THE FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN MALAYSIA: AN OLS APPROACH

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Abstract: Recently, Malaysia has sustained FDI inflows and outflow position and emerged as the fifth largest investor among the developing economies in the Asia region (UNTACD, 2005). This study analyses the effect of Foreign Direct Investment (FDI) on economic growth in Malaysia. The Ordinary least Square (OLS) method is used to investigate the relationship between FDI and economic growth. The controlled variables are inflation and export. This paper is conducted using annual data in Malaysia over the 1989 till 2018 periods and used annual data from IMF International Financial Statistics tables, published by the International Monetary Fund. The OLS suggested that FDI has a direct positive effect on GDP. On the other hand, others control variables, inflation and exports, have different signs of impact on GDP.

Keywords: Export, FDI, Gross Domestic Product, Inflation, Time Series.

1. Introduction

Foreign Direct Investment (FDI) is a type of investment made by businesses from the host country. Interested firms from another country would invest in open economy countries that offer many benefits to the firm. The benefit such as potential growth for the company, cheaper labor force and potential skilled labor would attract the investors. Denisia (2010) stated that the FDI gave advantages through enhancement of technological knowledge and capability of innovative to the firms. The host countries could provide more job opportunities, increase country output, generate new businesses, and joint venture with foreign companies.

In the 1960s and 1970s, industrialisation in Malaysia became the key factor for the Malaysia economic plan. Malaysia economy in the 1970s became a success due to the change multi-sector economy (Zakariah,2012). The industrial sector is one of the reasons contribute to the rise of economic growth. Malaysia produces the world's largest producer of rubber, palm oil and producer of tin. Due to the high demand, Malaysia improved the research and design (R&D) in the export of manufactured goods.

Since 1970, Malaysia has experienced significant economic growth. Along with the development, trade policy had also been changed to attract FDI inflow into the country. FDI inflow into Malaysia increased from USD 4,453 million in 1980 to its highest USD 15,119 in 2011 (Rasiah, Asirvatham and Adamu, 2017). As part of the development strategies, FDI has become one of the crucial components in the Malaysia Plan. Since 2000, FDI inflow into Malaysia has changed significantly.

For many decades, the relationship between FDI growth and countries has been a debatable problem. This has become an eye-opener that Karimi et al. (2009) have agreed to encourage policymakers to engage in incentives such as export processing and tax incentives to attract FDI. The determinant of the FDI in each country is different, however, and failure to understand how a particular country can attract FDI will cause difficulties in economic change. In the case of Malaysia, the economy was

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ranked 29th largest in the world in 2007, with gross domestic products worth \$ 357.9 billion reported by the World Bank in 2007. Despite the impact of many externalities such as the oil crises in 1970s, the downturn in the electronic industry in the 1980s, and majorly impact the Asian financial crisis in the 1997s. According to the Ministry of Finance (2006), Malaysia's economic growth from 1988 to 1996 was consistent, and the annual economic growth was maintained at 7 - 10 percent per year. By 2005, the manufacturing sector's primary source of growth, whose share of GDP increased to 31.4 percent. According to the e-statistic Malaysia portal, Foreign Direct Investment (FDI) in Malaysia registered a net inflow of RM14.6 billion in 2020 compared to RM32.4 billion in the previous year. In terms of position, FDI expanded to RM698.8 billion at the end of 2020 (2019: RM687.8 billion). Meanwhile, investment income declined to RM44.6 billion from RM60.5 billion in 2019.

The main challenge in many empirical works of literature to date is the widespread belief that FDI generally has a positive impact on economic growth, as stated by Herzer et al. (2008). Past research has shown that the advantages to recipient countries are that it is only possible to realise foreign direct investment (FDI) if these countries have achieved a certain level of financial development.

The goal of most countries is to achieve sustainable rapid economic growth. Due to many factors that affect economic growth, it was a problem to achieve such an objective. The aim of the study is to investigate the macroeconomics determinants of economic growth in Malaysia. Research issues discuss the links between foreign direct investment and economic development. This issue was being debated among the topic from previous researchers. According to Ang (2008), FDI has generally positively affected economic growth in many empirical studies. These studies show a significant positive relationship that foreign direct investment can contribute to economic growth.

Malaysia has a consistent performance of a gross domestic product from the period of 1970 to 2010. Based on the International Monetary Fund (2011), Malaysia's economy was ranked the 30th largest economy globally by purchasing power parity, with gross domestic product estimated to be USD 414.43 billion. Notably, foreign direct investment was the key driver underlying the strong growth performance experienced by the Malaysian economy until 1980.

However, after 1980 the influence of foreign direct investment in contributing to Malaysia's economic growth began to decline. According to Abidin (2010), the decline of foreign direct investment inflow to Malaysia was mainly due to a human capital shortage, corruption, and low technological capacity. Furthermore, the financial crisis at different parts of the World Economic has made Malaysia's inflow of foreign direct investment decline from USD 7.3 billion (2008) to USD 1.4 billion (2009).

Malaysia was a successful developing country in Asia and is moving forward in its ways to become a developed nation. The country has transformed its agricultural economic model into a diversified economy. According to the World Bank (2000), the manufacturing sector has grown significantly in recent years. It contributes a high Gross Domestic Product (GDP), which accounts for 25 percent and more than 60 percent of total exports, to the service sector, 54 percent of GDP. Besides mining and quarry, 9 percent of GDP contributes. The Malaysian government has implemented various types of policies, such as the Tenth Malaysia Plan (10MP), New Economic Policy 1970, the New Economic Model (NEM), the Economic Transformation Program (ETP) and the Government Transformation Program (GTP), as guidelines to achieve Malaysia Vision 2020.

GDP growth has been studying for decades. It has been quite crucial for policymakers to understand the growth of GDP could bring significant effects to the economy. There is a bunch of studies carried out by researchers to look into this problem. It still ambiguous chooses the factors affecting GDP growth. A whole bunch of list of potential factors can be used as explanatory variables. However, it is not easy to fix on certain variables that are strong enough to explain GDP growth. This may be due to the availability of data, different characteristics of countries, different time periods and other possibilities. The objective of this study is to find out the measurement of the determinants of economic growth in Malaysia. Based on the data gathered and identified, these studies will highlight some of the major issues regarding foreign direct investment, exports, and inflation measurement on economic growth in Malaysia. In the end, this research is hoped to be useful for other researchers and for improvement that can increase economic growth through foreign direct investment, exports, and inflation. This study also investigates whether there is a positive or negative contribution of foreign direct investment, exports and inflation on the economic growth in Malaysia.

2. Literature Review

Foreign direct investment is the explanatory variable affecting GDP growth. The FDI has always been the primary source of financing a country's economic activities. Some studies exist about the relationship between economic growth and FDI. According to Ang (2008), Malaysia must maintain a strong GDP growth to attract FDI inflows using the regression analysis method using annual time series data from 1960- 2005.

Yuan et al. (2020) said that FDI's diminishing growth effect becomes more salient for countries with a greater budget deficit or relying heavily on local corporate tax. When foreign firms account for a sizable share of local capital formation, FDI significantly crowds out public spending.

Edrees (2017), in his study, explained the Dependency theory of FDI and Modernization FDI theory that could be an effect of FDI on economic growth. The Modernisation theory explained that bad economic development occurred because most poor countries failed to develop industrialisation because of inadequate advanced technology and finance capacity.

Meanwhile, Ajibola et al. (2018) stated that the flow of FDI positively affected Nigeria's economic growth performance. The data samples are primary sector and secondary sector of economic from 1986 to 2017. Similarly, Ali and Minque (2018), in their study of FDI and economic growth, showed that FDI and economic growth has a positive relationship in the long term. They conducted the study in India, Indonesia and Bangladesh from 1990 to 2014 using the Granger causality test.

In 2019, Cahyadin and Sarmidi conducted a study to estimate FDI, Malaysia's economic growth. The result of the study highlighted that FDI has a significant relationship with the economic growth in countries. Thus, the country should increase their attraction to FDI inflows activities such as managing external debt properly and expanding on a highly skilled labor force.

According to Anwar and Sun (2011), empirical analysis using the Generalised Method of Moments based on annual data for the period 1970–2007 in Malaysia, it is shown that the level of financial development contributed to Malaysian domestic capital stock growth, but that its impact on economic growth is statistically insignificant.

Based on the previous research, Herzer et al. (2008), using a dataset over the period 1970-2003. The study employs panel cointegration and panel estimation methods. There are two different sample groups, developing and developed countries, indicating a positive relationship between foreign direct investment and economic development. The effect of FDI on economic growth depends on country-specific factors, such as the level of per capita income in the host country, the human capital base, the degree of openness in the economy and the level of financial market development.

Furthermore, Har et al. (2008) use annual data on FDI and economic growth in Malaysia for the period 1970- 2005 by ordinary low square (OLS) regressions and empirical analyses, which stated that economic instability is likely to have a negative impact on the FDI, such as inflation and instability. Yol and Teng-Teng (2009) further explained the relationship by ordinary least square (OLS) regressions over the 1975-2006 periods and by empirical analysis using annual data on FDI and economic growth in Malaysia. Their research shows that the relationship between foreign direct investment and economic growth is negative.

Xuan and Xing (2008) has also argued that its empirical results show that FDI is one of the major drivers of rapid export growth in Vietnam. The database covers the flow of FDI from 23 countries to Vietnam between 1990 and 2004. In their study on the impact of FDI on Vietnam's exports, they showed that FDI significantly improved Vietnam's exports to its FDI countries of origin. Their findings showed that an increase of one percent in FDI is expected to increase exports to the FDI source countries to 0.13 percent. They also noted that it is essential to have an accurate data set that reflects the actual FDI to evaluate the contribution and impact of FDI on the Vietnamese economy. Their study gave empirical support to the conviction that FDI is a significant contribution to export growth, generating a country's economic growth.

Hsiao and Hsiao (2006) observed the relationships between GDP, exports and FDI between East and South East Asia's eight rapidly developing economies (Thailand, the Philippines, Malaysia, Singapore, Hong Kong, Taiwan, Korea and China) using time series and panel data from 1986 to 2004. They found that the causality results of the panel data show that FDI, directly and indirectly, has unidirectional effects on GDP through exports. This indicated that the causal analysis of the panel data yielded superior results during the time series causal analysis. In addition to exports, the study reinforced the effects of FDI as a significant growth engine. In addition to exports, the study supported the effects of FDI as a key growth engine.

Zhang and Song (2001) also backed the role of the FDI in promoting China's exports. In their study, the panel data were used at the provincial level between 1986 and 1997. They have found a strong, positive connection between exports and FDI. They also found that the FDI variable coefficient is statistically the most important. Therefore, their findings support the widespread perception that increased FDI levels have a positive effect on provincial manufacturing export performance. The paper thus established a strong connection between exports and FDI.

3. Methodology

This study has used secondary data in completing this study. Annual data is employed for all variables covering 1989 until 2018 (30-time series observation in Malaysia). The researcher has taken a long time series of annual data to help forecast the dependent variable of concern more accurately. Specifically, the data on imports was collected from The World Bank. Data on foreign direct investment, exports, and inflation were collected from the World Bank Development Indicator for the independent variables. However, any discrepancies were handled by prioritising the data from legitimate governmental websites, the Central Bank of Malaysia and the Department of Statistics. In this area of study, the researcher analyses data using E-view.

3.1 Unit Root Test

In the study statistics, the unit root test examines whether a variable time series is moving or station using the autoregressive model. Stationary is the situation with constant mean, constant variance and constant envelope provided for each lag. Meanwhile, false regression would result if the variable data used in this study move or not station.

According to Gan (2006), Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) methods are commonly used to test the unit root examine. In a study to examine ADF chosen to model for time series. Unit root tests will be carried out in the three different examinations, which are level with intercept, 1st difference with intercept, and 2nd difference with intercept.

The test results can be viewed via the p-value in order to reject or fail to reject the null hypothesis. If the p-value is less than 1%, 5% or 10% level of significance, therefore the null hypothesis is rejected, and it can be concluded that the variable data does not move or station. Then, if the value of p is more than 1%, 5% or 10%, it indicates that data variables are not stationary. Therefore, we fail to reject the null hypothesis because the ADF test is not significant.

3.2 Descriptive Statistics

Descriptive statistics is the discipline of quantitatively describing the main features of a collection of information or the quantitative description itself. Descriptive statistics are distinguished from inferential statistics (or inductive statistics) in that descriptive statistics aim to summarise a sample rather than use the data to learn about the population that the sample of data is thought to represent. This generally means that descriptive statistics, unlike inferential statistics, are not developed based on probability theory. When a data analysis draws its main conclusions using inferential statistics, descriptive statistics are also presented.

3.3 T-Test

A T-test is an analysis of two population means through the use of statistical examination. A t-test with two samples is commonly used with small sizes, testing the difference between the sample when the variance of two normal distributions are not known. The formula of t-test:

t = **coefficient**

standard error of coefficient

If t-test > CV

It is means there is a significant relationship between X and Y. Therefore, Ho is rejected, and Ha is not rejected.

If t-test < CV

It is means there is no significant relationship between X and Y. Therefore, Ha is rejected, and Ho fails to reject.

3.4 Sources of Data

This study uses annual data on economic growth (GDP), foreign direct investment (FDI), inflation (INF) and exports (X) over the period 1988 to 2018 in Malaysia. The data were obtained from sources from the World Bank. The data for GDP per capita is based on constant 2010 U.S Dollars were taken from the World Bank website. The data on FDI was the balance of payment (current U.S. Dollars). The data of exports are based on constant 2010 U.S. dollars (annual % growth) were obtained from the World Bank website. The data on inflation (annual %) were also obtained from the World Bank website.

For this research, researcher will use the multiple regression technique such below:

$$GDP = \alpha + \beta_1 FDI + \beta_2 X + \beta_3 INF + \hat{e}$$

Where:

α: Constant
GDP: GDP per capita (constant, 2010)
FDI: Foreign Direct Investment
X: Exports
INF: Inflation
ê: Random error term

4. **Finding and Discussion**

4.1 Unit Root Analysis

The Unit Root Analysis uses Augmented Dickey-Fuller and Phillips Perron test statistic to reject or not reject the null hypothesis. The table shows the variables' results that include independent and dependent variables after the ADF and PP test is done.

	CONSTANT		
VARIABLE	ADF	PP	
GDP	-4.742382***	4.719826***	
FDI	-4.610730***	-4.600766***	
Х	-3.505403**	-3.505403**	
INF	-7.497574***	-7.312096***	

Note: ***Significant level at 1%, ** significant level at 5%, * significant level at 10%

Based on the results shown in Table 1, by analysing using the Augmented Dickey-Fuller test in the constant and constant & trend level, all the variables are stationary. The gross domestic product, foreign direct investment, and inflation are stationary because the t-statistic is lower than critical value at 1%. The decision is to reject the null hypothesis at a 1% significant level. Besides, exports are stationary at 5%, and the decision is to reject the null hypothesis at a 5% significant level. There is no unit root, and the data is stationary. Next, by analysing the Phillips Perron test in the constant and constant & trend level, all the variables are stationary. The gross domestic product, foreign direct investment, and inflation are stationary because the t-statistic is lower than critical value at 1%. The decision is to reject the null hypothesis at a 1% significant level. Besides, exports are stationary at 5%, and the decision is to reject the null hypothesis at a 5% significant level. There is no unit root, and the data is stationary.

	GDP	FDI	X	INF
Mean	3.837268	9.625353	7.604861	3.623399
Median	4.275987	9.670271	7.492032	3.656722
Maximum	7.241431	10.17953	21.90672	10.38876
Minimum	-9.655750	8.059429	-10.87842	-5.992098
Std. Dev.	3.471074	0.450146	7.703290	3.333844

4.2 **Descriptive Analysis**

Based on Table 2 above, the value of the mean dependent variable, gross domestic product, is 3.837268. At the same time, the value of mean independent variables is 9.625353 for foreign direct investment, 7.604861 for exports and 3.623399 for inflation.

Besides that, the median value for the dependent variable, which is gross domestic product is 4.275987. The highest value of median for independent variables is a foreign direct investment 9.670271, and the lowest value is inflation at 3.656722.

Therefore, the value above also shows the maximum value for the dependent variable and independent variables. Maximum value for gross domestic product 7.241431. The maximum value for all independent variables is 10.17953 for foreign direct investment, 21.90672 for exports, and 10.38876 for inflation.

The minimum value of the gross domestic product is -9.655750 while for all independent variables, which are 8.059429 for foreign direct investment, -10.87842 for exports and -5.992098 for inflation.

And lastly, for the standard deviation, for gross domestic product, the standard deviation is 3.471074, then for the independent variables are 0.450146 for foreign direct investment, 7.703290 for exports, and lastly 3.333844 for inflation.

Table 3: Regression Analysis							
Independent Variable	Coefficient (β)	Std. Error	T-statistic	P-value			
С	-22.229	9.770	-2.275	0.0314			
FDI	2.555	1.034	2.470	0.020			
Х	0.346	0.061	5.598	0.000			
INF	-0.321	0.152	-2.106	0.044			
F Value	13.356						
R	0.778						
\mathbb{R}^2	0.606						
Adjusted R ²	0.561						

In Table 3 show the multiple linear regressions between the dependent variable (gross domestic product), with independent variables (foreign direct investment, exports, and inflation). Therefore, the Estimate Regression Equation is written as follow:

$$EG = -22.229 + 2.555FDI + 0.346X - 0.321INF (9.770) (1.034) (0.061) (0.152)$$

The above equation shows inflation has a negative relationship with gross domestic product per capita (constant, 2010) and foreign direct investment and exports have a positive relationship with gross domestic product. According to the equation, the constant is -22.229, which indicate that the gross domestic product will increase by -22.229 units when foreign direct investment, exports and inflation are equal to zero.

Every 1% U.S dollars increase in foreign direct investment will increase gross domestic product by 2.555%. Based on the result above, it is consistent with the theory as the Foreign Direct Investment increases, and the gross domestic product also will increase, foreign direct investment and gross domestic product have a positive relationship. According to Ajibola et al. (2018), Herzer et al. (2008) have mentioned a positive relationship between FDI and economic growth.

Every 1% U.S dollars increase in exports will increase by 0.346%. Based on the result above, it shows that as the exports increase, the gross domestic product will be increase. Exports and the gross domestic product has a positive relationship. According to Taghavi (2012), export had a direct and positive relationship with economic growth in the long run.

Every 1% increase in inflation will decrease gross domestic product by 0.321%. The result above is consistent with the theory as inflation increases when the gross domestic product decreases. Refer to Fisher (1993); there is a negative impact of inflation on growth.

5. Conclusion and recommendation

Overall, the results show there are significant relationships between all the independent variables. Economic growth is most significant and needs to be measured on the economic condition, especially in Malaysia. It can be measured by the gross domestic product of all total production of goods and services produced within the time. As economic growth increases, the standard of living will also improve and benefit the country. Every sector has been contributed toward economic growth.

Foreign direct investment has a positive relationship with the GDP in Malaysia. Several studies support it found that a positive effect on the growth of GDP by Herzer et al. (2008). From the results

shown, here is the suggestion that Malaysia must more carefully implement a policy of subsidising foreign direct investment inflow in all sectors to enhance the growth substantially.

The study can be defining as exports and GDP has a positive relationship toward economic growth from the result, and it can be supported by several authors of Taghavi (2012). Therefore, it can be concluded that Malaysia's exports will bring a positive contribution to Malaysia's growth. As increases in growth rate will be beneficial toward the citizen of Malaysia from the improvement in the economy.

The government must revise several strategies that need to adopt. Government can reduce the trade barrier and promote international trade by reducing and simplifying procedures and controls. Thus, the government can allocate funds and resources to develop the country's exports industry so the economic growth will be more improved. However, the government should carefully revise the policy of subsidising foreign direct investment inflow because it could not enhance economic growth through the export industry. From this research, we must acquire more research and wisely implement the policy that could highly impact the economic growth in Malaysia.

For the future researcher, enable to encourage more improvement by adding another related variable that could enhance the growth in Malaysia's country, such as school enrolment, household consumption, gross fixed capital, and others. To identify the relationship is positive significant toward economic growth that can raise the gross domestic product at a better rate. Measure using the available data and gathered accurate results occur. From the research, the growth rate of gross domestic product could be increased by using other related variables.

Lastly, the result has shown that inflation was negatively and significantly related to economic growth. It means that inflation has an adverse effect on economic growth. Inflation and real GDP per capita have an opposite trend. This is supported by Fisher (1993), which is the result of the paper that has shown that the channel through which inflation affects economic growth and inflation negatively affects growth by reducing investment and reducing the rate of productivity growth.

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