The Relationship between Exports, Foreign Direct Investment and Economic Growth in Malaysia

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Abstract

This study examined the relationship between exports, foreign direct investment and economic growth in Malaysia from year 1980 – 2013. Upon testing the data for stationarity, a causality analysis was undertaken to analyse the relationship between all three variables. The results obtained showed that there is a significant bidirectional long run relationship between FDI Inflows per capita and GDP per capita. On the other hand there is a unidirectional long run relationship from Exports to FDI Inflows and Exports to GDP per capita. From the findings of this study, it was recommended that policy makers should encourage greater export opportunities and investments in the export sector

Key words: Exports, Foreign direct investment, Economics growth, Capital inflows, Gross domestic product, Foreign exchange earnings.

1. INTRODUCTION

One of the most important indices for any well managed country is economic growth. Increase in economic growth shows increase in economic development and welfare due to this, governments are concerned about finding ways to promote the economic growth of their countries. Economic growth is defined as the increase in the market value of the goods and services over time.

The question of the relationship between exports, foreign direct investment and economic growth has created a lot of interest and attention among the economists and policy makers. It is a widely accepted argument that openness of an economy boosts economic growth irrespective of whether an economy is developed or developing.

Foreign direct investment (FDI) is very important in stimulating international capital flow, and has attracted many researchers to carry out studies on it. Inward FDI can increase the host's country's export capacity, causing the developing country to increase its foreign exchange earnings. FDI can also encourage the creation of new jobs, enhance technology transfer, and boost overall economic growth in host countries. FDI causes spillovers through the transfer of knowledge to the host country. The spillover effect occurs when there is mobility of well-trained workers and managers from foreign firms to domestic firms. Some researchers believe that FDI has positively promoted economic growth in most countries. According to the modernization hypothesis, FDI promotes economic growth by providing external capital and through growth, spreads the benefits throughout the economy. It is the presence, not the origin of the investment, which can be considered important. This is because FDI usually brings with it advanced technology, and better management and organization. Though agriculture was the dominant sector in the Malaysian economy throughout the 70s, the government was already placing more emphasis on developing the manufacturing sector particularly the export industries. Malaysia began to receive a growing amount of FDI from non-British sources such as Singapore, USA, japan, Taiwan and Korea. This was the result of the government's implementation of appropriate and advantageous policies and strategies to encourage investment in the manufacturing sector. During this time, the government established the Federal Industrial Development authority 1967 and passed the Investment Incentives Act 1968 and the Free Trade Zone Act 1971 which was extended in scope by the Licensed Manufacturing Act 1975. All these policies coupled with the nation's endowment of cheap and natural resources, low wages, skilled workforce, good infrastructure and stable government resulted in Malaysia becoming increasingly competitive and attractive as a choice destination for FDI.

Exports stimulate economic growth primarily from the demand side; they also produce efficiency gains on the supply side by way of global competition. As stated in theory, it is the foreign direct investment that contributes to the export performance increase of a country.

Malaysia's export sector has evolved significantly over the last five decades. In line with the nation's economic industrialisation, the composition of exports had gradually shifted from comprising mainly of agricultural and mining products in the 1960s to manufactured goods in the 1980s. The development and

growth of the manufacturing sector was so rapid that by the late 1990s, the sector accounted for more than 80% of total exports. Today manufactured goods remain the largest component of total exports. Given the country's wealth of natural resources in areas such as agriculture and mining, Malaysia is well positioned to benefit from the growing demand for raw materials, particularly from the fast growing economies of Asia. In nominal term, export grew from RM3,208 million in 1961 to RM544,956 million in 2004. It is found that apart from labour and capital, a reallocation of resources from a less efficient non-export sector to a higher productivity export sector would contribute towards economic growth.

The majority of past empirical studies dealt with both exports and FDI interaction on economic growth or (and) the relationship between FDI and economic growth. All these studies concluded that both FDI Inflows and exports promote economic growth. However, there are conflicting results on the relation and the direction. In most cases, there is a unidirectional relationship between FDI and economic growth or FDI and exports while in other cases there is a bidirectional relationship. The main focus of this study was to investigate whether exports, foreign direct investment and economic growth have a simultaneous relationship; thus contributing to the existing literature by examining the Malaysian experience from 1980 to 2013. The study also evaluated the long run and short run relationship between exports, foreign direct investment and economic growth help policy makers to drive Malaysia towards a more competitive environment.

The rest of the paper is structured as follows: a brief review of the related literature; followed by a description of the data and methodology used in the analysis; a presentation of the results and interpretation; and lastly the conclusion of the study.

2. LITERATURE REVIEW

The study by Klasra (2009) was conducted using data for Pakistan and Turkey from 1975-2004. The study uses ARDL approach to Cointegration, the paper tries to ascertain whether or not exports-led growth hypothesis or growth-driven exports hypothesis or both hold true for Pakistan and Turkey? The study indicates that in the short run there is a bi-directional causal relationship between trade openness and exports for Pakistan and FDI and exports relationship for Turkey. The long run relationship results support the growth-driven exports hypothesis for Turkey and openness-growth nexus in Pakistan.

Azam (2010) analysed the impacts of exports and foreign direct investment on economic growth of South Asian countries namely Bangladesh, India, Pakistan and Sri Lanka. Using secondary data ranging from 1980-2009, the findings showed that the impacts of exports and foreign direct investment are statistically significant. The findings of the study proposes that the policy makers of each country of South Asia should diversify the country's exports to enlarge exports volume and increase FDI inflows because it have the potential of accelerating economic growth in the future of South Asian economies.

Tiwari and Mutascu (2011) found out that both foreign direct investment and exports enhance the growth process. Also, labour and capital also play an important role in the growth of Asian countries.

Guru-Gharana (2012) examines the relationship among exports, foreign direct investment and growth in India using the robust Toda-Yamamoto-Dolado-Lutkephol augmented VARL technique. The findings showed that there is a significant causality running bidirectional relationship between export and GDP and unidirectional relationship from FDI towards both GDP and exports in the post liberalization period.

Tekin(2012) investigates the potential granger causality among the real GDP, real exports and inward FDI in least developed countries for the period between 1970-2009. The study revealed a multiplicity of causality relations among the variables considered. In Central African Republic and Liberia, the study failed to find evidence for causality in any directions.

Yusoff (2012) examines the relationship among exports, FDI, education spending and Malaysia's economic growth using the Cointegration techniques, VECM, and the causality tests. The Cointegration results suggest that the real GDP per capita, exports, foreign direct investment and public education expenditure are cointegrated. The granger causality test also indicates that exports, FDI and education spending cause economic growth where it is significant at one percent level.

Ai and Zhang (2013) said that the main channel through which FDI contributed to economic growth was by increasing total capital accumulation. The study analysed the relationship of foreign direct investment and the economic growth in China. The results suggested that FDI has a positive impact on China's economic growth, but there existed distinct regional disparities.

Olayiwola and Okodua (2013) from their research, they found out that policy shocks to FDI, non-oil exports, and economic growth in Nigeria do not show immediate responses in the desired direction. They concluded that there is a need for the encouragement of non-oil exports in order for FDI to contribute meaningfully to economic growth in Nigeria.

The study by Almfraji, Almsafir and Yao (2014) examines economic growth and foreign direct investment inflows in the case of Qatar using time series data from 1990-2010. The inward FDI is positively affected by the economic growth, but more sensitive to its own performance change than to the economy growth. The

economic growth is negatively affected by the inward FDI, and more sensitive to the inward FDI change than to the economic growth itself. The study implies that to attract FDI inflows to Qatar, the government should continue its efforts to create promising economic and investment environment; while to promote economic growth, it shall refer to other original momentum.

Belloumi (2014) studied the relationship between trade, FDI and economic growth in Tunisia and discovered that when FDI is the dependent variable, trade openness and economic growth promote foreign direct investment in Tunisia in the long run. The results further indicated that there is no significant granger causality from FDI to economic growth or from economic growth to FDI in the short run. The results showed that domestic capital investment is the main driver of economic growth in Tunisia.

Dritsaki and Stiakakis (2014) found that in the case of Croatia using time series data from 1994 -2012, the results confirm a bidirectional long run and short run causal relationship between exports and growth. In conclusion, domestic capital investments and exports constitute the catalyst for the economic growth of Croatia. The results of the research indicate that foreign direct investment do not have the expected positive impact on the economic growth and thus the government of Croatia should proceed to significant reformations with clear targets and strong commitments.

Haseeb, Hartani, Bakar, Azam and Hassan (2014) studied exports, foreign direct investment and economic growth in Malaysia from 1971 – 2013. The empirical results indicate that the productivity factor and externality effect of exports on the non-export sector are found to be statistically, positively significant, with the exports also having a positive impact on the economic growth and FDI of the country. The findings in this study suggests that Malaysia should continuous pursue exports promotion and a liberal investment economic policy in order to maintain and bolster overall economic growth.

In a study done by Szkorupová (2014) investigating the relationship between foreign direct investment, economic growth and export in Slovakia in the period 2001-2010. The results confirm the existence of long-term causal links between variables studied in Slovakia. It reveals a positive impact of foreign direct investment and positive impact of export on gross domestic product.

Tasos (2014) in his study investigates the relationship (both long run and short run) between economic growth, FDI and exports for the US economy. The results imply that growth of GDP and exports attracts FDI. The US government should focus and improve the factors that stimulate GDP growth because it would lead to growth in FDI inflow. According to the block exogeneity Wald test, exports cause GDP and FDI while GDP causes FDI. The policy focus should be to reduce production inefficiencies in the economy, besides removing trade, fiscal and financial bottlenecks and impediments in infrastructure development that restrict export growth.

Solarin and Shahbaz (2015) used the structural break unit root test to investigate the stationary properties of the series. There is a presence of Cointegration between the variables. Foreign direct investment granger causes natural gas consumption and vice versa. There is a bidirectional relationship between capital and foreign direct investment. Furthermore, the results showed that any negative shocks to foreign direct investment, capital formation and trade openness will adversely affect the economy. Reduction in natural gas activities will decline trade openness, foreign direct investment and capital formation.

3. METHODOLOGY

This section presents the methodology used in this study. The study examined the relationship between exports, foreign direct investment and economic growth in Malaysia. Secondary time series data for a period of 33 years from 1980 to 2013 was collected. All the quantitative data for the study was obtained from a reliable source; the United Nations Conference on Trade and Development (UNCTAD).

3.1 The Model

Three variables were identified for the study. Three main variables of the study are economic growth (the dependent variable), exports of goods and services and foreign direct investment (as the independent variables). All data are expressed in logarithms in order to include the proliferative effect of the time series of the variables. A regression model of the following form was formulated to capture the relationship between exports, foreign direct investment and economic growth (equation1).

$$GDP = f (Exp, FDI)$$

The above model is transformed into its logarithm form as given below

$InGDP_t = \beta_{0+}\beta_1 InFDI_t + \beta_2 InExp_t + \varepsilon_t \qquad \text{(equation 1)}$

Where,

GDP = (Gross domestic product) represents Economic growth, Exp = Export of goods and services, and FDI = Foreign direct investment β_0 = is the constant or intercept β_1 , β_2 = are the coefficients of the independent variables ε_t = the error term of the model

3.2 Data Analysis

The quantitative secondary data collected was subjected to ordinary least square test, ADF Unit Root test, Johansen-Juselius Cointegration test, and Vector Error Correction Model (VECM) test using E-Views 7 computer software. The results of the analysis are presented in section four of this study.

3.2.1 Ordinary Least Square Method

This study conducts a time series regression analysis by employing the OLS method. This test is used to explain the behaviour of the dependent variables by changes in the explanatory variables. In this case the OLS regression is used to explain the association between exports, foreign direct investment and economic growth.

3.2.2 Unit Root Test

This test is a test to determine the existence of unit root in the data and clarify the stationary status of the data. The existence of stationary in a time series data indicate that the series have constant variance, constant mean and constant covariance implies that there is an existence of a meaningful economic relationship in the regression model.

 $H_0: \gamma = 0 (Yt \text{ is a unit root/non} - stationary)$

 $H_1: \gamma = 0$ (*Yt* is stationary)

The unit root hypothesis can be rejected if the t-test statistics is less than the critical value.

3.2.3 Cointegration tests

The Cointegration test simply tests whether a long run relationship exists between the non-stationary series. In this test, the null hypothesis is "No cointegration". If the null hypothesis is rejected, then the two series are cointegrated.

H₀: There is no long run equilibrium relationship between exports, foreign direct investment and economic growth.

H1: There is long run equilibrium relationship between exports, foreign direct investment and economic growth.

3.2.4 VECM Granger causality test

The granger causality test was used to estimate the causal relationship between the variables. If there is Cointegration between the series then the vector error correction method can be utilized. When variables are cointegrated, then the short run deviations from the long run equilibrium will feedback on the changes in the dependent variable in order to move towards the long run equilibrium. The chi-square of the Wald statistics of the differenced explanatory variables could indicate the short term causal effects, while the long causal relationship is determined through the significance of the t-tests of the lagged error-correction term. Three variate dynamic models would be estimated using the VECM:

 $\Delta InEXP_{t} = \alpha_{10} + \beta ECM_{t-1} + \alpha_{11}\Delta EXP_{t-1} + \alpha_{12}\Delta GDP_{t-1} + \alpha_{13}\Delta FDI_{t-1} + \varepsilon_{1t}$ $\Delta InFDI_{t} = \alpha_{20} + \beta_{2}ECM_{t-1} + \alpha_{21}\Delta FDI_{t-1} + \alpha_{22}\Delta GDP_{t-1} + \alpha_{23}\Delta EXP_{t-1} + \varepsilon_{2t}$ $\Delta InGDP_{t} = \alpha_{30} + \beta_{3}ECM_{t-1} + \alpha_{31}\Delta GDP_{t-1} + \alpha_{32}\Delta FDI_{t-1} + \alpha_{33}\Delta EXP_{t-1} + \varepsilon_{3t}$

4. **RESULTS AND INTERPRETATION**

This section presents the findings of the empirical results of the relationship between exports, foreign direct investment and economic growth in Malaysia from year 1980 to year 2013. The tests conducted includes the Unit Root test, Cointegration test, VECM test and the Granger Causality Test. Augmented Dickey Fuller test at constant and trend at both level and first difference was used to test for stationary data. In order to continue with other tests, the lag had to be identified by doing lag selection choosing from Akaike info criterion and Schwarz criterion. From this test lag 6 was the final choice due to unsatisfying results when lag 1 to lag 5 was used. Next, to look for long run relationship between variables a cointegration test was carried out. This test implies that causality exists between the series but it does not indicate the direction of the causal relationship. The Johansen-Juselius test is used to test for cointegrating long run relationships among the variables that are I(1).

4.1 Ordinary Least Square

Table 1: OLS Estimates				
Independent variable	Coefficient	P-value		
FDI Inflows per capita	0.024876	0.0004		
Exports	-3.13E-05	0.0014		
С	4.583671	0.0001		

R² = 0.357163

Prob (F-statistics) = 0.001061 Dependent variable is GDP per capita

The model is GDP per capita = 0.024876FDIInflows – 3.13e-05Exports + 4.583671

Table 2: OLS Estimates				
Independent variable	Coefficient	P-value		
Exports	0.001067	0.0000		
GDP per capita	13.68505	3.421257		
С	-8.685623	0.7754		

 $R^2 = 0.641648$

Prob (F-statistics) = 0.000000

Dependent variable is FDI Inflows per capita

The model is FDIInflows = 0.001067Exports + 13.68505GDP per capita - 8.685623

Table 3: OLS Estimates				
Independent variable	Coefficient	P-value		
FDI Inflows per capita	564.0047	0.0000		
GDP per capita	-9111.041	0.0014		
С	53231.40	0.0114		

 $R^{2} = 0.611745$

Prob(F-statistic)= 0.000000

Dependent variable is Exports

The model is Exports = 564.0047FDIInflows - 9111.041GDP per capita + 53231.40

From the tables 1 to 3, when GDP (proxy for economic growth) is the dependent variable, GDP can be explained by 35.71% of the independent variables. It also has a negative relationship with exports. This means that for every 1% increase in exports of goods and services, the economic growth will decrease by 3.13%, GDP per capita has a positive relationship with FDI Inflows per capita whereby for every 1% increase in foreign direct investment inflows, the economic growth will increase by 2.48%.

4.2 Unit Root Test

Results of the ADF test are reported in Table 4. The parentheses of the results are the lag length determined by Schwarz criterion for the ADF. At 5% level of significance, the ADF tests reveal that Exports is not stationary at level but obtains stationary status at first difference at both constant and with trend. At 5% level of significance, FDI Inflows is also not stationary at level but becomes stationary at first difference at constant and trend. However, GDP per capita obtains stationarity at level and first difference for both constant and with trend at 5% level of significance.

	-	Table 4: Results for ADF	:	
	At levels	At levels	First difference	First difference
Variables	Constant(t_{μ})	Trend(t_{τ})	Constant(t_{μ})	Trend(t_{τ})
GDP per capita	-4.606269(0)**	-4.652966(0)**	-7.022105(1)**	-6.894416(1)**
FDI Inflows per capita	-1.910919(0)	-2.775017(0)	-6.012539(1)**	-6.032564(1)**
Exports	0.699860(0)	-2.188630(0)	-5.174591(1)**	-4.022581(8)**

Notes: **(*) denotes rejection of the null hypothesis at the 5% (10%) level.

4.3 Lag Selection

Lag selection was chosen based on AIC and SBC.

Table 5: Results for Lag selection						
	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5	Lag 6
AIC	38.26962	38.34843	38.67543	39.09709	39.03472	38.20831
SBC	38.81380	39.31032	40.06315	40.91864	41.29783	40.92030

4.4 Cointegration

The Johansen-Juselius test is used to test for cointegrationg long run relationships among the variables that are I(1). Based on 5% level of significance, both the trace and maximum eigenvalue statistics reveals that GDP per capita, FDI Inflows and Exports has at least three cointegrating relationship.

Table 6: Results for Johansen-Juselius test			
Hypothesis GDP per capita, FDI Inflows per capita, Exports			
		Trace test	
H_{0}	H_1		
r = 0	$r \ge 1$	56.78016**	
$r \leq 1$	$r \ge 2$	21.41350**	
$r \le 2$	r = 3	5.422743**	
		Maximum eigenvalue test	
H_0	H_1		
r = 0	r = 1	35.3665**	
$r \leq 1$	r = 2	15.99076**	
$r \le 2$	<i>r</i> = 3	5.422743**	

4.5 VECM

The VECM approach could also differentiate between short and long run Granger causality among variables. When variables are cointegrated, then the short run deviations from the long run equilibrium will feedback on the changes in the dependent variable in order to move towards the long run equilibrium. The chisquare of the Wald Statistics of the differenced explanatory variables could indicate the short-term causal effects, while the long run causal relationship is determined through the significance of the t-tests of the lagged error-correction term(s). From the VECM temporal causality figure, we can see that at 5% level of significance, there is evidence of a significant short run causal effect from FDI inflows and Exports on GDP as well as a short run effect from GDP and Exports on FDI Inflows. Thus, any economic shocks on Malaysia will affect its GDP and FDI Inflows in the short run. However, at 5%, there is a significant long run causal effect from Exports and GDP to FDI Inflows, while it has a long run causal effect from Exports and FDI Inflows to GDP. This means there is a significant bidirectional long run relationship between FDI Inflows per capita and GDP per capita.

Dependent variable	GDP per capita	FDI Inflows per capita	Exports	ECT STATISTICS
GDP per capita	-	30.13771**	40.89467**	9.62E-05**
FDI Inflows per capita	31.81180**	-	32.60410**	0.002088**
Exports	7.679933	7.1139147	-	0.339454

Table 7: VECM temporal causality

Note: **(*) denotes rejection of the hypothesis at the 5%(10%) level.

5. CONCLUSION

Comparing results of this study to previous studies, the positive significant of explanatory variable exports on FDI Inflows and GDP was supported by the study of Haseeb, Hartani, Bakar, Azam and Hassan (2014). Likewise the positive significant long run relationship from FDI Inflows and GDP per capita is supported by Szkorupova (2014). Noteworthy is the fact that results from previous studies support results of this study.

Every country has its own structured economic system with its own characteristics and features. There are a number of economic indicators that could affect an economy but this paper focuses only on the relationship between Exports, Foreign Direct Investment and Economic growth. The tests carried out show that foreign direct investment plays an important role in the development of the Malaysian economy.

The study recommends that greater export opportunities should be pursued and promoted by policy makers in Malaysia. Increased Investments in the export sector is recommended so that the current economic constraints could be overcome. This means there is a need for the encouragement of exports to promote more FDI to accelerate the economic growth. Hence more focus should be placed on foreign direct investment and exports.

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