

Unemployment and Macroeconomic Indicators in Malaysia

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Abstract

The labour market condition is foreseen to face another challenging situation in the future even though with the provision of various assistance from the government during the COVID-19 pandemic. Therefore, the main purpose of this study is to identify the relationship between unemployment and macroeconomic indicators such as inflation, population, gross domestic product and foreign direct investment. This study used the Malaysian annual data, which was from 1993 to 2019, and the Ordinary Least Square Model was used for the analysis. The results identified that population and foreign direct investment had a negative relationship with unemployment, while gross domestic product and inflation showed no relationship with unemployment. Since population and foreign direct investment were significant to unemployment, this study suggested that the government should encourage more foreign direct investment to reduce the unemployment rate by creating more job opportunities in this country. The education and health sectors need to be improved and upgraded, whereby the population growth would imply a more educated and healthy population, and therefore, increases the Malaysian standard of living.

Keywords: Unemployment, Macroeconomics, Ordinary Least Square Method, Malaysia

Introduction

Unemployment is one of the measures of economic performance, generally determined by the unemployment rate, which divides the number of unemployed by the number of people in the workforce as a whole. Unemployment is a popular issue worldwide, and many politicians used unemployment rates to measure everything from economic growth to the citizen's satisfaction. Unemployment can lead to a negative problem that happens in every country worldwide. If the issues of unemployment cannot be solved, problems will likely occur for unemployed graduates, the nation, society and even the government, which can also lead to poverty problems. If this problem is not curbed, it may exacerbate the social problems and increase crime rates, such as theft and robbery.

Furthermore, the government will have to spend more on compensation during the high unemployment crisis. The government will receive lower tax revenue since many people are unable to pay income tax during unemployment periods, which will lead the government to increase their borrowings (Pettinger, 2017). Based on Malthusian Theory, it is expected that higher unemployment could be the result of uncontrolled population development. In short, a

large population raises the economy's unemployment rate. However, based on the Chief Statistician, the Malaysian labour force continued to be on a recovery path as the Recovery Movement Control Order (RMCO) in most states and Conditional Movement Control Order (CMCO) contributed more opportunities for businesses to continue their activities in full capacity, while adhering to strict standard operating procedures (The Star, 2021).

Therefore, this study examined the relationship between macroeconomic indicators, which were gross domestic product (GDP), population (POP), inflation (INF), foreign direct investment (FDI) and unemployment rate (UR) in Malaysia. Several empirical studies had inconclusive findings with regards to the effects of macroeconomic indicators on unemployment. Thus, this study attempted to seek the extent of macroeconomic indicators on unemployment in Malaysia to fill this gap.

Literature Review

Concept of Unemployment Rate

According to the International Labour Organisation (Organization Economic Cooperation and Development, 2001), unemployed persons are above a specific age without any work, who are currently available for paid employment or self-employment and actively seeking a job. The percentage of the overall unemployed labour force is the unemployment rate (UR). Studies done by Dogan (2012), showed that an increase in the country's growth, exports and INF would reduce the UR, while a decrease in the exchange rate, money supply and interest rate between inter-banks could lead to an increase in the UR. However, the relationship between INF and UR could be negative or positive based on the type of model and the country's environment (Dogan, 2012).

Concept of Gross Domestic Product with the Unemployment Rate

Gross domestic product (GDP) is the monetary value of all finished goods and services produced in a particular period within the boundaries of a country and includes anything produced by the people and foreigners of the country within its borders. Mandel and Liebens (2019) studied about the relationship between GDP and unemployment rate in the U.S over 50 years. By applying the multiple regression analysis, the result indicated that GDP has a negative relationship with unemployment where a decreasing GDP rate through slow economic growth leads to an increasing unemployment rate. Soyly, Cakmak and Okur (2018) investigated the relation between economic growth and unemployment in Eastern European Countries. In this study, Panel Unit Root, Pooled Panel OLS and Panel Johansen Co-integration tests was used as the method of analysis. The empirical findings indicated that unemployment affected positively by economic growth. A 1% increase in GDP will fall the unemployment rate by 0.08%.

Other than that, Hashmi et al. (2021) studied on the responsiveness of changes in the unemployment rate to changes in the GDP in pre and post global financial crisis period of 2007–2008. The result showed that there is a negative relationship between unemployment rate and GDP where focusing on the sustainable economic growth would reduce unemployment rate in the country. Based on Okun (1962), he suggested that UR and GDP were related based on The Okun Law (1961), whereby there was an inverse relation between the rate of production and unemployment. Apart from its importance, the relationship mainly depended on output in the real economic sphere, the increase in production that caused a decrease in unemployment, while it increased with the decrease in GDP growth.

In Malaysia, Omar and Mohd Nor (2020) examined the linkage between population, unemployment and export with the economic growth. The time series quarterly data collected from 2006 until 2016. By applying multiple linear regression analysis, they found that, there is

an insignificant relationship that between unemployment and economic growth. Conteh (2021) investigated the association between unemployment and Gross Domestic Product (GDP) in Liberia from 2001 to 2019. The ARDL model findings indicated that there is no long run association between unemployment and economic growth. Another studied by Ozel et al. (2013), the result also showed relationship there is no significant relationship between unemployment and GDP during 2008 to 2011.

Concept of the Population with Unemployment Rate

The average annual percentage change in the population (POP) growth is described as POP size in a given period, which accounted for all residents regardless of citizenship or legal status. Arslan and Zaman (2014) suggested that an important factor influencing unemployment was the POP growth. Development in the POP had a positive influence on UR, and therefore, led to unemployment. Mohamad and Cheng (2020) examined the determinants affecting unemployment in the education sector in Malaysia. The result showed that the POP growth had a positive relationship with the rate of unemployment amongst the educated segment. However, there is a contradictory finding by Aqil et al. (2014), who argued that POP growth had an inverse and significant impact on the employment rate in Pakistan. It indicated that the higher the POP growth rate, the lower the UR. Additionally, Loku and Deda (2013) proved that there was a relationship between POP growth and unemployment in Kosovo's economy and an inverse relationship existed between them.

Concept of Inflation with the Unemployment Rate

Inflation (INF) is where there is a persistent and rapid increase in the general price level. In a study conducted by Fumitaka Furuoka and Qaiser Munir (2014), they focused on the aspects of UR and INF in Malaysia. This study showed that there was a short-run effect of the UR as well as INF, but there was also a long-run effect. This study concluded that there was a balanced relationship between UR and INF rate in Malaysia. In a study conducted by Kogid et al. (2011), it showed the existence of the long-run between INF and unemployment, but there was a unidirectional causal relationship between INF and unemployment. It indicated that INF had an influence on the unemployment. Furthermore, the study also showed evidence of the relationship between INF and the unemployment trade-off relationship in Malaysia. Other than that, Kasseh (2018), explored the relationship between inflation and unemployment in the Gambia from 1991-2015. The results showed there is an inverse relationship between inflation and unemployment in the Gambia. By using Vector Error Correction Model (VECM), Wulandari et al. (2019) examined the relationship between inflation and unemployment rate in Indonesia during 1987 to 2018 period. The findings showed that inflation has a one-way relationship toward unemployment in Indonesia and it showed the inflation rate are fluctuating in response to the shock of unemployment.

Concept of Foreign Direct Investment with the Unemployment Rate

Matthew and Johnson (2014) and Shaari, Hussain and Ab Halim (2012) stated that foreign direct investment (FDI) and UR had a negative relationship. This means that unemployment would be decreased if FDI increases. There were also arguments by other researchers that these two variables had a positive relationship. For example, Trimurti, Sukarsa, Budhi and Yasa (2015) found that an increase in UR was due to an increase in FDI.

Research Design

The research focused on the estimation model used for the chosen macroeconomic indicators and the UR. The dependent variable is defined by the Malaysian UR, meanwhile, the GDP,

POP rate, INF and FDI variables were independent variables. Twenty-seven observations were used in this study from 1993 to 2019. The multiple regression analysis was used in estimating the ordinary least square (OLS) analysis. The OLS method is a procedure to determine the best fit line to data (Miller, 2006).

The Model

This study followed the model specifications by Chen et al. (2017) on the macroeconomic indicators, which were GDP, INF, POP and FDI that affected UR in China. This study focused mainly on the Malaysian economy in particular. The UR and macroeconomic indicators regression model can be written as follows:

$$UR = a + b_1GDP + b_2POP + b_3INF + b_4FDI + u \tag{1}$$

In equation (1), UR referred to unemployment rate, GDP referred to gross domestic product, POP referred to population rate, INF referred to inflation, and FDI referred to foreign direct investment. These macroeconomic indicators were selected from variables that could affect the UR in Malaysia.

Data Description

This study used the Malaysian annual data obtained from a variety of sources, such as the World Bank and the Index Mundi’s websites. All the variables were collected in percentages (%), except for FDI was collected in USD. The GDP, POP rate, INF and FDI data were collected from ‘theworldbank.com’, while data for UR was collected from ‘indexmundi.com’. The FDI data was collected in net inflow, which was in the current USD.

Analysis and Findings

Table 1: Descriptive Statistic Analysis for Unemployment and Macroeconomic Indicators in Malaysia

	UR	POP	INF	GDP	FDI
Mean	3.225074	1.924444	2.521889	5.413444	6.630852
Median	3.300000	1.965000	2.105000	5.585000	5.137000
Skewness	-0.772952	0.020752	0.518118	-1.804282	0.337345
Kurtosis	3.315093	1.573903	2.714127	7.391112	2.396852
Jarque-Bera	2.800241	2.289909	1.299947	36.34154	0.921370
Probability	0.246567	0.318238	0.522060	0.000000	0.630851
Observation	27	27	27	27	27

Table 1 shows the descriptive statistical analysis for factors affecting UR in Malaysia. The variables for POP (0.020752), INF (0.518118) and FDI (0.337345) were positively skewed, while variables for UR (-0.772952) and GDP (-1.804282) were negatively skewed, respectively.

Furthermore, for the kurtosis, the independent variables that showed Platykurtic were POP, INF and FDI with values of 1.573903, 2.714127 and 2.396852, respectively. However, UR and GDP showed Leptokurtic as their values were more than three, which were 3.315093 and

7.391112, respectively, with a higher peak than the normal curve.

Subsequently, the result showed that the probability of Jarque-Bera for the dependent variable was UR and the independent variables were POP, INF and FDI were normally distributed. This was because the probability values were not significant at a 5% level of confidence, which was more than 0.05 with the probability of 0.246567, 0.318238, 0.522060 and 0.630851, respectively. Meanwhile, for the independent variable, GDP was not normally distributed, whereby the probability of Jarque-Bera value was 0.0000, which was less than 0.05.

Table 2: Correlation between Independent Variables

	POP	INF	GDP	FDI
POP	1.000000	0.364843	0.147050	-0.699627
INF	0.364843	1.000000	-0.022894	0.053784
GDP	0.147050	-0.022894	1.000000	0.219930
FDI	-0.699627	0.053784	0.219930	1.000000

From Table 2, there was a weak positive linear correlation between POP and INF, whereby the value was 0.364843. A similar result was observed for POP and GDP with a value of 0.147050. GDP and FDI also showed a weak positive linear correlation with a value of 0.219930. Furthermore, there was a positive linear correlation between INF and FDI with a value of 0.53784. Other than that, there was a moderate negative linear correlation between POP and FDI. Lastly, there was a negative linear correlation between INF and GDP with a value of -0.022894. Overall, the table showed all values of less than 0.8. Therefore, the correlation between independent variables was not considered to have a severe multicollinearity problem.

Table 3: Multiple Linear Regression Unemployment and Macroeconomic Indicators

Variable	Coefficient	Standard Error	t-Statistic	Probability
Population	-0.480455	0.220078	-2.183107	0.04000*
Inflation	-0.004454	0.050911	-0.087486	0.9311
Gross Domestic Product	-0.016603	0.016960	-0.978937	0.3383
Foreign Investment	Direct -0.057331	0.024894	-2.303041	0.03110*
Constant	4.630947	0.455090	10.17590	0.0000
F-statistic	4.359303			
Prob (F-statistic)	0.009547			
R-squared	0.442151			
Adjusted R-squared	0.340724			
Durbin-Watson stat	1.529544			

* Significant level at 5%

According to Table 3, the t-test for GDP was 0.978937, which was not significant at a 5% level of significance. The GDP did not influence the UR. Therefore, the null hypothesis (Ho) was not rejected. There was no relationship between UR and GDP. This result is similar to the findings by Omar and Mohd Nor (2020), whereby their study found an insignificant relationship between unemployment and economic growth in Malaysia, indicating that unemployment was not affected by GDP. This result was also similar to a study conducted by Ozel et al. (2013), whereby the unemployment and GDP relationship was not significant during 2008-2011, which showed a deviation from the productivity target of economic policies of the G7 states during the financial crisis period. It is also supported by Conteh (2021) that indicated there is no long run association between unemployment and economic growth.

The t-test for POP was 2.183107, which was statistically significant at a 5% level of significance. The POP had an influence on the UR. Therefore, H_0 was rejected. There was a negative relationship between UR and POP. This result was similar to a study by Aqil et al. (2014), who argued that the POP growth had an inverse and significant impact on the rate of employment in Pakistan. It indicated that the higher the POP growth rate, the lower the UR.

The t-test for INF was 0.087486, which was not significant at a 5% level of significance. The INF did not influence the UR. This result was supported by Kaur and Zaharudin (2016), whereby the INF rate was not significant with the UR in Malaysia.

While, the t-test for FDI was 2.303041, which was statistically significant at a 5% level of significance. The FDI had an influence on the UR. Therefore, H_0 was rejected. There was a negative relationship between UR and FDI. This result was based on a study conducted by Matthew and Johnson (2014) and Shaari et al. (2012), whereby FDI and unemployment had a negative relationship. This means that unemployment would be decreased if the FDI increases. Table 3 also shows the value of F-statistics and coefficient of determination (R^2). The F-test statistics was 4.359303, significantly at 1% levels. It means at least one independent variable had an influence on the UR. Furthermore, the study showed that the coefficient of determination indicated 44.22% of the total variation in the dependent variable (unemployment) that could be explained by all the independent variables in this study.

Conclusion and Recommendation

This study was conducted to examine the relationship between UR and the indicator variables, which were GDP, POP, INF and FDI. Based on the results, FDI and POP had a negative relationship with UR, while GDP and INF showed no relationship with UR.

Since the FDI is significant in this study, it is recommended for the Malaysian government to introduce more initiatives, such as PENJANA (*Pelan Jana Semula Ekonomi Negara*), and the 'Malaysia as an Attractive Horizon for Businesses' to attract foreign companies to relocate their businesses to Malaysia. Therefore, more job opportunities will be created in this country. Besides, the education and health sectors need to be improved and upgraded to enable the growth in POP to be more educated, healthy and eventually increases the Malaysian standard of living. It could also build job opportunities at reasonable salaries to employ the rapidly increasing POP in the urban areas as well as in the suburban areas.

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