form:

Model specification:

$$UN = f(GG, Inf, AOIR, M2, Oil) \qquad (1)$$

Econometric modeling:

$$UN = \alpha + \beta_1 GG + \beta_2 Inf + \beta_3 AOIR + \beta_4 M2 + \beta_5 Oil + e \qquad (2)$$

α : Constant Coefficient of indicating marginal effect

UN   : Unemployment rate

GG   : Gross Domestic Product (GDP) Growth rate

Inf   : Inflation Rate

AOIR: Average Overnight Interbank Rate

M2   : Broad Money Supply

Oil   : Price of Oil

e : Random Error Term

The estimates βi states the magnitude and relationship between unemployment and the macroeconomic policy instrument and external shock.

The expected sign for the coefficient of gross domestic product is negative based on the Okun's law, inflation is negative based on Phillip's curve, money supply is negative and interbank rate is positive. Oil price is negative based on study by Keane and Prasad (1996), The expected signs for broad money supply and average overnight interbank rate is based on Monetarist views. The analysis is based on economic theory and previous studies. Macroeconomic policy instruments and oil prices influence unemployment through investment and consumption spending, economic activities and production. Which will have on impact on income, aggregate demand, expenditure and unemployment.

6.3 Regression Evaluation

The relationship between the macroeconomic variables and unemployment will be determined by adopting Ordinary Least Square (OLS) method. According to Miller, (2006) OLS is a procedure to determine the best fit line to data. The OLS method is useful disclosing the direction, magnitude and strength between the variables. In order to estimate the model, the assumptions of the OLS will be held to achieve BLUE (Best Linear Unbiased Estimator).

The result will be tested using various tools. The significant of the coefficient of the independent variable will be tested using the t-test. The degree of overall goodness of fit of the model will be measured by the coefficient of determination or (R-square). This will explain the percentage of variation in the independent variable that explains the variation in the dependent variable.

However, as time-series analysis may encounter the problem of multicollinearity and auto-correlation (serial correlation). Multicollinearity occurs when there is high correlation between two independent variables. To detect this problem, the Variation Inflation Factor (VIF). Breusch-Godfrey serial correlation LM test will be conducted to test the problem of serial correlation.

7. Analysis and Findings

In this section, the empirical regression result will be presented and evaluated using econometric methods.

7.1 Empirical Model

Based on the quarterly data collected from 2004 to 2015 using the multiple linear regression model the results are as follows:

Table 1. Result of Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.7329	0.2412	19.6255	0.0000
GDP Growth	-0.0199	0.0088	-2.2752	0.0293
Inflation	0.0203	0.0188	1.0779	0.2887
Average Overnight Interbank Rate)	-0.2816	.072	-3.9135	0.0004
Broad Money Supply (M2)	-0.0429	0.0096	-4.4551	0.0001
Price of Oil	-0.0027	0.00120	-2.3411	0.02520
R-squared		0.6107		
Durbin-Watson stat		1.5639		
F-statistic		10.6682		
Prob(F-statistic)		0.0000		

This result can be written in an equation form

UN =4.7329 -0.0199 GG + 0.0203 Inf - 0.2816AOIR – 0.0429 M2 – 0.0027Oil + e   (3)

The significance of the variables is determined by p-value (probability). The chosen level of significance is 0.05. Null hypothesis will be rejected if the p-value is less than 0.05. Based on Table 1 GDP growth rate, price of oil, broad money supply and average overnight interbank rate are statistically significant since the probability is less than 0.05. Meanwhile, the inflation rate is not significant since the probability is 0.2887, which is more than 0.05.

The value of coefficient represents the marginal effect of each independent variable on the dependent variable The findings show that signs of growth rate, and broad money supply were consistent with the study's expected sign. Price of oil, inflation and average overnight interbank rate are not consistent with the study's expected sign. The model shows there is a significant negative relationship between GDP growth rate and unemployment. The coefficient is 0.0199. The result validates the Okun's law. This shows that when GDP growth rate increase by 1 percentage point unemployment rate will reduce by 0.0199 percentage points. According to Okun's law 3% increase in output will lead to a 1% decline in the rate of unemployment. The findings shows that the coefficient is much smaller than the coefficient in Okun's law.

The broad money supply (M2) and average overnight interbank rate (AOIR) which are tools of monetary policy reveals a significant negative relationship with unemployment. When the broad money supply increase by RM1 the unemployment rate will decrease by 0.0429 percentage points. This is consistent with the theory as increasing money supply is related to expansionary monetary policy. When the money supply increases the income and investment spending increases. As such employment increases or unemployment decreases. When the average overnight interbank rate (AOIR) increases by1 percentage point the unemployment rate will reduce by 0.2816 percentage points. The possible reason for the negative relationship with respect to AOIR is that an increase in AOIR will increase the cost of borrowing for business to finance projects, spending and investment falls as profit margins falls and eventually reducing unemployment. This relationship concurs with Keynesian view. According to Keynes interest rate is the financial cost of investment project. The investment spending depends on expected future profits besides other factors. He postulates when the future profits are lower than the cost investment spending unemployment will decrease. Hence the probable explanation is that the cost of borrowing is greater than expected future profits causing investment spending to reduce and unemployment increase.

The relationship between inflation rate and unemployment rate is positive and insignificant. It shows that an increase of 1 percentage point of inflation rate will increase the unemployment rate by 0.0203 percentage point. The findings are not consistent with the Phillips curve. As there have been debates on the validity of the Phillips curve. The study by Puzon (2009) shows there is not stable relationship one-to-one trade- off between unemployment and inflation. As such studies have shown mixed results. And positive effect by studies done by Friedman (1977) and Orji, Anthony-Orji and Okafor (2015), suggesting that high inflation rate is linked to high unemployment.

With respect to the vulnerability of external shock a significant negative relationship has been identified between the price of oil and unemployment rate. An increase of 1 US dollar of price of oil will reduce the unemployment rate by 0.0027 percentage points. The findings are consistent with the short run effect from Keane & Prasad (2004) as the increase in oil price will increase the production cost and increase unemployment

7.2 Overall Fit of Estimated Model

Given the R-square from the regression analysis is 0.6107 which is approximately 61.07%. It is interpreted as 61.07% of the variation in unemployment rate can be explained by the variation in GDP growth, inflation rate, average overnight interbank rate, broad money supply and price of oil. As there is no universal rule for determining how high R- square should be, another measure that is the F-statistics is used. Regression with an F-statistics with significant value less than 5 percent or lower is considered significant. In the study the *p*-value for F-statistic is 0.0000, F-test is statistically significant. At least one of the independent variable has influence on the dependent variable. The overall independent variables have significant relationship with dependent variable. The regression is significant.

7.3 Multicollinearity

Multicollinearity is determined using VIF. Based the rule of thumb VIF $\beta_1 > 5$, there exist a severe multicollinearity in the model.

Table 2. Result of Variance Inflation Factors (VIFs)

Variable	Centered
C	NA
GG	1.017083
INF	1.462633
AOIR	.378759
M2	1.082084
OIL	1.1030531

The empirical analysis result in Table 2 shows that there is no multicollinearity detected in this model since the value of VIF is less than 5.

7.4 Serial Correlation

Durbin-Watson statistic in the regression analysis is 1.5639. The Breusch-Godfrey Serial Correlation LM test (BG test) is used to detect the existence of serial correlation in the estimated model. The decision can be made by analyzing the *p*-value of the Chi-Square.

Table 3. Result of Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.7068	Prob. F(2,32)	0.1975
Obs*R-squared	3.8557	Prob. Chi-Square(2)	0.1455

Table 3 shows Breusch Godfrey result of value is 0.1455. Since the value is more than 0.05, thus we rejecting the null hypothesis. In conclusion, autocorrelation problem is dismissed from the model.

8. Conclusion

The main objective of this paper is to examine the relationship and significance between macroeconomic policy instrument and external shock on unemployment using multivariate regression.

The variables included in this model are GDP growth, inflation rate, monetary tools: broad money supply and average overnight interbank rate and price of oil. The relationship between GDP growth rate and unemployment rate is consistent with the Okun' law and is statistically significant when GDP growth rate increases, unemployment rate decreases.

The relation between money supply (M2) and unemployment rate is consistent with the monetarist view. The relationship between these two variables is statistically significant and negative. It indicates that money supply is related to unemployment rate. Overnight interbank rate is found to be statistically significant and negatively related to unemployment. Even though it is considered to be monetary instrument but its effect can be explained using Keynesian view. According to Keynes investment does not only depend on interest rate which is the cost of borrowing but also other factors such as future profits. Therefore, when the interest rate increase which is the cost of borrowing and other things remaining unchanged, invest spending and unemployment will decrease.

Oil prices this study indicates a statistically negative relationship effect on unemployment. An increase in the price of oil reduces unemployment. This is consistent with the short run finding in Ahmad (2013). The plausible reason is that employment is greater at upstream level. As a producer of oil when the price increase employment increases at the upstream therefore unemployment decreases.

It can be concluded from the result that unemployment has influence by GDP growth rate, monetary instrument and price of oil. Policy makers can possibly employ monetary policy and increase economic growth rate to control unemployment. Long term growth polices can have positive spillover effect and increase employment Besides this, structural adjustment policies with efficient ground work can creates new jobs, new skills blended with the use of capital intensive to reduce unemployment.

Even though this study determines the relationship between macroeconomic policy variables and external shock on unemployment rate using multiple regression, however there are some limitation of this study. This study uses quarterly data from 2004 to 2015 and multiple regression. Further study using a larger sample size and a different model specification can be conducted to support the findings. This study can further be sub divided by researching separately the effect of monetary instrument and external shocks on unemployment that is to verify the effectiveness of the policies. Besides that, this study can be expanded to other macroeconomic policy instrument such as exchange rate and their effect on unemployment on different sectors.

Acknowledgement

References

Ahmad, F. (2013). The effect of oil prices on unemployment: evidence from Pakistan. *Business and Economics Research Journal,* 4(1), 43-57.

Amassoma. D., & Esther, F. O. (2015). The efficacy of monetary policy variables in reducing unemployment rate in Nigeria. *International Finance and Banking*, 2(2), 52-72.

Ang, S. H., & Loganathan, N. (2013). Interactions between economic growth and unemployment condition in Asian region. *International Journal of Economics and Empirical Research (IJEER)*, 1(12), 135-146.

Brada, J. C. Marelli, E., & Signorelli, M. (2014). Introduction: young people and the labor market: keydeterminants and new evidence. *Comparative Economic Studies*, 56(4), 556-566.

Berument, M. H,, Dogan, N., & Tansel, A. (2009). Macroeconomic policy and unemployment by economicactivity: Evidence from Turkey. *Emerging Markets Finance and Trade,* 45(3), 21-34.

Bremmer, D., & Kesselring, R. (2005). How the Fed sets the federal funds rate target. *New York Times*.

Brincikova, Z., & Darmo, L. (2015). The impact of economic growth on gender specific unemployment in the EU. *Annals of the Alexandru Ioan Cuza University Economics*, 62(3), 383-390.

Chicheke, A. (2009). Monetary policy inflation unemployment and the Phillips curve in South Africa (Doctoral dissertation, University of Fort Hare).

Dell'Anno, R., & Solomon,O.H.(2008) Shadow economy and unemployment rate in USA: Is there a structural relationship? An empirical analysis. Applied Economics, 40n(19),2537-2555.

Dogan, T. T. (2012). Macroeconomic variables and unemployment: the case of Turkey. *International Journal of Economics and Financial Issues,* 2(1), 71-78.

Djivre J., & S. Ribon, 2003, "Inflation, unemployment, the exchange rate, and monetary policy in Israel, 1990-99: a SVAR Approach", *Israel Economic Review*, 2, 71-99.

Friedman, M. (1968). "The Role of Monetary Policy". *American Economic Review.* 58, pp1-17

Friedman, M. (1977). Nobel lecture: inflation and unemployment. *The Journal of Political Economy*,451-472.

Furuoka, F. (2007). Does the "Phillips curve" really exist? new empirical evidence from Malaysia. *EconomicsBulletin*, 5(16), 1-14.

Greenwood,J., & Huffman, G. W. (1987). A dynamic equilibrium model of inflation and unemployment. *Journal of Monetary Economics*, 19(2), 203-228.

Hsing, Y. (2005). Did US monetary policy respond to exchange rates, long-term interest rates, and the unemployment rate gap? *The International Trade Journal*, 19(1), 67-82.

Kin, S., Syden, M., & Asrat, T. (2015). The impact of oil prices on sectorial employment in South Africa. *TheInternational Business & Economics Research Journal (Online)*, 14(2), 287-296.

Keane, M. P., & Prasad, E. S. (1996). The employment and wage effects of oil price changes: a sectoralanalysis. *The Review of Economics and Statistics*, 389-400.

Lal et al. (2010) Test of Okun's law in some Asian Countries: Cointegration Approach, *European Journal of Scientific Research*, 40 (1),74-83.

Latest Release. (n.d.). Retrieved August 11, 2016, from https://www.statistics.gov.my/

Loganathan, N.,Yussof,I., & Kogid, M. (2012). Monetary policy and unemployment shocks in Malaysia: do they connect?#rd International Conference On Business and Economics Research Proceeding. 48-58.

Marelli, E., & Signorelli, M. (2015). Convergence, crisis and unemployment in Europe: the need for innovative policies. *Croatian Economic Survey*, 17(2), 5-56.

Mellquist, H., & Femermo, M. (2007). The relationship between the price of oil and unemployment in Sweden. Jonkoping Unversity.

Miller, S. J. (2006). The method of least squares. *Mathematics Department Brown University*, 1-12.

Modeste, N. C., & Mustafa, M. (2002). Do changes in the federal funds rate cause changes in the unemployment rate. *Southwestern economic review, South Carolina State University*. 135-145

Mohd Noor, Z., Mohamed Nor, N., & Abdul Ghani, J. (2007). The relationship between output and unemployment in Malaysia: does Okun's law exist?. *International Journal of Economics and Management*, 1(3), 337-344.

Montepeque, J. (2011). Dated Brent: the pricing benchmark for Asia-Pacific sweet crude oil.Platts Market Issues :oil. 1-7.

O'Higgins, N. (2012). This time it's different? Youth labour markets during 'The Great Recession'. *Comparative Economic Studies*, *54*(2), 395-412.

Orji, A., Anthony-Orji, O. I., & Okafor, J. C. (2015). Inflation and unemployment nexus in Nigeria: another test of the Phillips curve. *Asian Economic and Financial Review*, 5(5), 766-778.

Petersen, H.C., Lewis., W.C., Kaur., & Ng, P.L (2010) *Managerial Economics,* Malaysia: Pearson. Prentice Hall, 90

Plehn-Dujowich, J. M. (2012). The dynamic relationship between entrepreneurship, unemployment, and growth: Evidence from US industries. 1-31

Puzon, K. A. M. (2009). The inflation dynamics of the ASEAN-4: a case study of the Phillips curve relationship. *Journal of American Science*, 5(1), 55-57.

Resurreccion, P. F. (2014). Linking unemployment to inflation and economic growth: toward a better understanding of unemployment in the Philippines. *Asian Journal of Economic Modelling*, 2(4), 156-168.

Scarpetta, S., Sonnet, A., & Manfredi, T. (2010). Rising youth unemployment during the crisis: how to prevent negative long-term consequences on a generation?", *OECD Social, Employment and Migration Working Papers*, No. 6, Paris: OECD. 1-31.

Thayaparan, A. (2014). Impact of inflation and economic growth   on unemployment in Sri Lanka: a study of time series analysis. *Global Journal of Management and Business Research*, 14(5).44-54.

Todorova, T. (2012). The economic dynamics of inflation and unemployment. *Theoretical Economics Letters*, 2(02), 133-147.

Umar, G., & Kilishi, A. A. (2010). Oil price shocks and the Nigeria economy: a variance autoregressive (VAR) model. *International Journal of Business and Management*. 5(8), 39-49..

Umoru, D., & Anyiwe, M. A. (2013). Dynamics of inflation and unemployment in a vector error correction model dynamics, 3(3).20-30

Zavodny, M., & Zha, T. (2000). Monetary policy and racial unemployment rates. *Economic Review Federal Reserve Bank of Atlanta,* 85(4), 1-16.