THE RELATIONSHIP BETWEEN HIGH EDUCATION UNEMPLOYMENT AND MACROECONOMIC VARIABLES IN MALAYSIA

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DECLARATION

We hereby declare that:

(1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.
(2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
(3) Equal contribution has been made by each group member in completing the research project.
(4) The word count of this research report is 13,906 words.

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TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURE

LIST OF GRAPH

LIST OF ABBREVIATIONS

ADF	Augmented Dickey –Fuller test
AD	Aggregate Demand
AR	Autoregressive
CPI	Consumer Price Index
E-views	Electronic views
ER	Exchange Rate
FDI	Foreign Direct Investment
FEVD	Forecast Error Variance Decomposition
GDP	Gross Domestic Product
HU	High Education Unemployment
INF	Inflation rate
IRF	Impulse Response Function
JJ	Johansen and Juselius Cointegration Test
LHU	Log High Education Unemployment
LGDP	Log Gross Domestic Product
LCPI	Log Consumer Price Index
LINF	Log Inflation Rate
LER	Log Exchange Rate
PP	Phillips-Perron test

VAR	Vector Autoregression
VECM	Vector Error Correction Model

ABSTRACT

This study investigates the relationship between High Education Unemployment and Macroeconomic Variables *(gross domestic product, inflation, exchange rate and foreign direct investment)* in Malaysia. In this study, the time period we used is 33 years that is from 1982 to 2014. The methods that we used to conduct in this research is Augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) which is to examine the stationary of the data. Besides, we used the Johansen cointegration to test the long run relationship of the data. Moreover, Vector Error Correction Model (VECM), Variance Decomposition and Impulse – response Function are been conducted. The main finding of this study is all the independent variables have long run relationship with High Education Unemployment in Malaysia. The gross domestic product and foreign direct investment have negative relationship while the inflation and exchange rate have positive relationship with the high education unemployment in Malaysia.

Chapter 1: Research Overview

1.0 Introduction

Unemployment problem is a very critical issues for every country especially those developing countries. This unemployment problem will cause the loss of the income for the labor, decline in the productivity and the human capital of a nation. During the economy recession, normally there will be higher unemployment rate because labor supply exceeds the labor demand (Unemployment Dynamic in Malaysia, 2012). The unemployment rate is calculated by total unemployed divided by total employed plus total unemployed.

According to Bureau of Labor Statistics (BLS), a person can be considered as employee is the aged above 16 years, able to work for their employer and not engaged in the self service for example like housewife. For those unemployment person is not engaged in any employment and they were available for the job but unable to get the job successfully. The three type of unemployment are Frictional, Cyclical, and Structural. The situation of employees try to searching or transitioning from one job to another new job is known as Frictional unemployment. Normally at this frictional unemployment will happened the mismatch between employee and the jobs that related to the skill of the employees, working period, amount of salary, location, attitude, environment and other factors. This frictional unemployment basically happened on the fresh graduates employees when they trying to enter the job market to find their job.

Cyclical unemployment occurs when there is labor demand less than labor supply in the economy, especially during economy recession. When there is economy recession, mostly the firm will reduce their production and it will lead the decrease for the labor demand. Therefore, cyclical unemployment will increase sharply during that period. Another category of the unemployment is structural unemployment that

can be explained as the mismatch between the skills of the employees and the skills needed for the available jobs. For example, those experiences long term unemployment employees will face some problem to find a job that match to their skills since their skills become obsolete.

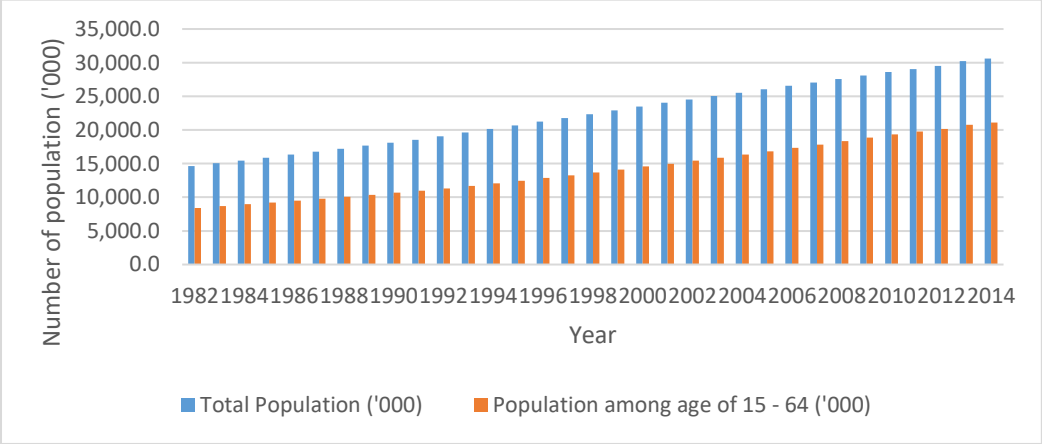
Based on the Bureau of Labor Statistics, the high education unemployment (HU) is one of the categories of unemployment (News Release Bureau of Labor Statistics, 2016). Lately, the HU becoming a common issue that not just facing by developing countries but also included developed country. Those fast growing East Asian economies has increases the number of the students step into the university and this caused the number of high educated unemployed raise to worrying levels at the develop countries. One of the developed countries is South Korea, they have the highest university participation rate in the whole world which is around 80% compared to 15% to 40% for those most developed countries and 15% below for the developing countries (Sharma, 2014). According to the Korea Labor Instute data, there have shows that the high education unemployment had raise to 32.2% in year 2013 (Yang, 2015). Besides, Singapore's HU had been increased for 3.3% to 3.6% in year 2013 which is higher than the average unemployment rate at around 2%(Sharma, 2014).

Past few decades, the unemployment issue is still a major problem for the developing countries of the world, especially in the form of high graduated unemployment. For example in Nigeria country, the total for the graduate unemployment rate keep increasing from 2003 to 2009 which is 25.6 percentage to 40.3 percentage that included both urban and rural area (Ajogbasile, n.d.).

1.1 Research Background

Recently, Malaysia has been facing some economic issues such as oil price shock and unstable exchange rate that will significantly affect the domestic economy condition. This will further affect the cost of living for the citizen in the country. To overcome the rising prices in goods and services consume by the customers, they need a job to earn some money to meet their necessity. However, the increasing in population does not follow by the increasing in the number of job opportunities and this has cause some of the citizens are facing the unemployment issues even though they had meet the requirement for a job vacancy.

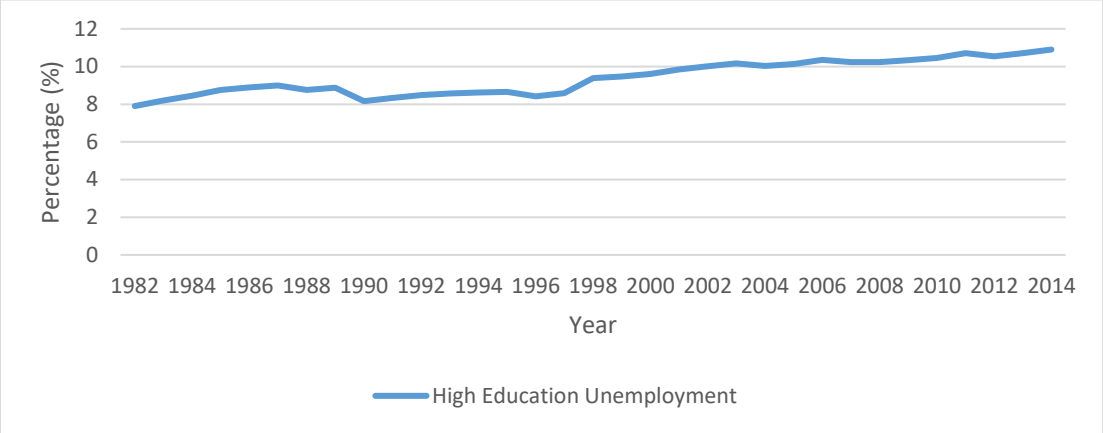
Figure 1.1.1: Total population and Population for age 15 to 64



Source: Calculated by author from Department of Statistics Malaysia, 2015

The data is obtained from Department of Statistics Malaysia in order to calculate the total population and population for age 15 to 64 from the whole Malaysia. The number of population is calculated in thousand people ('000). Both of the population experience a steadily growth until reach the peak at 2014, which total population reach at 30598 and population for age of 15 to 64 is reach at 21099.

Figure 1.1.2: The number of high education unemployment in Malaysia



Source: Calculated by author from Department of Statistics Malaysia, 2015

The graph above shows the high education unemployment in 1982 to 2014. The percentage of the high education has been remained at the 8 percent from year 1983 to 1997. The percentage increases from 9.39 percent in year 1998 to 10.90 percent in year 2014. There is no any large fluctuations among the year and just steadily increase throughout the year. However, there is no any unemployment rate for year 1991 and 1994 due to Labor Force Survey (LFS) was not conducted in the stated year. The main objective of LFS is to collect information on the structure and distribution of labor force, employment and unemployment in Malaysia through the perspective of the supply side (Kuchairi&Layali, 2015). In this study, the interpolation method is being used to obtain the high education unemployment data for year 1991 and 1994.

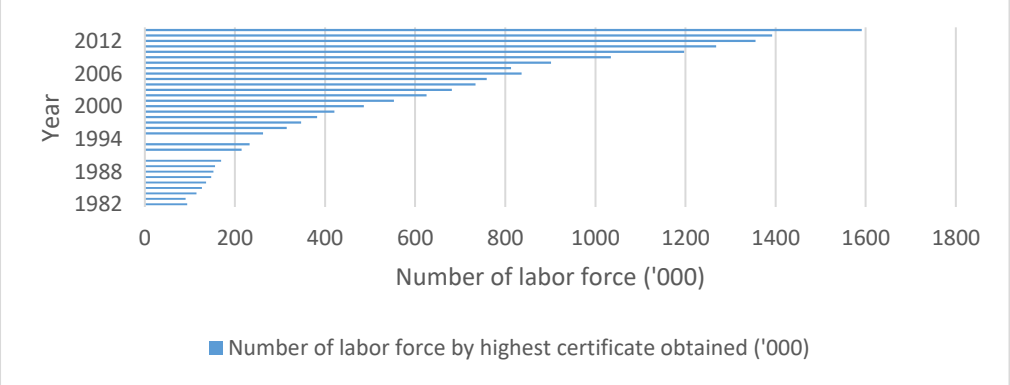
Figure 1.1.3: Principal statistics of labor force, Malaysia, 2014 and 2015

Indicator		2014[r]	2015	Change (%)
Labour force	('000)	14,263.6	14,518.0	1.8
Employed	('000)	13,852.6	14,067.7	1.6
Unemployed	('000)	411.1	450.3	9.5
Outside labour force	('000)	6,821.0	6,869.9	0.7
Labour force participation rate (LFPR)	(%)	67.6	67.9	0.3*
Unemployment rate	(%)	2.9	3.1	-0.2*

Source: Calculated by author from Department of Statistics Malaysia, 2015

Malaysia's labor force has been significantly growing by 1.8 percent from 14.3 million persons in 2014 to 14.5 million persons in year 2015. However, the number of unemployed persons showed an increasing trend by 9.5 percent from 411.1 thousand persons to 450.3 thousand persons in 2015. The unemployment rate has been increased from 2.9 percent to 3.1 percent in year 2015.

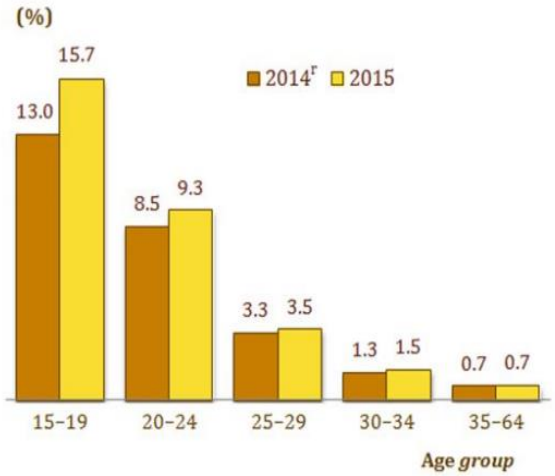
Figure 1.1.4: Number of labor force by highest certificate obtained



Source: Calculated by author from Department of Statistics Malaysia, 2015

Figure 1.1 shows the number of labor force with degree certificate in year 1982 to 2014. There is an increasing trend over the period and reach to the highest in 2014, which is about 1591300 people who are with degree holder.

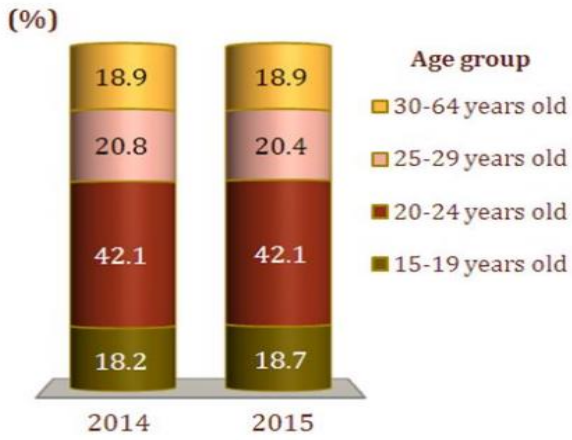
Figure 1.1.5: Unemployment rate by age group, Malaysia, 2014 and 2015



Source: Calculated by author from Department of Statistics Malaysia, 2015

According to the Minister of Human Resources, Fong Chan Onn, he found that 59000 graduates were unemployed and 30000 graduates have worked in the field which mismatch with their higher educational qualifications (Hanapi&Nordin, 2013).

Figure 1.1.6: Percentage of unemployed persons by age group, Malaysia, 2014 and 2015



Source: Calculated by author from Department of Statistics Malaysia, 2015

The unemployment rate according to the age group showed that the population aged between 20 to 24 years has a rate of 9.3 percent in year 2015, which is considered as the second highest among the population. In terms of unemployment persons, the youth age group of 20 to 24 years contributed the highest percentage which is 42.1 percent in year 2014 and 2015. The increasing in the number of labor force does not mitigate the unemployment problem but further increased the unemployment rate in Malaysia. The range of age 20 to 24 years are mostly a degree holder and just finish their degree study in university. As a result, the range of age group is facing with higher education unemployment which is unemployment among people with degree holder. The higher education unemployment is becoming a common issue that not just facing by developing countries but also included in developed country.

1.2 The relationship between High Education Unemployment and Macroeconomic Variables

Macroeconomic variable is important to determine the economy condition of a country. In this part, we will see how the macroeconomic variable will significantly

affect the higher education unemployment in Malaysia. Under the household data section, the number of bachelor's degree holder which is the higher education unemployment is considered as one of the category of unemployment rate (News Release Bureau of Labor Statistics, 2016). The macroeconomic variables have effect on unemployment by including the structural breaks (Dogan, 2012). Malaysia is selected in this study to investigate how the macroeconomic variable including Gross Domestic Product (GDP), inflation (INF), exchange rate (ER) and Foreign Direct Investment (FDI) will affect the higher education unemployment in the country. Our aim is to explore on the statistical relation between high education unemployment and macroeconomics variables that affect the demand side of the economy.

1.2.1 The relationship between GDP and unemployment

In the short run, there is unnecessary to show that the unemployment will decline due to the positive economic activity (Levine, 2013). This is because some firms will underutilize employee's payroll as they think that the action of lay off the workers when there is a declining demand for the product and tend to rehiring them when the product demand improve will imposed some costs. The employers will increase their output without hiring additional workers through raising the productivity of the current workers to meet the demand recovery.

1.2.2 The relationship between INF and unemployment

Philips curve explained that when the labor market is tightened, this will lead the unemployment to fell and the money wages will rise more rapidly (Cashell, 2004). Due to wage increases will highly correlate with price increases, the relationship between inflation and unemployment is widely interpreted as trade-off. During the economic growth, producer and workers will be easier to increase prices and wages

(Alicia, 2015). Workers have to accept lower wages when there is a high unemployment happen in the market.

1.2.3 The relationship between ER and unemployment

According to Shaari, et al. (2013), the results from VAR with co-integration model shows there is a relationship between exchange rate and unemployment. It shows that the exchange rate causes unemployment and it is consistent to the result obtained from Chimnani et al. (2012) that real exchange rate positively affects the unemployment rates in Asian countries. The result is coherent with the earlier analysis which shows that the exchange rates affect unemployment in the short run

.

1.2.4 The relationship between FDI and unemployment

It is not controversy that FDI inflow is positive to unemployment as it depends on whether FDI inflow is a green field or brown field investment (Bayar, 2014). Turkey is under the category of brown field investment as they are more focus on privatization and acquisitions. Therefore, FDI inflow does not generate an employment in Turkey. In contrast, the economic condition of a country can be improved by focusing on the green field investment for high technology industry which will bring out spill over effects in the long run (Balcerzak&Zurek, 2011).

1.3 Problem Statement

Past few decades, the increasing rate among the HU is one of the issues that trigger world's concerns recently. The rate of unemployment by degree certificate obtained was 2.79 percent and it had increased to 3.22 percent in year 2013. In year 2014, the rate had raise until 3.41 percent (Department of Statistic Malaysia, 2014). Datuk Seri Abdul Wahid Omar, the Minister of Prime Minister's Department, also

stated that there are 400,000 unemployment in Malaysia which has included the students that had graduated from university in last 6 months (Malaymail online, 2015). There are about 161,000 graduates or 8.8 percent of youths who are aged between 20 to 24 years had yet to find a job. For instance, most of the fresh graduates are underemployed, which refer to working in a job that typically does not require a bachelor's degree. This issue becomes a questionable problem that the reason behind the education level could not help to cope down the unemployment rate but increase further the common issue toward the society.

Besides that, there was a growth in economic in Malaysia where the economy is boom in the past few years. However, from the journal and statistic that we found shows the rate of HU had been increased accordingly. Therefore, there was a huge difference between the actual findings with the theory where the growth in economy should lead to the lower unemployment but in realistic there was high unemployment rate for the high educated Malaysian in the past few years.

In conclusion, policy maker and government can be more concerning in this issue since the affect of HU not only impact in society but also the economic activity (Mortimer, 2013).

1.4 Objectives

The purpose of this research is to investigate the relationship between HU and macroeconomic variables which are Gross Domestic Product (GDP), Inflation Rate (INF), Exchange Rate (ER) and Foreign Direct Investment (FDI).

The objectives of this paper are as follows:

(i) To examine the long run relationship between high education unemployment and macroeconomic variables (GDP, INF, ER and FDI).

(ii) To examine the magnitude of the long run relationship between high education unemployment and macroeconomic variables (GDP, INF, ER and FDI).

(iii) To assess the dynamic interaction among the variables study.

1.5 Research Question

(i) Is there long run relationship between high education unemployment and macroeconomic variables (GDP, INF, ER and FDI) ?

(ii) What is the magnitude of the long run relationship between high education unemployment and macroeconomic variables (GDP, INF, ER and FDI)?

(iii) How was the dynamic interaction among the variables study?

1.6 Hypotheses of the study

Four hypotheses are used to investigate the relation between the high education unemployment and macroeconomic variables in Malaysia in this study.

i) Gross Domestic Product (GDP)

H_0: There is no long run relationship between GDP and HU.

H_1: There is a long run relationship between GDP and HU.

ii) Inflation

H_0: There is no long run relationship between INF and HU.

H_1: There is a long run relationship between INF and HU.

iii) Exchange rate

H_0: There is no long run relationship between ER and HU.

H_1: There is a long run relationship between ER and HU.

iv) Foreign Direct Investment (FDI)

H_0: There is no long run relationship between FDI and HU.

H_1: There is a long run relationship between FDI and HU.

1.7 Significance of the study

The significant of this study is to investigate the relation between the HU and macroeconomic variables (GDP, INF, ER and FDI) in Malaysia. These four variables are very important to economic growth. GDP is a main indicator used to measure the health of a country's economy. INF shows the overall stability and affects the value of money of a country's economy directly. ER can directly influence a country's amount of export and import. FDI can create more job opportunities to local citizens and will decrease the unemployment rate. As we knew, the effects of unemployment that will bring to our economy are unemployment financial costs, spending power, reduced spending power of the employed and recession. In addition, there are few effect of unemployment on society, such as mental health, health diseases, tension at home, crime and violence and suicide cases. As a reference, according to (Olowe, 2009), there are few effects of HU on economy which are financial crisis, psychological, increasing cases of crime and drug addiction. After graduation, the fresh graduated students cannot get a job, they feel fed up, however they still need to live, therefore they will change their mind to get 'easy money'. To reduce these problems, this research may help policy makers and government to take into account with the increasing HU rate. For example, government can implement the expansionary fiscal policy. In this policy, government will reduce the taxes which lead to increase the disposal income of the citizen. Aggregate demand will goes up since the consumer consumption had been increased. Meanwhile, the rate of HU will be dropped. Once the HU is decreasing and the crime will decrease at the same time,

this will increase the tourism once our country is safety and will increase the economic growth.

1.8 Conclusion

In conclusion, this chapter is briefly explained the background, research and objective for this research. This research is to investigate the relationship between the HU and macroeconomic variables in Malaysia. In this research, there are four macroeconomic variables which are GDP, INF, ER and FDI. Lastly, the literature review will be discussed in the following chapter

Chapter 2: Literature Review

2.0 Introduction

The main purpose of this section is to have basic concept on determine the variables and appropriate method. In this chapter 2 will review about the literature that conduct by other researchers and illustrate the relation between unemployment and macroeconomic variables. In this chapter will be discuss the relationship between the unemployment and macroeconomic variables (GDP, INF, ER and FDI).

2.1 Determinant of High Education Unemployment (HU)

2.1.1 The relationship between Gross Domestic Product (GDP) and unemployment

Berument et al. (2008) explained that several economics shocks result by domestic and external causes had affected industrial heartland of the Turkish economy. Since the economic condition has been recovered from the crisis, the level of unemployment still remains high and this situation called as "jobless growth". As a result, the GDP growth rate in Turkey has been declined and this further lead to the unemployment rate to be increased. According to the journal of Gogos&Kosma (2014), the theory of Okun's Law stated the increase (decrease) in production followed by the increase (decrease) in demand. It also shows that there is short run relationship between proportional changes in GDP growth to the unemployment rate. It shows that there is statistically significant and negative relationship between real GDP growth and unemployment.

Andrei et al. (2009) stated that there is a negative correlation between real GDP growth and unemployment. They explained that the correlation between real GDP and unemployment is very important for policy makers to obtain a sustainable rise in living standards. If GDP growth rate fall below the natural rate, it implies that policy makers will promote employment to boost up the total income which will generate inflationary pressures. In contrast, in order to maintain sustainable growth rate without generate INF in the market, the policy makers will not promote the creation of new jobs if GDP rise above its natural rate. Hence, it shows that relationship between GDP and unemployment has inverse relationship which lower growth in real GDP tend to increases in unemployment.

According to Alamro and Al-dalaien (2014), most of the studies implied that is a negative relationship between GDP and unemployment. It shows that high GDP will increase the employment rate and this will further decrease the unemployment rate. However, he explains that the result might not necessary true as GDP takes place in two directions. Firstly, the unemployment is reducing because of the increasing in

the labor productivity that does not lead to creation of additional jobs. Another direction is follow by the increasing in labor supply that brings to the creation of additional jobs that further reduce the unemployment rate in the economy. Besides, the result shows that the unemployment is influenced by the GDP.

In the journal of Khalip et al. (2014) mentions the gap between potential GDP and real GDP expand the variation in unemployment that turn conversely related to the change in output called as Okun's Law. This Okun's law is a related to the change in aggregate output and unemployment which is how much will the GDP decline when the unemployment above the neutral level. They estimated that the relationship by using the panel unit root test and the result show all variable significant and the pooled EGLS show that there is negative relation between GDP and unemployment which increase in GDP will reduce the unemployment.

2.1.2 The relationship between Inflation (INF) and Unemployment

Haug and King (2011) found that previous research had two forces to support the effect of the money growth which is the opposite direction with unemployment. One of the forces is search-inducing effect which is the high INF stimulate consumers to buy more intensively thus it will increase the firm sales then reduce the unemployment. The other force is inflation effect that high INF will bring down the value of sales, profitability and opportunities of new hiring labor force. They estimated that there is positive relation between INF and unemployment. However, it may show an unambiguous relationship in long run. In the test, there is quarterly data from US start from 1952Q1 to2010Q1. From the results, it shows that there is positive relationship in the medium to long run and it indicated that the INF has linkage with unemployment.

According to Aurangzeb and Asif (2013), it mentions that the relationship between INF and unemployment in the economic theory called as Philip curve that

was developed in year 1958 and this two variables have negative effect to each other. In the journal, there have few research stated that the relationship of INF with unemployment is ambiguous with different model and economic environment. Therefore, the increasing of the purchasing price decline definitely the demand will less and firm will reduce the production activity thus unemployment increase. They test on three countries which is Pakistan, China and India with the period of 1980 to 2009. The results show the INF for Pakistan, and India shows that relationship of INF with unemployment is exist.

Furuoka and Munir (2014) investigate the relation of unemployment and INF in Malaysia. Based on the theoretical of Philip Curve, it can be illustrated by the concept of labor demand and supply. When the demand of labor larger than supply of labor, it will give the pressure on the salary rate which will cause the high INF of a country. Therefore, employees can easily find the job and the unemployment will reduce. On the contrary, when the supply of labor exceeds demand of labor, it will push down the wage rate thus it will lower down the INF. However, when there is too many of labor supply, it is hard for the labor to find the jobs hence the unemployment will increase. This research used the Johansen cointegration and Error Correction Model (ECM) to analysis the hypothesis from the period 1975 to 2004. Form the result show, there is co-integrated relation in the long run and negative relationship in short run.

2.1.3 The relationship between Exchange Rates (ER) and Unemployment

In the journal of Aurangzeb and Asif (2013), it stated that the ER already been an important role in a country's economy condition because it can influence the level of labor force. As the researcher said, the inflow of the foreign currency increase, it will enhance the economic growth thus the unemployment will reduce. Therefore, it can bring some benefits like when the level of labor force increase, the productivity also will increase thus it can boost up the export sector and the import sector expenditure will declined. They do the research on three countries which are Pakistan,

India and China by using the cointegration and granger causality test from the period 1980 to 2009. In the result, it shows that ER for three countries has positive impact on the level of unemployment. Besides the Pakistan country have unidirectional causality relationship between ER and unemployment.

According to Chimnani et al. (2012), they estimated that the ER has positive impact on the level of unemployment. In addition, the ER is the main issues for the Asian countries because many Asian countries faced the deficit problem. Furthermore, ER plays an important element especially for the open market economy because it can influence a country's level of export and import. Besides, they have mentions that when the ER volatility is increase, it give negative impact to the level of import trade and those foreign company may reluctant to invest the fund and hence will create an unemployment issue happen. It can conclude that ER has positive relationship with unemployment. Therefore, if a country can control their ER level then they would able to reduce their level of unemployment rate.

Nyahokwe and Ncwadi (2013) stated that the ER has important influence in the employment, export and import and production. This ER was the most focus issue for those developing countries because it may cause the unemployment rate become high. Besides, the ER may increase the level of unemployment if there is the low investment in the physical capital. Moreover, there have other researchers argued that the ER may be in positive or negative relationship which is depend on industry's specific characteristics. In the research, the periods covered from year 2000-2010 by using ADF test. As the result said, VECM test shows that the ER is positive relationship with unemployment.

In the journal of Feldmann (2011), he found that many researchers said that when there is high of the ER definitely it will increase the level of unemployment. Besides, some people argue that it depends on what the characteristics of the labour market. The journal stated that the company rather to improve their employees' bargaining position which is increase their salary thus it will reduce a company' s net

return when there is high ER. Therefore, that company will try to postponed the hiring the new employees and cause the unemployment increase. Due to this issue, Feldmann investigated the impact of the ER on the level of unemployment through the GARCH The result come out and stated that of the ER and unemployment has positive relationship.

2.1.4 The relationship between Foreign Direct Investment (FDI) and unemployment

According to Aqil et al. (2014), they said that unemployment was not a good sign for a country for their point of view to economic and social. The researchers considered that the FDI can affect the technology transfer into the local firms which can influence the level of the employment. Besides, it also shows that when there is no FDI, the unemployment will increase. Hence, in the test it shows that there is high adjusted-R square which is the FDI and unemployment has strong correlation. So it can be explained that the relationship between FDI and unemployment is negative relationship. Therefore, the FDI can reduce the level of unemployment.

Based on the research of Strat et al. (2015), they mention that FDI is one of the best ways to boost up the developing countries economic condition. Moreover, the FDI also act as important resources to improve the quality of goods and services whether in the internal or external market such as exporting those goods and services to increase the economy potential. Besides it also can improve a company's management skill and make the labor can have a better paid off. They used the Toda Yamamoto procedure to test the short run causality relationship for all thirteen states of latest European Union members. The result shows that there are four countries out of thirteen countries have significant impact between net inflow of the FDI and unemployment. But at the same time, there are three countries also proved that FDI and unemployment have causal influence relationship.

Based on the research of the Shaari et al. (2012), they have stated that the economist believes that the FDI is a crucial source for the economic development in the world. Besides they also found that FDI can help to reduce the unemployment rate of a country. When the unemployment rate been reduced, the productivity definitely will increase and it will bring the economy condition performs well. They use the simple Ordinary Least Square (OLS) to test the relationship of FDI and unemployment in Malaysia for the period from 1980 to 2010 and the data was collected from World Bank. The result shows that when the FDI increase thus it will cause the unemployment decrease. Therefore, when FDI appears it can reduce the level of unemployment.

Zeb et al. (2014) stated FDI is a crucial parts in economic growth especially those developing countries. Besides they also investigated that FDI was able to provide the basic equipment like advance technology, professional workforce skills and capital to those developing countries. This kind of equipments can help to create new job hence reduce the unemployment and poverty of a country. Moreover, they make hypothesis said that the growth of FDI and decline in unemployment will give the benefit to those poor proportionally than non-poor. Due to the inapplicability data, the research only covers for 17 years start from 1995 to 2011 by using the OLS to test the relationship between FDI and unemployment. They found that there is a significant negative relationship between the variables. At last, it can conclude that FDI increase thus the level of unemployment will reduce.

In the journal of Stamatiou and Dritsakis (2014), they test the impact of the FDI on unemployment in Greece by using the time series analysis for the period 1970 to 2012. Since the global crisis happened, it leads many countries facing high unemployment rate. The economists believe that FDI can help to overcome the unemployment problem because it can raise the private investment, stimulate the new jobs creation and transfer technology or knowledge of workforce skill that can

directly boost up a country' economic condition. They test the relationship between FDI and unemployment and results indicate that the FDI is significant. Furthermore, it also shows there has causality in the short run and unidirectional causality in long run. Therefore an increase of the FDI will boost the growth thus it can reduce the unemployment.

Haddad (2016) investigate the relationship in Jordan which is Arab country because the country has critical unemployment and poverty problem thus slow down the economic growth. Besides, the study mentions that FDI can provide large capital, managerial skill and technology to help the developing countries improve their economic growth. When the foreign firms invest in a country, they will create a new job and thus it also can help to reduce the number of unemployment to overcome the poverty problem. In this research, the time period for the test is from 1998 to 2014 and OLS regression is use to analyst the test. Based on the result, it show significant and negatively impact on unemployment.

2.2 Conclusion

This chapter is aiming to determine the impact of independent variables to dependent variables which is high education unemployment. Based on the literature review, the result that carried by the researchers are useful for this study to prove that whether the independent variables is significant or not significant to dependent variable. Since, there is literature gap occurs in this study due to the limited journal that focus only at high education unemployment with the primary data which is different with this study except the research that done by Ajogbasile (). Therefore in the next chapter will carry out the empirical analysis to test the consistency between

the findings and previous result. The various methodologies will be deliberated in Chapter3.

Table 2.1: Summary of Literature Review

Authors Name (Year)	Data	Model / Methodology	Findings
Alamro& Al-dalaien (2014)	Variables: • Real GDP Time Period (TP): • Annual data from 1980 to 2011	• Autoregressive Distributed Lag (ARDL) • Error Correction Model (ECM)	• There is negative relationship because high economic growth will decrease the unemployment. • Result shows the unemployment is influenced by growth rate.
Andrei, Vasile& Adrian (n.d.)	Variables: • Real GDP growth rate Time period (TP): • Quarterly data from 2000Q1 to 2008Q4 Source of data: • The National Institute of Statistics	• Augmented Dickey Fuller • Phillips Perron tests (PP)	• GDP have negative correlation with unemployment. • There is inverse relationship between GDP and unemployment.
Aqil, Qureshi, Ahmed &Qadeer (2014)	Variables: • GDP growth rate • Inflation	• linear regression model	• There have strong correlation and high adjusted R-square.

	• FDI • Population growth rate Time period (TP): • Annual data from 1983 to 2010. Source of data : • International Monetary Fund • World Bank • Mundi	• ANOVA • Collinearity Diagnostics	• Negative relationship between foreign direct investment and unemployment.
Aurangzeb &Asif (2013)	Variables: • Unemployment • Inflation • Gross Domestic Product • Exchange Rate • Increasing rate of population Time period (TP): • Annual data from 1980 to 2009 Source of data:	• Regression analysis • Cointegration analysis • Granger causality	• The regression analysis showed there is a significant impact for all the variables within three countries. • The relationship between INF and unemployment is valid. • The exchange rate showed positive impact with unemployment.

	• World Bank		• There is long tern relationship among the variables for all models in the cointegration result.
Berument, Dogan&Tansel (2008)	Variables: • Real GDP (Y) • Price (P) • Exchange rate (EXCH) • Interbank interest rate (INTERBANK) • Money (M1) plus repo (M) • Unemployment Time period (TP): • Quarterly data from 1988:01 to 2014:04 Source of data: • Central Bank of the Republic of Turkey (CBRT)	• Vector Autoregressive (VAR) Model	• The GDP growth rate in Turkey declined thus lead the unemployment increase. • Unemployment rate still remain high and facing the "jobless growth" problem.

	• Household Labor Force Surveys (HLFS)		
Chimnani, Bhutto, Butt, Shaikh& Devi (2012)	Variables : • Exchange rate • Net exports • Real interest rate • GDP per capita • Labor productivity Time Period (TP) : • Annual data from 1995 to 2005 Source of data : • World Bank • International Monetary Fund • Federal Office of Statistics	• Ordinary Least Square (OLS)	• Exchange rates have positive impact on the level of unemployment. • The exchange rate should be control to reduce the unemployment.

Feldmann (2011)	Variables : • Exchange rate volatility • GDP Time Period (TP): • Annual data from 1982-2003 Source of data : • World Bank	• GARCH model	• There is statistically significant in the exchange rate volatility and unemployment. • When the volatility of exchange rate more high thus the level of unemployment will become high also.
Furuoka&Munir (2014)	Variables: • INF Time Period (TP): • Annual data from 1975-2004 Source of data: • National Economic and Development Authority • Department of Statistics • Asian Development Bank	• Augmented Dickey Fuller • Johansen cointegration • Error Correction Model	• The result indicates that the variables have relations in long run. • But in short run, there is negative relationship.

Gogos&Kosma (2014)	Variables: • Real GDP • Real interest rate • Real credit to firms Time Period (TP): • 1999Q2 to 2013Q4	• OLS regressions	• The result shows that is a negative and statistically significant relationship between real GDP growth and unemployment rate.
Haddad (2016)	Variables : • FDI Time period : • Annual data from 1998-2014 Sources of data : • Department of statistics • Central Bank of Jordan	• Augmented Dickey Fuller • Ordinary Least Square (OLS)	• The model is significant and can use to measure the effect of FDI on unemployment. • There is negative relationship exist between them.
Haug and King (2011)	Variables : • INF Time period : • Annual data from 1998-2014 Sources of data :	• Band-Pass Filtering approach	• Positive relation during the medium run to long run. • INF and unemployment are linked together.

	• Department of statistics Central Bank of Jordan		
Khaliq, Soufan&Shihab (2014)	Variables : • GDP Time period : • Annual data from 1994-2010 Sources of data : • Statistical Economic and Social Research and Training Centre for Islamic Countries	• F-statistics • Panel Unit Root test • Pooled EGLS	• The result show the GDP is significant and negative relations with unemployment.
Nyahokwe&Ncwadi (2013)	Variables : • Exchange rate • Export • Real interest rate • GDP Time Period (TP) • Quarterly data from 2000-2010 Source of data :	• GARCH model • Cointergration test • Pairwise Correlation matrix • Vector Error	• The result shows that the exchange rate and unemployment has reverse relationship • There have negative impact on labour market.

	• South African Reserve Bank (SARB) • International Financial Statistics (IFS) • Johannesburg Stock Exchange • Department of Trade and Industry	Correction Model	
Shaari, Hussain&Halim (2012)	Variables : • Foreign Direct Investment • Real Gross Domestic Product Time Period (TP) : • Annual data from 1980-2010 Source of data : • World Bank	• Augmented Dickey Fuller • Ordinary Least Square (OLS) • Jarque-Bera test	• The FDI have negative relationship with unemployment. • FDI increase thus unemployment will decrease.

Stamatiou&Dritsakis (2014)	Variables : • FDI • GDP Time Period (TP): • Annual data from 1970 - 2012 Source of data: • AMECO • UNCTAD	• Augmented Dickey Fuller • Autoregressive Distributed Lag • VECM Granger Causality	• There is inverse relationship of FDI with unemployment • An increase in FDI during short run or long run will raise growth thus decrease the unemployment.
Strat, Davidescu& Paul (2015)	Variables : • Net inflow FDI • GDP Time Period (TP) : • Annual data from: First group :1991-2012 Second group:1992-2012 Last group:1993-2013 Source of data : • World Bank	• Toda Yamamoto Test • Augmented Dickey Fuller • Vector Autoregressive model (VAR) • Granger causality	• FDI can help to improve the labor force management and the jobs paid off. • There is significant impact and causal influence between FDI and unemployment.

Zeb, Fu &Sharif (2014)	Variables : • FDI • Corruption • Population size • Inflation Time Period (TP): • Annual data from 1995-2011 Source of data : • International Labour Organization (ILO) • United Nations Conference on Trade and Development • Corruption Perception Index (CPI) • Pakistan Bureau of Statistics • World Development Indicator	• Augmented Dickey Fuller • Ordinary Least Square (OLS)	• Negative relationship between FDI and unemployment.

Chapter 3: Methodology

3.0 Introduction

This study examined the relationship between the HU and macroeconomic variables in Malaysia. Therefore, in this chapter discusses the methodology that used to figure out the objective that state in chapter 1 which is the relationship between the HU and GDP, INF, ER and FDI. In addition, this chapter consists of research design, data collection method, sampling design, research instrument, data processing and data analysis. Besides, E-views 7 was using as a tool to analyze the data.

3.1 Method of Data Collection

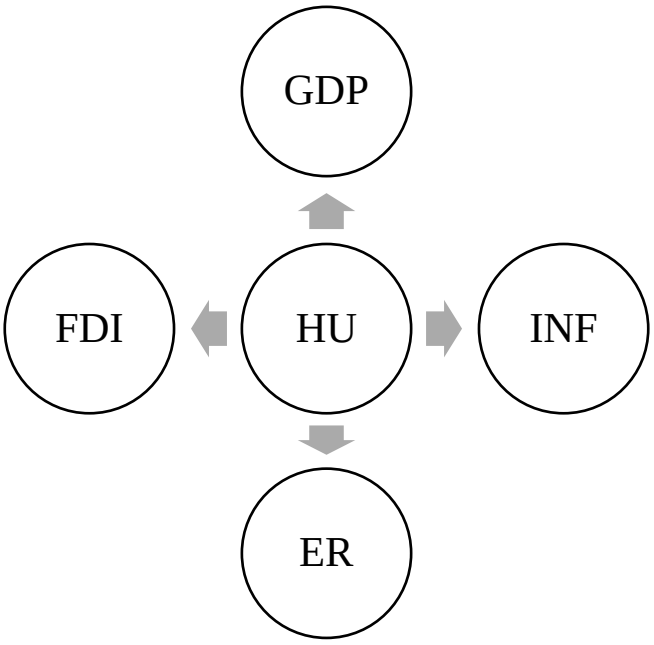
This research is using secondary data which was the data collected or recorded by government department or some users for research purpose. In this research, there are four independent variables (GDP, INF, ER and FDI) and one dependent variables (HU) was collected from year 1987 first quarter to year 2014 fourth quarter. These data were collected from Department of Statistic Malaysia and World Bank. Due to the Labor Force Survey, there was unavailability data for HU in year 1991 and 1994 (Kuchairi & Layali, 2015). Therefore, interpolation method is suggested to solve the problem. The mathematic formula below is to calculate the total high education unemployment.

Total no. of HU = Total no. of high education – Total no. of high education employed

3.2 Theoretical Framework

This part clarifies the theoretical framework. This theoretical framework is carried out based on the literature review and is shown in diagram below (Figure 3.2). This figure is showing the relationship between the high education unemployment and macroeconomic variables (GDP, INF, ER and FDI).

Figure 3.2: The relation between dependent variable and independent variables in Malaysia.



3.2.1 Model Specification

This study is to investigate the relationship between high education unemployment and macroeconomic variables in Malaysia from year 1982 to year 2014. According to Okun's law (Fuhrmann. R, 2016) and Phillips curve (Pettinger, 2013) theory, GDP and inflation are chosen as independent variables. Besides that, exchange rate variable and foreign direct investment (FDI) variable are based on the past studies that did by other researchers. They found that, there are a relationship between unemployment and both of exchange rate and FDI.

The estimated model:

$$Y_t = \beta_0 + \beta_{1t} + \beta_{2t} + \beta_{3t} + \beta_{4t} + \varepsilon_t$$

$$LHU_t = \beta_0 + \beta_1 LGDP_t + \beta_2 LCPI_t + \beta_3 LER_t + \beta_4 FDI_t + \varepsilon_t$$

Where:

HU_t = The higher education unemployment (Index)

GDP_t = Gross Domestic Product (Index)

CPI_t = Consumer Price Index (Index)

ER_t = Exchange rate (Index)

FDI_t = Foreign Direct Investment (Percentage)

ε_t = Error term

t = Period (1982-2014)

L = log

✓ All variables using the log form except FDI, because it is percentage form (%).

Gross Domestic Product (GDP)

Based on the Okun's law theory, it indicates that unemployment and GDP have a negative relation. Increasing in GDP will cause the unemployment rate decline. With the Okun's law statement, when GDP is increasing by 2%, unemployment rate will decrease by 1%.

The formula to calculate for Okun's law:

$$2(\text{unemployment rate-natural unemployment}) = \frac{\text{potential GDP - actual GDP}}{\text{potential GDP}} \text{ x } 100\%$$

Consumer Product Index (CPI)

With this variable, data of consumer product index (CPI) is used to instead of data of inflation. At the easier level, CPI is to calculate the inflation. Inflation can be defined as overall general price of goods and services is rising in an economy. According to Phillips curve theory, there is an inverse relationship between inflation and unemployment. In addition, American economists Friedman and Phelps stated that there is not only one Phillips curve, it categories as short run Phillips curve and long run Phillips curve. In the long run, there is no trade-off between unemployment and inflation.

Exchange Rate (ER)

The unemployment and exchange rate have a positive relationship. Exchange rate is a rate between two currencies that can be exchange by both countries. If the exchange rate of country X is higher, country Y will reduce for import goods and services from country X. Once, the country X's export is decreasing, the output that produced by firms will decrease.

For saving cost of production, firms will reduce their labor. Therefore, the unemployment will increase.

Foreign Direct Investment (FDI)

Foreign direct investment (FDI) is an investment from foreign investors to a country. When the FDI flows into a country increase, it will create more opportunities to local citizens. Therefore, the unemployment will reduce. Conversely, if a country has their political problem, it will cause the foreign investors withdraw their fund or investment from the country. The consequence of FDI decreasing will affect unemployment rate increase sharply. There is a negative relationship between unemployment and FDI.

3.2.2 Jarque-Bera Test

This test is a goodness of fit test that examine whether there is the normality distribution based on the sample of skewness and sample of kurtosis. It also can defined as Carlos Jarque and Anil K. Bera.

Hypotheses:

H_0: The data are normally distribution

H_1: The data are not normally distribution

Decision rule: Reject H_0 if P-value is less than the significant level, otherwise, do not reject.

3.2.3 Unit Root Test

In this research, unit root test tests whether the series is stationary or non-stationary. The important to have this test is for prevent spurious and invalid.

There are three cases as below:

When $\beta > 1$, Y_t is an explosive process

When $\beta = 1$, $Y_t$is a unit root process (non-stationary process)

When $\beta < 1$, Y_t is a stationary process

According to Gujarati and Dawn (2009), stationary indicate that mean and variance are constant over time. However, if mean and variance are not constant, it will become non-stationary. The problem of non-stationary is will lead to spurious regression. Spurious regression means that if two variables are trending over time, a regression of one on the other could have a high R^2 even if the two are totally unrelated (Engle & Granger, 1987) and it also can prove that the assumption of the analysis is invalid when the variables in the model are not stationary. If the usual t-ratio is different from the t-distribution, hypothesis test will be rejected.

Hypotheses:

H_0: Non-stationary (unit root)

H_1: Stationary (no unit root)

Decision rule: Reject H_0 if P-value is less than the significant level, otherwise, do not reject.

3.2.3.1 The Augmented Dickey Fuller (ADF)

The Augmented Dickey Fuller (ADF) was developed by Dickey and Fuller (1981) when they found that $u_t$are correlated. ADF test is conducting by 'augmenting' the preceding equation by add on the lagged value of the dependent variable (ΔY_t).

This model constant with trend:

$$\Delta Y_t = \beta_1 + \beta_{2t} + \delta Y_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-1} + \varepsilon_t$$

This model constant without trend:

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-1} + \varepsilon_t$$

Hypotheses:

H_0: Non-stationary (unit root)

H_1: Stationary (no unit root)

Decision rule: Reject H_0 if P-value is less than the significant level, otherwise, do not reject H_0.

3.2.3.2 Phillips-Perron (PP)

Phillips-Perron test was developed by Phillips and Perron (1988). This test is an alternative test. Philips-Perron test usually use to examine the degree of stationary of the model. However, The Augmented Dickey Fuller and Phillips-Perron are giving the similar result. This test is using nonparametric statistical methods to take care of the serial correlation in the error term without add on lagged difference terms.

3.2.4 Cointegration

According to Gujarati and Dawn (2009), if two variables have a long run relationship or equilibrium between them then they are cointegrated. The reason that apply cointegration test is to test whether a group of the series are cointegration or not. For example, if variable X (income) and variable Y (consumption) are *I*(1) variables, variable Z(saving) defined as [income-consumption] will be *I*(0).

In this study, Johansen (1988) and Juselius(1990) Cointegration Test (JJ) is used to examine the relationship between the variables. JJ test was developed by Søren JJ. JJ test is to examine the cointegration between the non-stationary variables which was calculated by looking at the rank of the Π matrix through its eigenvalues.

There are few reasons to apply JJ test. First, this methodology can include more than two variables in this model. Second, it can capture not only one cointegration vector. Thirdly, this methodology able to show the hypothesis test about the real cointegrating relationship (with the two statistical procedures). Moreover, the unit root test shows that the all non-stationary variables have the same number of integrated order. Therefore, JJ test is suitable adopted in this study.

There are two types of statistics in the JJ test which are Trace statistic and Maximum Eigenvalue statistic. Trace statistic is combined all eigenvalue at a same time and conduct a hypothesis test which called joint test. However, the maximum eigenvalue just uses one eigenvalue to conduct hypothesis test and the eigenvalue is from largest to smallest.

Hypotheses of Trace statistic:

H_0: The number of cointegrating vectors is less than or equal to r.

H_1: The number of cointegrating vectors is more than r.

Decision rule: Reject H_o if P-value is less than the significant level, otherwise, do not reject.

Hypotheses of Maximum Eigenvalue statistic:

H_0: The number of cointegrating vectors is r.

H_1: The number of cointegrating vectors is (r+1).

Decision rule: Reject H_o if P-value is less than the significant level, otherwise, do not reject.

3.2.5 Vector Error-Correction Models (VECM)

Vector Error Correction Models (VECM) is used when there is a cointegration vector, long term or equilibrium relationship between the two variables. This test is used for forecasting long term relationship of time series on another. VECM directly forecasts the speed of a dependent variable (LHU) return to equilibrium after a change in independent variables (LGDP, LCPI, LER and FDI).

3.2.6 Inverse Root of AR Characteristic Polynomial

This test is also defined as Stability of AR (p) Processes. It used to determine the dynamic stability of the VECM estimation. If there is not stable in the estimation, the following tests which are variance decomposition and impulse response function will become invalid. The AR root graph and table that obtained from E-view will show whether there is

dynamically stability. If the graph shows that the all roots are inside the unit circle which means that there is stable and it allows to proceeds to the following tests.

3.2.7 Variance Decomposition

Variance decomposition also defined as Forecast Error Variance Decomposition (FEVD) is used for aiding in the interpretation of a VAR while it was fitted. Variance decomposition represents each variable contributes information to the other variables in the VAR. Besides that, it identified how much the FEVD of each variable can be illustrates by exogenous shock to other variables.

3.2.8 Impulse-response Function

Generally, impulse-response function (IRF) is defined as the reaction of dynamic system in response to external change. This IRF is use for see the response when the system was shocked by a standard deviation shock in a period. The result of Granger-causality may not clearly show the whole story of the interactions between the variables of a system. With using this IRF, people are interested to understand the response of X variable to an impulse in Y variable in a system that involves several variables. After having the Granger-causality test, if there is a response of X variable to an impulse in Y variable, it is call the latter causal. IRF is applied for forecasting the variables by using reduced form Vector Autoregression (VAR) in this study. In theory, reduced form VAR represents each variable of its own past value and a serially uncorrelated error term. The reduced form VAR is applied to summarize the comovement of the series involved.

3.3 Conclusion

This chapter discussed about the methodology that used for investigating the relationship between the dependent variable (high education unemployment) and independent variables (GDP, inflation, exchange rate and FDI). Specially, these activities included data collection method and data analysis. The econometric test, measurement and results will discuss in the following chapter.

Chapter 4: Data Analysis

4.0 Introduction

This chapter will focus on recording, analyzing and explaining the result by using methodology that stated in previous chapter. In Section 4.1 describe the statistics of dependent and independent variables. Section 4.2 explains trends of each variable. Section 4.3 presents the result of Unit Root Test by using ADF test and PP test. Section 4.4 discuss Johansen &Juselius Cointegration test. Section 4.5 form an equation by using Vector Error Correction Model. Section 4.6 shows the result of Variance Decomposition and Impulse Response Function in section 4.7. The interpretation will be display at below of the table that recording empirical test's results. Section 4.8 which is the last section will conclude a briefly conclusion of the test results.

4.1 Descriptive statistic

The function of Descriptive statistics is to summarize the data sets of all variables and figure out the trend, pattern and basis feature of the data sets. As the table 4.1 below shows the descriptive statistics of high education unemployment (LHU), gross domestic product(LGDP), inflation(LINF), exchange rate(LER) and foreign direct investment (FDI) in Malaysia from year 1982 until year 2014. Mean, median, maximum, minimum, standard deviation, skewness and kurtosis are included in the Table 4.1. The data had been transformed and expressed into natural logarithm term except FDI by using E-view 6.

Table 4.1: Descriptive statistic

DV	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis
LHU	9.386949	9.392662	10.90044	7.901007	0.910494	0.087909	1.543386

IV	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis
LGDP	25.21390	25.25354	26.54662	24.01183	0.797328	0.120631	1.888665
LINF	4.295726	4.345470	4.704865	3.871927	0.260947	-0.102854	1.681284
LER	4.735003	4.623018	5.202794	4.520384	0.200399	1.026849	3.023577

FDI	3.930677	4.038429	8.760533	0.056692	1.958229	0.429154	3.290445

Variables	Jarque-Bera	P-value
LHU	2.959874	0.227652
LGDP	1.778250	0.411015
LINF	2.255079	0.323829
LER	5.800069	0.055021
FDI	1.128947	0.568660

Source: Developed from the research

The shapes of the graph in data distribution and distribution of probability are not the same. One of the distribution is to express whether it is positively skewness or negatively skewness or asymmetric. Another distribution is to find out the shape of the data (Taylor, 2016).

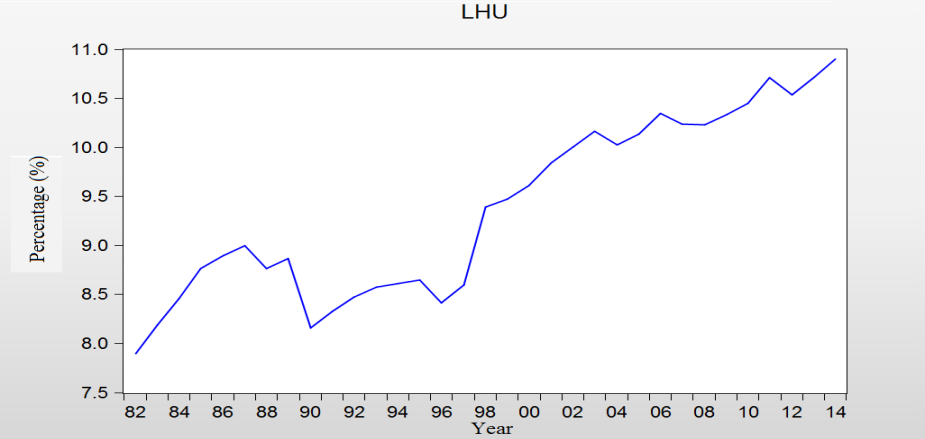
To indicate whether it is positive or right skewed distribution and vice verse. It refers to the skewness. According to the Table 4.1, the value of skewness of LHU, LGDP, LER and FDI are 0.087909, 0.120631, 1.026849 and 0.429154 respectively. It illustrate that they are skewed to the right. However, value of the skewness of LINF is -0.102854 which is skewed to the left.

To investigate whether there is heavy tail or light tail of the data which is relative to a normal distribution. It refers to the Kurtosis. There are three category of the Kurtosis to classify which are Mesokurtic, Leptokurtic and Platykurtic. As the table 4.1, the value of the Kurtosis in LHU, LGDP, LINF, LER and FDI are 1.543386, 1.888665, 1.681284, 3.023577, 3.290445which shows they are positively. It indicated that distribution of the data is Leptokurtic which has tall and thin peak compare to the normal distribution.

To figure out whether there is normal distribution, Jarque-Bera test are used. From the table above, the p-value of the LHU, LGDP, LINF, LER, and FDI are 0.227652, 0.411015, 0.323829, 0.05502 and 0.568660 which are more than 5% of significant level. It means that the data is normal distribution.

4.2 Graph Line

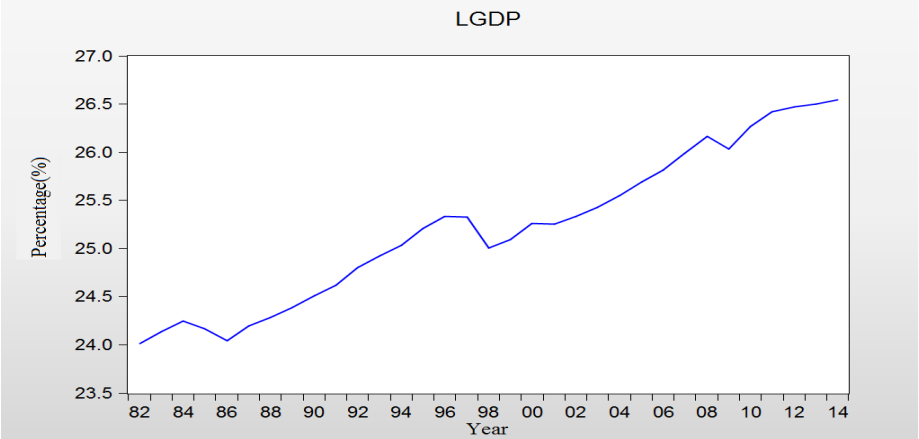
Graph 4.2.1: High Education Unemployment



Source: Developed from the research

Graph above shows LHU from year 1982 until year 2014. From the graph above, LHU had been increased from year 1982 to year 2014 except the year between 1988 and 1986. During the year between 1988 and 1986, the percentage of the LHU was flow instability. The percentage in year 1997 was started increase again due to the Asian financial crisis. The crisis will cause pull back in the GDP, which resulted increasing the unemployment growth in Malaysia (Furuoak et.al, 2012). Therefore, that the percentage of LHU grows rapidly in year 1998. From that onwards, LHU keep on increasing until now which had reached the point over 10.5 percent.

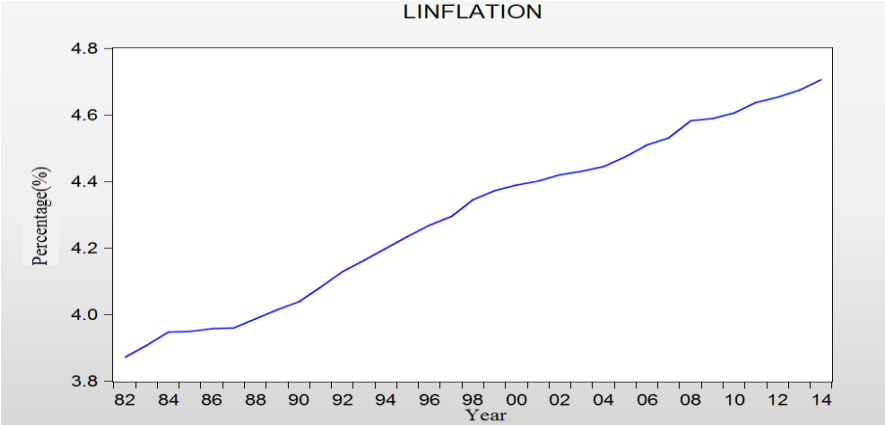
Graph 4.2.2: Gross Domestic Product



Source: Developed from the research

Graph above shows GDP from year 1982 until year 2014. The percentage of GDP is increasing constantly starting in year 1986 until 1997 from this graph. There are two periods which had dropped that can see clearly in the graph which is between year 1997-1988 and year 2008-2009. It is because in year 1997, Asian financial crisis was happened and Malaysia is one of the victims in the Asia. Yet, global financial crisis occurred in year 2008- 2009. Due to this two crisis, the growth rate of GDP fell significantly because economic recession (Abidin et.al, 2009). Based on the graph, the trend of the GDP is upward sloping in long run.

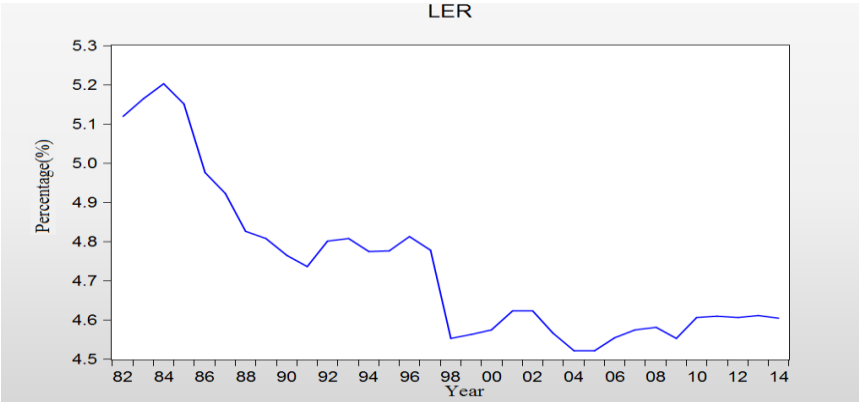
Graph 4.2.3: Inflation



Source: Developed from the research

Graph above shows LINF from year 1982 until year 2014. The rate of LINF in Malaysia increased constantly. However, there is a peak in year 2008 due to global financial crisis had occurred (Abidin et.al, 2009). The inflation rate rose the higher point which was over 4.6 percent in year 2014.

Graph 4.2.4: Exchange Rate

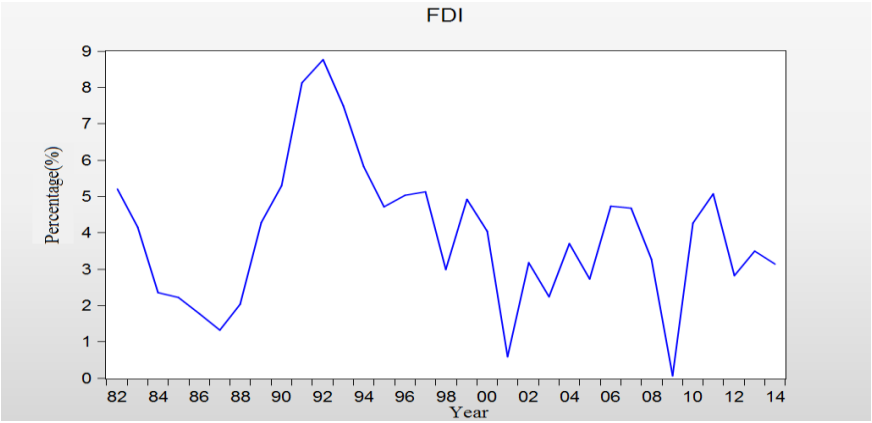


Source: Developed from the research

Graph above shows LER from year 1982 until year 2014. Based on the graph above, LER had been decreased dramatically from year 1985 until year 1991. It is because in September of year 1985, the greenback started its decade-long decline against the yen and caused depreciation of the Ringgit against the dollar (Jomo and Wee, n.d). The percentage of

exchange rate also had dropped in year 1977 and 1998 due to the Asian Financial Crisis. The ringgit had depreciated against the dollar by hitting the highest point which is almost 50 percent(Ariff and Syarisa, 1999).

Graph 4.2.5: Foreign Direct Investment



Source: Developed from the research

Graph above shows FDI from year 1982 until year 2014. The fluctuation of the FDI is the strongest among the variables. Start from year 1987, the percentage of the FDI grows quickly and reached the peak of the point which is around 8.8 percent. It is because the growth of the export of manufactures (Yusoff et.al, 2000). However, the percentage of the FDI reached the lowest point which is 0.1 percent in year 2009. According to the Philosophy Politics Economic said that the reason why the FDI dropped dramatically because of the global financial and economic crisis had happened in year 2008-2009.

4.3 Unit Root Tests

The function of the Unit Root Test is to examine time series variable whether is stationary or non stationary (Econterms, n.d). There are two method to conduct Unit Root test which are Augmented Dickey Fuller(ADF) and Phillips Perron(PP). The result shown in Table 4.3 as below:

Table 4.3: Unit Root Test

	Augmented Dickey Fuller (ADF)		**Phillips Perron (PP)**	
	Level			
Variable	**Constant Without Trend**	**Constant With Trend**	**Constant Without Trend**	**Constant With Trend**
LHU	-0.709040 (0)	-1.931308 (0)	-0.716105 [1]	-2.079100 [2]
LGDP	-0.054688 (0)	-2.267839 (0)	0.017109 [3]	-2.267839 [0]
LER	-1.887544 (0)	-1.400215 (0)	-2.351080 [12]	-0.894956 [8]
LINF	-0.472691 (0)	-1.354140 (0)	-0.445279 [3]	-1.796783 [3]
FDI	-2.769674 (0)	-2.739143 (0)	-2.813540 [2]	-2.785560 [2]
	First Difference			
LHU	-5.441870*** (0)	-5.349636*** (0)	-5.441337*** [1]	-5.347128*** [2]
LGDP	-4.961216*** (0)	-4.913734*** (0)	-4.932574*** [2]	-4.879800*** [2]
LER	-4.477527*** (0)	-4.804562*** (0)	-4.410877*** [5]	-7.059237*** [19]
LINF	-4.210172*** (0)	-4.120941*** (0)	-4.280521*** [3]	-4.197255*** [3]
FDI	-6.311408*** (0)	-6.198342*** (0)	-6.410085*** [2]	-6.288187*** [2]
Note: *** and ** denotes significant at 1%, 5% significance level, respectively. The figure in parenthesis (…) represents optimum lag length selected based on Akaike Info Critirion. The figure in bracket […] represents the Bandwidth used in the Unit root test selected based on Newey-West Bandwidth critirion.				

Source: Developed from the research

From the result of Augmented Dickey Fuller(ADF) and Phillips Perron(PP) unit root tests in the table above,the null hypothesis unable to be rejected by High Education Unemployment (LHU), Gross Domestic Product(LGDP), Inflation(LINF), Exchange Rate(LER) and Foreign Direct Investment(FDI) at the level form since the P-value is more than significant level. The significant levels are based on 1% and 5%. It has enough evidence to conclude that they are non-stationary and contain unit root.

Nevertheless, all variables are able to reject null hypothesis after conducting ADF and PP test proceed to the first difference. It is because the p-value of the variables is less than

significant level which is 1% and 5%. In first difference, it has enough evidence to conclude that they are stationary and do not contain any unit root.

In order to test the being of long-run equilibrium relationship by using Johansen &Juselius Cointegration test for figuring out the long run and short run effect among all of the macroeconomic variables. The criteria to perform Johansen &Juselius Cointegration test must be fulfilled which is all variables are not stationary at level form and become stationary in first different. Thus, the test is proceed to Johansen &Juselius Cointegration test since the rule of it has been stratified.

4.4 Johansen-Juselius Cointegration Tests

Before proceed to Johansen-Juselius Cointegration Tests, it needs to examine the optimum lag by applying Ljung-Box Q-statistic method. As the result, the optimum lag length is 2 to ensure all the p-value from the regression is greater than 0.05 significant level.

Johansen- Juselius Cointegration test is to identify whether there is cointegration relationship and how many of the cointegration relationship they have between the variables (Johansen &Juselius, 1990).

For making decision on hypothesis, maximal eigen value statistic and trace statistics are compared with critical values which is 5% significance level to define whether there is cointegration relations and the number of the cointegration relationship between the variables (Onay&Unal, 2012).

Table 4.4: Johansen-Juselius Cointegration Tests

Hypothesized	Trace	Max-Eigen	Critical Values (5%)

No. of CE(s)	Statistic	Statistic	Trace	Max-Eigen
r = 0	98.38436**	40.03293**	69.81889	33.87687
r ≤ 1	58.35144**	33.26410**	47.85613	27.58434
r ≤ 2	25.08734	12.57561	29.79707	21.13162
r ≤ 3	12.51173	10.40850	15.49471	14.26460
r ≤ 4	2.103232	2.103232	3.841466	3.841466

Note: ** denotes significant at 5% significance levels.

Source: Developed from the research

Refer to the Table 4.3, there is two cointegration vectors in this model since the maximal eigen value statistic and trace statistic of r = 0 and r ≤ 1 is greater than the critical values with 5% significant. The null hypothesis of no cointegration vector between all variables was rejected.

4.5 Vector Error Correction Model

Vecto error coresction model is to define the cointgration relationship of the model in long run period. The VECM equation constructed below:

LHU_{t-1}=-12.39355-4.543462 $LGDP_{t-1}$ +22.18925 $LINF_{t-1}$+8.908680 LER_{t-1} -0.275161FDI_{t-1}

s.e	**(1.40013)**	**(5.72399)**	**(2.22036)**	**(0.09159)**
t-stat	**[-3.24504]**	**[3.87653]**	**[4.01227]**	**[-3.00419]**

From the model above, -12.39355 is the intercept of the model that investigates the average level of HU when the level of GDP, inflation rate, exchange rate and FDI when they are zero.

The t-statistic of GDP is -3.24504 in 5% of significant level. The result of coefficient of GDP is -4.543462, which indicate that on average, HU will decrease by 4.543462 percent when GDP increased by 1 percent, ceteris paribus. Based on the principal of Okun's Law, the relationship between output and employment is positive relationship. Since the GDP is depend on output. So, there are negative related between GDP and unemployment. The result shows that it is consistent with the theory of Okun's Law and research that conducted by Alamro and Al-dalaien (2014) and Gogos&Kosma (2014) in the previous finding.

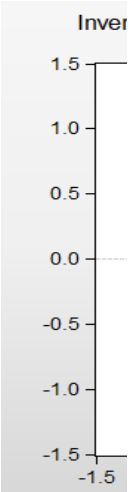
According to the model, 3.87653 ist-statistic of INF and coefficient of it is 22.18925based on 5% of significant level. It is explained that when the rate of INF increase by 1 percent, on average,22.18925 percent will be increased in rate of HU, ceteris paribus which is positive relationship between INF and HU. It is the same result with the investigator whose are Haug and King (2011) and Furuoka&Munir (2014). While there is inflation happen, the consumer consumption will decrease and the firm's profitability will decrease. It indicates higher unemployment as long as saving the cost of production.

In 5% significance level, the t-statistic of ER and coefficient result is 4.01227 and 8.908680 respectively. So, if increase 1 percent in ER, on average, HU will increase by 8.908680 percent, ceteris paribus. It shows positive relationship between them which is as same as the result that figure by the Aurangzeb and Asif (2013) and Nyahokwe and Newadi (2013) and Chimnani. It is because ER will affect the volume of export. While the volume of export increase, the output of production will increase which increase in GDP and reduce the unemployment rate.

For FDI that display on the model above, the t-statistic of it is -3.00419 and result of coefficient is -0.275161. It show negative relationship which means that while FDI increased by 1 percent, on average, HU will decrease by 0.275161 percent, ceteris paribus. It has displayed that there are same outcome with the researchers such as Shaari, Hussain and Halim (2012) and Zeb, Fu and Sharif (2014).

4.6 Inverse Root of AR Characteristic Polynomial

Table 4.6 Inverse Roots of AR Characteristic Polynomial



Root	Modulus
1.000000	1.000000
1.000000 - 3.14e-16i	1.000000
1.000000 + 3.14e-16i	1.000000
1.000000	1.000000
0.690088 - 0.434785i	0.815635
0.690088 + 0.434785i	0.815635
-0.443603 - 0.636556i	0.775878
-0.443603 + 0.636556i	0.775878
0.253581 - 0.616605i	0.666712
0.253581 + 0.616605i	0.666712
-0.613798	0.613798
-0.244568 - 0.551019i	0.602856
-0.244568 + 0.551019i	0.602856
0.336800	0.336800
-0.004865	0.004865

Source: Developed from the research

According to Forest (2014),the stable estimated VECM means it is stationary if the dots lie inside the circle. It is very important that estimated VECM is stationary. It is because

it will affect some certain result become invalid such as impulse response due to the VECM is not stationary. Based on the graph above, there are no dots lie outside the circle which has proven that the Stationary condition of VECM is satisfied. Four unit roots that equal to the unity also display in the result.

4.7 Variance Decomposition

The Forecast Error Variance Decomposition is to determine the dynamic interaction among the macroeconomic variables during the sample period. It is used to present how the High Education Unemployment is affected by the shock to macroeconomic and financial variable in percentage form. The purpose of running this test is to find out how important is the LNGDP shocks, LINF shocks, LER shocks, and FDI shocks that to influence the fluctuation of HU in Malaysia.

Table 4.7.1 Variance Decomposition of LHU

Variance Decomposition of LHU: Period	S.E.	LHU	FDI	LER	LGDP	LINFLATION
1	0.228496	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.305736	85.52748	5.378337	0.331468	4.168576	4.594143
3	0.389612	69.24660	7.515723	4.988204	11.15606	7.093420
4	0.473831	58.45990	8.030424	8.664864	11.99938	12.84543
5	0.522005	55.61856	7.997109	10.80477	11.85949	13.72007
6	0.563054	55.29806	7.643910	11.34914	12.27582	13.43307
7	0.599225	55.66175	7.163653	11.30951	12.48831	13.37678
8	0.626120	55.56619	6.799301	11.28442	12.94745	13.40265
9	0.651901	55.61711	6.522771	11.14762	13.38427	13.32824
10	0.676151	55.78869	6.324248	10.94414	13.53920	13.40372

Source: Developed from the research

Based on the table above, it shows that there is no any shock effected from each of variables toward the LHU during the first period. In second period, the most significant of the shock to LHU and affect the fluctuation of LHU is its own which is 85.5275 percent. It named as own shock. The influence of shock to LINF toward the variance of LHU is the most significant among other variables accept LHU, which is from 4.5941 percent to 13.4037 percent in tenth period. In conclusion, the volatility of LHU is mainly affected by its own discrepancy, after that followed by LINF, LGDP, LER, and FDI respectively in the long run.

Table 4.7.2 Variance Decomposition of FDI

Variance Decomposition of FDI: Period	S.E.	LHU	FDI	LER	LGDP	LINFLATION
1	1.667980	5.355167	94.64483	0.000000	0.000000	0.000000
2	2.097014	9.071994	81.86222	0.370674	7.757484	0.937625
3	2.421351	15.19994	73.21816	3.533769	7.343156	0.704968
4	2.923619	22.28364	67.19513	4.877086	5.039749	0.604394
5	3.178575	23.08412	65.48507	6.100448	4.432624	0.897732
6	3.326000	23.23183	64.52183	7.282186	4.143687	0.820472
7	3.474064	24.12043	63.83585	7.255567	4.021599	0.766548
8	3.578005	24.35988	63.42049	6.944211	4.435804	0.839621
9	3.672612	24.59688	63.04263	6.639125	4.655783	1.065587
10	3.785431	25.02759	62.79679	6.286849	4.783670	1.105098

Source: Developed from the research

Based on the table above, it shows that there is the only shock to LHU effect toward the variance of FDI during the first period which is 5.355167 percent. However, there is the most significant of the shock to affect the fluctuation of FDI is its own which is 94.6448 percent in first period. It named as own shock. In second period, the influence of shock to LHU is the most significant among other variables accept FDI, which is from 9.072 percent to 25.0276 percent in tenth period. In conclusion, the volatility of FDI is mainly affected by its own discrepancy, after that followed by LHU, LER, LGDP and LINF respectively in the long run.

Table 4.7.3 Variance Decomposition of LER

Variance Decomposition of LER: Period	S.E.	LHU	FDI	LER	LGDP	LINFLATION
1	0.064040	3.155053	8.330524	88.51442	0.000000	0.000000
2	0.096509	1.401618	5.867280	92.53821	2.99E-05	0.192864
3	0.117541	1.181037	6.051568	89.96839	0.235287	2.563713
4	0.135657	0.920955	9.219999	84.97581	0.203191	4.680042
5	0.151511	0.799480	11.70050	81.19344	0.165515	6.141063
6	0.164475	1.006328	13.52807	78.10320	0.170594	7.191807
7	0.176800	1.296269	15.21104	74.72006	0.247580	8.525044
8	0.187485	1.336667	16.26176	72.54498	0.313349	9.543240
9	0.197180	1.323289	16.80060	71.30368	0.369900	10.20253
10	0.206556	1.296159	17.00996	70.73859	0.381249	10.57404

Source: Developed from the research

Based on the table above, it shows that there some amount transmit of shocks toward the LER during the first period which is LHU, FDI and LER. The percentage of the shock that come from LHU, FDI and LER is 3.1551 percent, 8.3305 percent and 88.5144 percent respectively. Although there are few of shock contribute fluctuation in the variance of LER, the most significant of the shock to affect the fluctuation of LER among the variables still its own. It named as own shock. In second period, the shock to FDI influence the variance of LER is the most significant among other variables accept LER, which is from 5.8673 percent to 17.001 percent in tenth period. In conclusion, the volatility of LER is mainly affected by its own discrepancy, after that followed by FDI, LINF, LHU, LGDP and respectively in the long run.

Table 4.7.4 Variance Decomposition of LGDP

Variance Decomposition of LGDP: Period	S.E.	LHU	FDI	LER	LGDP	LINFLATION
1	0.103991	17.68286	26.01436	38.25839	18.04438	0.000000
2	0.156082	10.78298	27.63395	31.23288	19.79896	10.55124
3	0.189800	7.306105	27.39182	23.95555	21.82561	19.52091
4	0.222148	6.009680	30.89295	18.82831	21.59346	22.67559
5	0.248471	5.781479	32.83085	16.69064	19.96117	24.73587
6	0.268468	5.620007	33.30043	15.58021	20.03507	25.46427
7	0.290027	5.671946	33.38285	14.38214	20.59528	25.96779
8	0.308811	5.386677	33.32260	13.74559	20.76853	26.77661
9	0.324430	5.058441	33.16522	13.56582	21.05225	27.15828
10	0.339610	4.876893	33.03014	13.60590	21.16505	27.32202

Source: Developed from the research

Based on the table above, it explains that the shocks from LHU, FDI, LER and LGD affect towards the variance of LGDP during the first period. The percentage of the shock that come from LHU, FDI, LER and LGDP is 17.6829 percent, 26.0144 percent and 18.04438 percent respectively. In first period, LER is the most significant of the shock to affect the fluctuation of LGDP among the variables. During the second period, the influenced that came from LER shock still is the most significant among other variables, which is 31.2329 percent. However, the period passed away, the amount transmit of shocks toward the LGDP is decreasing. At the tenth period, it has dropped from 31.2329 percent to 13.6059 percent. In conclusion, the volatility of LGDP is mainly affected by FDI, after that followed by LINF, LGDP, LER and LHU in the long run.

Table 4.7.5 Variance Decomposition of LINF

Variance Decomposition of LINFLATION: Period	S.E.	LHU	FDI	LER	LGDP	LINFLATION
1	0.010578	21.53383	5.551632	12.19683	0.163392	60.55431
2	0.013538	17.99088	9.004298	21.77605	0.146644	51.08212
3	0.016998	11.41601	17.29461	32.04288	0.405262	38.84123
4	0.021473	7.160615	27.54386	38.32366	0.344320	26.62754
5	0.026965	5.593235	32.12198	44.37135	0.766841	17.14660
6	0.032467	4.594203	33.38356	49.14796	1.035608	11.83867
7	0.037479	3.940720	33.11993	52.72412	1.327432	8.887794
8	0.041730	3.642603	32.56028	55.07941	1.544871	7.172837
9	0.045115	3.339367	31.89376	56.97160	1.621308	6.173956
10	0.047918	3.065598	31.34627	58.30882	1.693589	5.585727

Source: Developed from the research

Based on the table above, it presents that the shocks from LHU, FDI, LER, LGD and LINF affect towards the variance of LINF during the first period. The percentage of the shock that come from LHU, FDI, LER, LGDP and LINF is 21.5338 percent, 5.551632 percent, 12.1968 percent, 0.1634 percent and 60.5543 percent. In first period, LINF is the most significant of the shock to affect the fluctuation of LINF among the variables. During the second period, the shock to LER affect variance of LINF is the most significant among other variables, which is 21.7761 percent. However, when the time is passed, the amount transmit of shocks to LINF influence the LINF is decreasing from 51.0821 percent until 5.5857 percent in the tenth period. In conclusion, the volatility of LINF is mainly affected by LER, after that followed by FDI, LINF, LHU and LGDP in the long run.

4.8 Generalized Impulse Response Function

The Impulse Response is determined the response of one variable to an impulse in another variable that involves a number of further variables (Rossi, n.d.). According to the Pesaran and Shin (1997), construct generalized impulse response analysis by using

unrestricted VAR. Using generalized Impulse Response Function not only can react differently with standard Impulse Response Function, but also the outputs will not be affected if randomly plugged the independent variable in equation.

The result of one standard deviation shock to the five variables (LHU, LGDP, LINF, LER and FDI) individually had been released and show in graph 4.7. From the graph in figure 4.7, there are some responses which are affected by the same variable. One standard deviation of LHU has a negative impact to LHU. The response of LHU is started to decrease it from the first period. The LHU is statistically significant in 1 quarter after the shock. However, LHU keep on decreasing over the line at 2 quarters eventually overshooting leading to a decrease in LHU about 3-6 quarters later which shown not significant. Meanwhile, FDI started to decrease due to the negative impact that given by the standard deviation of FDI. The effect is statistically significant in 1 quarter too after the shock and decrease over the line to become not significant. The response of LGDP to LGDP also shows negative impulse and start decrease from the first period. The LGDP in 2 quarters is statistically significant after the shock. However, LGDP has dropped under the line at 3 quarters and become not significant. The response of LINF to LINF shows that one standard deviation shock to LINF decrease the LINF from the beginning period which means LINF negative impact to LINF. The effect is statistically significant in 2 quarters after the shock and decrease over the line to become not significant. The standard deviation of LER to LER also have same response with the response of LINF to LINF which is negative impact. LER start decrease in first period. It is statistically significant in 2 quarters after the shock and decrease over the line to become not significant.

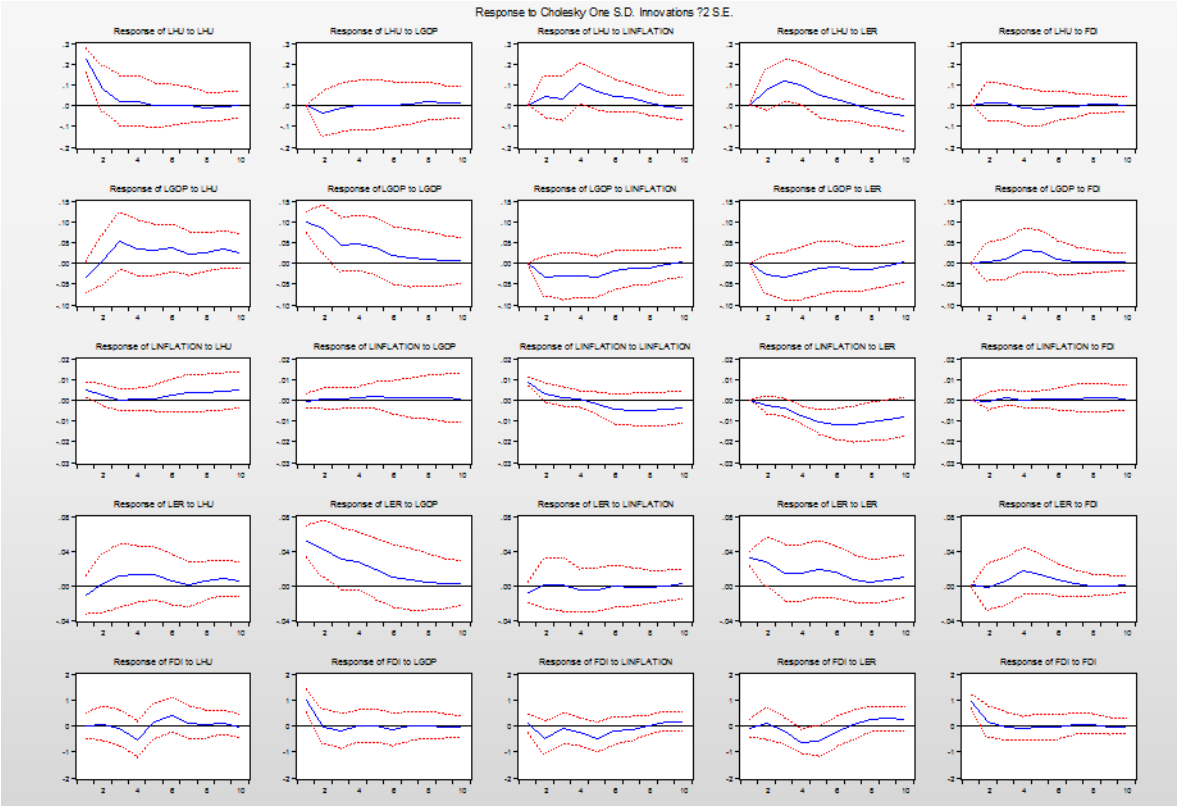
Besides that, there also have few responses that affected by others variables. The graph in figure 4.7 shows that one standard deviation shock to LHU rate decrease the LINF which is negative impulse. The response of LNF is statistically significant in 1 quarter after the shock and become not significant start from 2 quarter. One standard deviation of LGDP has a negative impact to LER. The response of LER is started to decrease it from the first period after the shock. It is statistically significant in 2 quarters and decrease over the line to become not significant. FDI started to decrease due to the negative impact that given by the standard deviation of LGDP. It also illustrates that one standard deviation shock to LGDP

and effect FDI with negative impulse. LGDP decrease the FDI. The response of FDI to LGDP is statistically significant in 1 quarter after the shock and decrease over the line to become not significant.

On the other hand, the response of LHU to LER shows the positive impulse stating from the first period. The response increase to peak about 3-4 quarters then it reverts downwards to its previous value start at around 4 quarters. It is statistically significant between 3 and 4 quarters. Responses of LER have temporary positive impact in the first 3 period, after that it change to the negative impact start on period 4 and keep on decrease to become not significant.

In conclusion, LHU has negative impact toward LHU while LER has temporary positive impact and become negative impulse over the period to LHU. FDI and LGDP also have negative impact to FDI. LINF and LHU have negative impulse too toward LINF. LGDP just had negative impact that affected by its own. The result also had demonstrated that the remaindered do not have significant relationships.

Figure 4.8: Generalized Impulse response functions for ten periods



Source: Developed from the research

4.9 Conclusion

This chapter is using some methods to examine the relationship of the variables such as Johansen-Juselius Cointegration Tests, Unit Root Tests, Inverse Roots of AR Characteristic Polynomial and so. All of the results and findings have simplified by figure, diagram and table form in this chapter. In chapter 5 will discuss the major findings of the whole studies, limitations and suggestions will be explained and discussed.

Chapter 5: Conclusion

5.0 Introduction

In this study, the purpose of this study is to investigate the relationship between high education unemployment (HU) and macroeconomic variables(GDP, INF, ER and FDI) in Malaysia. This chapter discusses about the summary of statistical analysis, the finding and to find out the empirical finding to answer the objectives that stated in the chapter one. Furthermore, the policy implications, limitation and recommendation will be suggested in this chapter.

5.1 Summary of Statistical Analysis

Firstly, each variable is being reviewed in descriptive statistics in this study. The pattern of each variable in the graph also has been briefly explained. To ensure that the variables are stationary and prevent the spurious regressions, unit root test is used instead of using Ordinary Least Square estimation. At the level form, all of the variables are non stationary and all of them become stationary based on the ADF and PP tests. In order to proceed to Johansen & Juselius Cointegraton (JJ) test, Ljung-Box test is used to select the length and confirms there is no autocorrelation problem in this model. The result of Ljung-Box show with lag length 2 and there is no autocorrelation problem.

In the JJ test illustrates the model has long run relationship and two cointegration vectors. VECM is proceeds since there is a long run relationship and the results shown that GDP, INF, ER and FDI are significant to HU. All of the variables are positive relationship related to HU except GDP and the FDI which was negative relationship. Inverse root of AR characteristics polynomial is used to measure the stability of the model. It is very important because the result of variance decomposition and impulse response will be invalid if the model is not stable. However, the result shows that model is dynamically stable which prove that the result of variance decomposition and impulse response are valid. Besides that, the results of variance decomposition show HU is the mainly affect to the volatility of HU after following by INF, GDP, ER, and FDI. For generalized impulse response function, the shocks effects of all independent variables are not significant towards HU.

5.2 Discussions of Major Findings

The estimation model includes of four independent variables which are GDP, INF, ER and FDI. All of these independent variables were empirical tested to investigate the significance of HU. The results shown in table below:

Independent Variables	**Hypothesis Tests**	**Conclusion**

Gross Domestic Product (GDP)	H_0: There is no relation between the GDP and HU. H_1: There is a relation between the GDP and HU.	Reject H_0. There is a NEGATIVE relation between GDP and HU.
Inflation (INF)	H_0: There is no relation between the INF and HU. H_1: There is a relation between the INF and HU.	Reject H_0. There is a POSITIVE relation between INF and HU.
Exchange Rate (ER)	H_0: There is no relation between the ER and HU. H_1: There is a relation between the ER and HU.	Reject H_0. There is a POSITIVE relation between ER and HU.
Foreign Direct Investment (FDI)	H_0: There is no relation between the FDI and HU. H_1: There is a relation between the FDI and HU.	Reject H_0. There is a NEGATIVE relation between FDI and HU.

Table 5.2 Summary of the Major Finding

Sources: Developed from the research

Based on the result shown in Table 5.2, GDP has a negatively significant relationship with the HU. It implies that when GDP increase, HU will decrease as well. This relationship was proved by Okun's law theory. This result is consistent with the past study done by Alamro and Al-dalaien (2014). However, there is a positive relationship between INF and HU. It implies that when INF rises, the HU will go up as well. This relationship also proved by Phillips curve theory. The result is accordance with the research of Aurangzeb and Asif (2013). While for the ER, it has shown a significant and positive relationship with the HU. It implies that the ER and the HU will go down together. The result is accordance with the research of Berument, Dogan and Tansel (2008). The next variable is FDI, it has a negative relationship with HU. It implies that when FDI drop, HU will increase as well. This result is consistent and proven by Shaari, Hussain and Halim (2012).

5.3 Policy Implication

Unemployment is very important element that can directly affect a country's economic growth. Since Malaysia is a developing country, to become a developed country thus government and policymaker can take into account in the increasing of unemployment especially high education unemployment (HU) since Malaysia's future is relying on young generation. They hold high education certificate which can use their skills, experience and knowledge to change the better economic growth and future of a country. In the previous chapter, the result shows that there are positively significant between INF and HU so as same with ER and HU. However, there are two variables that have negatively relationship with HU are GDP and FDI.

Government and policymakers are suggested to put more focus to this issue. Initially, the macroeconomic variables can affect the trend of unemployment rate including the HU rate. If the HU is decreasing, it will lead economic growth increase and become better. Conversely, if the HU is rising up, it will lead to decreasing in economic growth and become worst.

There are two policies that can decrease HU which are fiscal policy and monetary policy. Government and policymakers are suggested to implement the expansionary fiscal policy. This policy can decrease HU by helping to increase the aggregate demand (AD) and GDP. AD is composed by various factors which are level of consumption, investment, government spending and the net export and import. Cutting taxes and increase the government spending are involved in expansionary fiscal policy. For example, in order to increase the disposal income and the level of consumer spending, government can lower the taxes. When AD is increasing, GDP will rise at the same time. With an increase in rate of economic growth, firm will produce more goods and services, there will create more job opportunities to local citizens. Therefore, the HU will decrease as well. For the monetary policy, government can decrease the interest rate to attract and encourage people borrow money with lower cost of borrowing. It will increase the AD and lead to lower the HU (Pettinger, 2012).

As a result that shown in previous part, there is a positively significant relationship between INF and HU. While the INF is decreasing, HU will drop at the same time. In other word, INF have to decrease at the first, HU will drop by the following. To reduce the INF, government intervention and decision making are very important. In this situation, if government decided to contract monetary policy, it will lead to lower down INF and HU.

However, government is not allowed to expand and contract monetary policy at a same time to increase GDP and lower down the INF. Thus government is suggested to reduce the INF by giving the subsidies to firms. The subsidies will decrease the burden of firms by decreasing the cost of production. Therefore, it will not lead to increase the prices in goods and services. The INF will drop and lower down the HU. For example, based on India's case, given the food subsidies can reduce the India's inflationary and fiscal deficit (IANS, 2015).

ER have a positive relationship with HU same as the relationship between INF and HU. ER is the price of a country's currency in term of other country's currency. When foreign buyers import goods and services from a country, they have to pay based on the export country's currency. As long as the currency of export country depreciates, it will increase the quantity of the export. Increase in export will lead to increase in net export (export - import), AD and rate of economic growth. Therefore, for the exporting industries, they will produce more and gain more benefit at that time. In order to produce more, they will demand more skill workers and unskilled workers. Because of the job opportunities are raising, it will decrease the unemployment so as HU.

The last variable that implied in this study is FDI. In order to reduce the HU, government can imply some policies to increase the HU which are improve quality of infrastructure, lower taxes for foreign firm and given subsidies to foreign firm. Good quality of infrastructure is very important for developing country to attract more foreign investors invest in a country. Infrastructure is included transportation, communication, water supply, electrical grids and so on. These can make foreign investors have confidence to a country so that they will invest in the country. The next policy is charge low tax from the foreign investors. They will compare the taxes that charge by the countries, and they will invest in the country that charge them lower taxes for gain more profit. The last policy is giving subsidies to foreign firm, so that they can save their cost of production and obtain more margins.

5.4 Limitations of Study

Since there are few studies which are no limitation and difficulties during the progress of the research, some limitation has been found in this research. Firstly, there is insufficient research that conducts by using secondary data. There are lot of the studies about high education unemployment are based on primary data such as job mismatch, preference, working environment and so on. Thus, this study of the variables are explained and supported by the economic theoretical. Besides, this study does not examine more advanced due to the lack of knowledge about econometrics tests.

There still a lots of relevant variables that can be used in this study such as population, interest rate, money supple but only four macroeconomic variables which are GDP, INF, ER, FDI used as independent variables in this study for determining the relationship with high education unemployment. The reason behind why many researchers do not consider those macroeconomic variables because there are lacks of theoretical explanation to support it those variables.

Moreover, sources that used to collect data are limited based on different countries' database. Besides that, there are lacks of data that can be found from internet resources such as data the high education unemployment rate in Malaysia that used in the study. In order to get the data and applied in the study it need to calculate by using the theoretical formula of unemployment.

Lastly, this research may not be applicable on others country except Malaysia. It is because all the results and findings from this research might only be applicable in Malaysia due to the source of data that is collected from Malaysia. Other than that, background of the country, government policy, performance of economic will have large difference. Hence this research may be a reference to other countries.

5.5 Recommendations for Future Research

Recommendation is one of the parts that provide advice to avoid repeated mistakes and have a good result in future research. Therefore, it is highly recommend that researcher

can increase more variables that it is relevant to the study while carrying on the same research since there is less research on this study. According to Korb (2013), variables are important and tricky in any type research because a variable or group variables represent the characteristic of an individual in the model and also the research environment. Therefore when there is similar research been conducted, the researchers can try to include more than one variable than the previous research so that can improve the model. Most important is the variables must be relevant with the research. Furthermore, this study can give to other researchers take more concerns to investigate more research in this field not just only focus on unemployment but also in high education unemployment.

5.6 Conclusion

To summarize the conclusion, this research is to investigate the relation between GDP, INF, ER and FDI on high education unemployment in Malaysia. In this chapter, the major findings of the study and policy implication had been discussed. Besides that, there are some limitations such as the sources of data such as primary data and limited knowledge of the theoretical explanation. Therefore, future researchers are very encouraged to investigate more on this field and there have few recommendations for the researchers to probe into this relevant study.

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