

The Role of Foreign Direct Investment Inflows in Economic Growth in Malaysia

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ABSTRACT

The purpose of this study is to investigate the relationship between the inflows of Foreign Direct Investment (FDI) and economic growth in Malaysia. The sample collected for this empirical study covered 30 years of data from 1991 to 2020. The secondary data was collected annually and a total of 30 observations were taken for each variable. Ordinary Least Square (OLS) regression, unit root test, several diagnostic tests and Granger causality test were used in this research to investigate the relationship between FDI inflows and economic growth. Eviews 11 was used to analyze the time series data throughout all the tests. The result showed that the inflows of FDI has a significant negative relationship with economic growth and there is no causal relationship between FDI and Gross Domestic Product (GDP).

Keywords: Economic growth, FDI inflows, Granger Causality Test, Ordinary Least Square regression, Unit Root Test

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INTRODUCTION

Malaysia has recently been recognised as one of Southeast Asia's most successful Foreign Direct Investment (FDI) destination. FDI is an investment made by a firm or individual of one country into the business interests located in another country. For developed nations, FDI is regarded as a significant addition to a country's sustainable economic growth while for developing countries, it is regarded as an element to promote economic growth. However, there are few consistent assumptions. Abramovitz (1986) believes that the requirements for the host country to benefit from FDI inflows are human capital resources, economic and political stability, and market transparency. Borensztein, De Gregorio, and Lee (1998) concluded that the higher productivity of FDI only occurs when the developing host country has a minimum amount of human capital. According to Markusen & Maskus (2002), FDI can exert greater production performance. This is the long-term decisive factor. Factors relating to the activities of FDI are absolute or comparative domestic factors, taxation, market size or scope, and trade and investment costs in the target host country. According to the Bengoa and Sanchez-Robles (2003), the recipient country's economy needs human resources, economic stability and market liberalisation to benefit from long-term FDI inflows.

According to 2020 data from the International Monetary Fund, Malaysia's economy ranked 6th in Southeast Asia. Malaysia's market economy is newly industrialized, relatively transparent and country-oriented. Trade and investment transparency has played a major role in job development and the growth of profits. However, the COVID-19 pandemic in 2020 will have a significant economic impact on Malaysia. Cheng (2020) reported that this pandemic would have a devastating effect on the Malaysia's economy. However, in the past 30 years, FDI has been accepted as a primary predictor of economic growth in Malaysia. Malaysia has worked closely with the private sector as a developing nation to speed up the rate of industrialization and highlighting positive economic growth. Malaysia has been listed as one of the top 25 foreign investment destinations in the Association of Southeast Asian Nations (ASEAN) countries. Foreign direct investment is the main stimulus for a country's economic growth. Therefore, this study aims to investigate the relationship between the inflows of FDI and economic growth in Malaysia based on the endogenous growth theory, which theorises that FDI causes economic growth via technology transfer, diffusion and spillover effects (e.g. Nair-Reichert and Weinhold, 2001; Borensztein et al., 1998; de Mello, 1999; Elboiashi, 2011 and Al Nasser, 2010).

LITERATURE REVIEW

Most of the empirical studies on the role of FDI show that FDI is a significant source of finance, a complement to domestic private investment, traditionally linked to new opportunities for employment and technology transfer and can foster the host country's overall economic development. Several studies have been conducted and examined the relationship between FDI inflows and economic growth; they noted significantly positive, negative or even irrelevant relationships, while other studies have found a causal relationship between the two variables.

Mokuolu (2018) used least squares regression analysis and autoregressive distributed lag (ARDL) model and found a strong positive relationship between FDI and economic growth in Nigeria from 1960 to 2008. Neto and Veiga (2013) used panel data sets covering 139 countries from 1970 to 2009 to study the effect of foreign direct investment on growth and found that FDI have positive effects on GDP growth. Balasubramanyam et al. (1996) used cross-sectional data related to 46 developing countries from 1970 to 1985 and OLS regression to find that FDI has a positive impact on the economic growth of the host country. Olofsdotter (1998) used cross-sectional data and the OLS regression from 1980 to 1990 covers 50 countries and found that the increase in FDI stock is positively correlated with growth. According to the research of Okonkwo, Egbunike, Udeh, and Francis (2015), they studied Nigeria's foreign direct investment and economic growth from 1990 to 2012 by using ordinary least squares (OLS) estimation techniques. FDI has led to Nigeria's export growth. The results of this study show that FDI has a positive relationship with economic growth.

Fry (1993) used OLS regression to analyse the effects of FDI on economic growth in 16 developed countries over the period 1975 to 1991. There is a negative relationship found between two variables in 11 developed countries while positive relationship found in Pacific Basin countries. Khaliq and Noy (2007) used detailed sectoral data FDI inflows to Indonesia from 1997 to 2006 to investigate the impact of FDI on economic growth. This study uses OLS fixed effects regression. The results show that mining and quarrying have a negative impact on economic growth. Bornschieer, Chase-Dunn, and Rubinson (1978) used OLS regression to study the relationship between FDI and economic growth in 76 underdeveloped countries from 1960 to 1975. The results show that foreign direct investment has a negative relationship with the economic growth of developing countries.

Carkovic and Levine (2002) analyzed the relationship between FDI inflows and economic growth in 72 developed and developing countries from 1960 to 1995 by using GMM for cross-sectional OLS analysis and dynamic panel data analysis. The conclusion is that there is no strong relationship from foreign direct investment to the economic growth of the host country. Azman-Saini et al. (2010) studied the link between FDI and economic growth in 85 countries from 1976 to 2004. The result shows that there is no significant relationship has been found. Sarkar (2007) uses panel data covering 51 underdeveloped countries from 1970 to 2002 to study the relationship between FDI and economic growth. The ordinary least squares (OLS) fixed and random effects regression used in this study. There is no long-term relationship between foreign direct investment and economic growth.

Nair-Reichert and Weinhold (2001) applied fixed and random mixed estimation methods to study the relationship between FDI and economic growth in 24 developing countries from 1971 to 1995. The researchers examined evidence of Granger causality. Therefore, a causal relationship found between FDI and economic growth. Liu et al (2000) examined the relationship between China's economic growth, foreign direct investment and trade. The study found that there is a bi-directional causal relationship between FDI, growth and exports. Based on panel cointegration and causality test, Basu et al. (2003) found that between 1978 and 1996, there was a two-way causal relationship between economic growth and FDI in 23 developing countries. Ericsson and Irandoust (2001) studied the causal relationship between FDI growth and output growth based on the data of Denmark, Finland, Norway and Sweden from 1970 to 1997 under the multi-country framework of four OECD countries. They could not find any causal relationship in Finland and Denmark but there is a causal relationship in Norway. Chowdhury and Mavrotas (2005) used lag-augmented vector autoregression to study the relationship between FDI and economic growth in three developing countries, namely Chile, Malaysia, and Thailand from 1969 to 2000. They found no relationship in Chile, while for Malaysia and Thailand, there is strong evidence that there is a two-way causal relationship between the two variables.

Duasa (2007) studied the causal relationship between FDI and output growth in Malaysia from the first quarter of 1990 to the fourth quarter of 2002. The study does not have strong evidence to prove that there is a

causal relationship between FDI and economic growth. This shows that in Malaysia, FDI does not cause economic growth. Chakraborty and Nunnenkamp (2006) tested the relationship between Indian FDI and economic growth from 1987 to 2000 by using Granger causality test within the framework of panel cointegration. The results showed that no causality was found in India's primary industry.

The results from the findings above are mixed. Although most of the empirical studies show that there is a significant positive relationship between FDI inflows and economic growth but some of the empirical studies show that there is a significant negative relationship between two variables and even the relationship between two variables does not exist. The findings also show that the causal relationship between two variables only found in several studies while there is no causal relationship found in some of the studies. This again shows that the relationship between foreign direct investment inflows and economic growth is far from straightforward. It varies by country and time period. In addition, the above causality test still has some shortcomings. Therefore, there is a need to further investigate the relationship between FDI inflows and economic growth, with the following hypotheses:

H₀: There is no relationship between FDI inflows and economic growth.

H₁: There is a significant positive relationship between FDI inflows and economic growth.

METHODOLOGY

In this study, the independent variable is the inflows of FDI while dependent variable is economic growth and calculated as Gross Domestic Product. Data was collected over 30 years period from year 1991 to 2020, 30 observations are taken. The data of gross domestic product collected from World Development Indicator (WDI) by World Bank and denominated in Ringgit Malaysia in billion whereas net inflows of FDI collected from World Development Indicator (WDI) by World Bank and denominated in percentage of GDP. Econometric Views (Eviews) used to investigate the relationship between dependent and independent variable. There are few tests such as Ordinary Least Squares (OLS), Unit Root Test, Normality, Autocorrelation, Heteroscedasticity, Ramsey's RESET and Granger Causality are carried out to verify the problem that exists in the economic equation.

Model Estimation

Coefficient of variation (CV) is known as a tool of measurement for the average error of the sample regression function in this study. The functional forms which have been considered in this study are Linear model, Log-log model, Linear-Log model, Log-Linear model, and Reciprocal model. The coefficient of variation (CV) has been used to carry out comparison between all the five mentioned models equations. When the model has a smaller coefficient of variation (CV), the equation of the model will be more preferred in this study. The log-linear model has the smallest coefficient of variation (CV) among all models. Thus, the best model is the log-linear regression model. The equation of the empirical model is written as follow:

$$\text{LogGDP} = \beta_0 + \beta_1 \text{FDI}_t + \epsilon_t$$

Where,

LogGDP=Gross Domestic Product in log term

FDI=Foreign Direct Investment, net inflows

β_0, β_1 = Coefficient of the independent variables to be estimated

ϵ_t = random error term or disturbance error term

RESULTS

Table 1 shows the result of OLS. The relationship between the independent and dependent variables is determined using the OLS method. Based on the result, FDI and GDP have a negative relationship. When there is 1 percentage increase in FDI, the GDP will decrease by 0.182456 percentage point. Since the probability of FDI is 0.0018 which is lower than the significance level of 0.05, thus we do not reject the null hypothesis. Therefore, there is a statistically significant relationship between FDI and GDP. In addition, R-squared value (R^2) is 0.2992. It implies that 29.92% of the total variation in GDP can be explained by FDI. The remaining 70.08% is attributed to other factors.

Table 1: Result of OLS

Variable	Coefficient	Standard Error	t-Statistic	Probability
FDI	-0.182456	0.052776	-3.457172	0.0018
C	7.185813	0.231521	31.03736	0.0000
R ² = 0.2992				

Table 2 shows the results of Augmented Dickey-Fuller (ADF) Test i at level and first difference for both Intercept and Trend and Intercept. The result shows that the probability of GDP is greater than 5% significance level at level whereas it is less than 5% significance level at first difference. The probability of FDI is smaller than 5% significance level at both level and first difference. Thus, it can be said that GDP is not stationary at level but is stationary at first difference whereas FDI is stationary in ADF Test at both level and first difference.

Table 2: Result of Unit Root Test

Variable	Level		First Difference	
	Intercept	Trend & Intercept	Intercept	Trend & Intercept
GDP	0.9012	0.6518	0.0013	0.0087
FDI	0.044	0.044	0.0000	0.0000

The diagnostic test used in this study are Jarque-Bera Normality Test, Breusch-Godfrey Serial Correlation LM Test, Heteroscedasticity-White Test and Ramsey RESET Test. Based on the result in Table 3, the probability of Jarque-Bera Normality Test is 0.4533 which is higher than 0.05. Thus, we do not reject the null hypothesis. Therefore, it can be said that the error term is normally distributed. Besides that, since the p-value of Breusch-Godfrey Serial Correlation Test LM Test is zero which is smaller than significant level, we reject the null hypothesis. Therefore, there is an autocorrelation in model. Moreover, we do not reject null hypothesis since the p-value of Heteroscedasticity-White Test is 0.0859 which is higher than 0.05. Thus, there is no heteroscedasticity among the error term. Next, the p-value of Ramsey RESET Test is 0.0953 which is higher than 0.05. Thus, we do not reject null hypothesis. It can conclude that the model is correctly specified.

Table 3: Results of Diagnostic Tests

Diagnostic Tests	P-value	Decision	Results
Jarque-Bera Normality test	0.4533	Do not reject null hypothesis	The error term is normally distributed.
Breusch-Godfrey Serial Correlation Test LM Test	0.0000	Reject the null hypothesis	There is autocorrelation in model.
Heteroscedascity-White test	0.0859	Do not reject null hypothesis	There is no heteroscedasticity among the error term.
Ramsey RESET test	0.0953	Do not reject null hypothesis	The model is correctly specified.

Table 4 shows the result of Granger Causality test, when the dependent variable is GDP and independent variable is FDI, null hypothesis cannot be rejected. This is due to the p-value of both variables is greater than 0.05. On the other hand, when dependent variable is FDI and independent variable is GDP, the p-value of both variables are greater than 0.05. Therefore, null hypothesis will not be rejected. It can be concluded that there is no direct causality between GDP and FDI.

Table 4: Results of Granger Causality Test

Null Hypothesis:	Observation	F-statistic	Probability
FDI does not Granger cause GDP	30	0.54959	0.5846
GDP does not Granger cause FDI		2.67260	0.0904

DISCUSSION

Simple Linear Regression Model is formulated to investigate the relationship between FDI inflows and economic growth. A total of 30 observations were extracted from yearly data from year 1991 to 2020. Descriptive analysis is conducted to summarize continuous data in this study. Based on the result of OLS regression, there is a substantial negative relationship found between FDI inflows and economic growth. The researchers such as Fry (1993), Khaliq and Noy (2007), Bornschier, Chase-Dunn and Rubinson (1978) also showed similar outcome. Besides, Unit Root Test is used to determine whether the variables are stationary. Augmented Dickey-Fuller (ADF) Test is used and test at level and first difference. Both variables are considered stationary at first difference. Moreover, diagnostic tests such as Jarque-Bera Normality Test, BG Serial Correlation Test LM Test, Heteroscedasticity White Test and Ramsey RESET Test are conducted to detect whether econometric problems occur. The results showed that the error term is normally distributed, no heteroscedasticity occur and correctly specified. However, the result showed the error term exhibits serial correlation problem and there is considered an autocorrelation in model.

Furthermore, in this study, the Granger causality test was employed to investigate the causal effect between measurable variables in the short term. The findings revealed that there is no direct causal relationship between FDI inflows and short-term economic growth. This result is supported by Ericsson and Irandoust (2001), Chowdhury and Mavrotas (2005), Duasa (2007) and Chakraborty and Nunnenkamp (2006). In short, economic growth does not Granger cause FDI inflows and FDI inflows does not Granger cause economic growth. Possible reasons could be the steady decline of FDI flows over the period of 2015 – 2020, which was made worse due to the effect of the Covid-19 pandemic and the resulting recession in 2020 (OECD, 2020). In fact, FDI flows to developing nations were projected to fall even more since industries significantly damaged by the epidemic, such as agriculture and manufacturing, account for a bigger part of their FDI than in developed economies (OECD, 2020).

CONCLUSION

The aim for this research is to investigate the relationship between FDI inflows and economic growth in Malaysia for the periods of year 1991 to 2020. Statistical analyses were systematically carried out through Ordinary Least Squares (OLS), Unit Root Test, Normality, Autocorrelation, Heteroscedasticity, Ramsey's RESET and Granger Causality test. Based on the result, there is a significant negative relationship and no direct causal relationship between FDI inflows and economic growth. The error term is normally distributed, no heteroscedasticity occur and correctly specified, however, there is considered an autocorrelation in model. There are some recommendations for researchers who want to undertake comparable research in the same field as this study. It is suggested that future researchers use the latest software which is Stata or Eviews to run the data for more accuracy. Besides, the sample size in the model should be increased. Future researchers are particularly encouraged to conduct such studies using monthly or quarterly data. The reason for this is that the larger the sample size, the more information and accuracy the model's output will be. Therefore, the result will have less econometrical problems that affect the accuracy of research.

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