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How China's FDI Affects Malaysia's Export Performance?

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Abstract

Malaysia has been experiencing increasing FDI inflows over the past decades with the changing of major contributors. Currently, China is the largest contributor to Malaysia's net FDI inflows, while its contribution was limited in the past decade. This paper aims to provide additional evidence to the literature of the FDI's impact on export performance through disaggregating the FDI and utilizing the quarterly data between Q1:2010 and Q1:2018. The empirical results based on the autoregressive distributed lag (ARDL) approach reveal that China's FDI helps promote Malaysian export activity except for the export of machinery, equipment and parts. The latter is, however, crucial in long-run growth through promoting technology advancement. This implies that China's FDI inflow to Malaysia has a more significant impact on economic performance in the short run. Therefore, Malaysian policymakers need to provide better incentives to attract higher value-added FDI into the country to benefit in the long run.

Keywords: *export, foreign direct investment, Malaysia, China, ARDL*

1. Introduction

The role of foreign direct investment (FDI) in enhancing the host country's economic performance is widely recognized. According to UNCTAD (2016), 78% of changes in global investment policies between 2001 and 2015 are intended to promote and facilitate FDI. Furthermore, Asian developing countries implement nearly half of the liberalization measures.

This trend is particularly apparent among Southeast Asian countries by expecting that FDI will accelerate economic growth and development (Kinuthia and Murshed, 2015), including its ability to promote the host country's exportability. Multinational corporations (MNCs) are believed to have a more remarkable ability to afford the cost of penetrating the foreign market, such as establishing the export network, transport infrastructure, and knowledge of foreign consumers' taste. Thus, FDI inflow enables domestic firms to learn from MNCs and reduce the entry cost in penetrating the foreign market (Crespo and Fontoura, 2007).

Besides its direct impact on the host country's productivity and economic performance, FDI also contributes indirectly to the economic performance by accelerating the internationalization process. Though countries with a greater degree of liberalization were expected to experience better growth (Wade, 2004), freer trade and financial integration are never an easy task but risky and costly. Among all, export activities are the simplest form and lowest cost method of internationalization. Countries usually start with trade activity (i.e., export) and turn to a more complex way later (i.e., FDI) in the internationalization process (Suárez-Porto and Guisado-González, 2014).

Recent studies, however, suggest that focussing only on attracting FDI is insufficient in promoting growth. FDI will help enhance the host country's export performance if it aims to grab the comparative advantages of the domestic market to penetrate the international market (Sharma, 2003). Nevertheless, FDI will offer a limited improvement in industries with a higher technology component to seek cheap labour and focus on only labour-intensive industries. The latter industries are, however, critical for long-run growth (Tang and Zhang, 2016). Knowing whether FDI will promote technology improvement is vital as only specific FDI contains such feature (Ford, Rork and Elmslie, 2008). These arguments are particularly crucial for countries with FDI as a key-driven force for growth like Malaysia. For instance, FDI has significantly promoted Malaysia's development since the colonial period (Kinuthia and Murshed, 2015) and driving the success of industrialization in the 1980s (Ang, 2008). Moreover, its impact on export activity – a channel that FDI promotes growth – is essential for Malaysia as Malaysia's economic growth is driven by export (Baharumshah and Rashid, 1999). Without a better understanding of FDI, Malaysia could only have benefited from FDI in the short run while being stagnant in the long run without the advancement in technology.

There is a rapid expansion of China's outward FDI in recent years due to a conscious policy known as "Go Global". This policy aims to refocus the Chinese economy to be away from the export of cheap commodities but more toward the export of capital. The Chinese government coordinates and guides Chinese investment abroad to ensure the effectiveness of outward FDI, besides encouraging Chinese enterprises under all forms of ownership to invest in overseas operations and expand their international market shares.

Consequently, the growth rates of Chinese outward FDI and other forms of capital are being significantly increased.

Being the first ASEAN country that indicated her interest in participating in the Belt and Road Initiative (BRI), Chinese investments in Malaysia increased drastically after 2013. Before that, Malaysia was a relatively small recipient of Chinese investment, while Singapore was the region's largest recipient (Tham, 2018). As a result, China is now the largest contributor[1] of net FDI inflow in Malaysia, with 14.4% of total net FDI inflow in 2016 compared to only 0.8% in 2008. The investments are spread over many sectors, from infrastructure to manufacturing and services (Gomez et al., 2020; Tham, 2018).

FDI and trade literature argues that FDI also brings in capital and creates employment apart from technology transfer opportunities. Likewise, Chinese investments in Malaysia, particularly in the manufacturing sector, has the same potential as other FDI. However, the extent of technology transferred depends on several factors, including local firms' and workers' absorptive capacities, global and regional strategies of multinationals involved, and the investment policies of the host country (Tham and Siwage, 2020).

Although researchers support that FDI tends to bring benefits mentioned earlier to the host country, Malaysians are concerned about Malaysia's involvement in BRI projects. To be specific, debates concentrate on the risks of investment in large-scale non-manufacturing activities (e.g.: mega infrastructure projects) with loans guaranteed by government funds. Furthermore, the Malaysian domestic market is relatively small, making it less attractive to the world producers. It is believed that China uses Malaysia as a springboard to enter the ASEAN market (Tham, 2018) with a population size of more than 655 million. Another issue that Malaysian businesses, especially SMEs are concerned about is the tendency of China to control the whole supply chain in their outbound investments.

Besides, Malaysia has a lower rate of innovation creation and development of forward and backward linkages than regional peers (Sufian, 2020). Therefore, it is crucial to establish a comprehensive and supportive ecosystem to spur the spillover effects from FDI. Having well-integrated upstream and downstream industries can increase Malaysia's comparative advantage and competitiveness in international markets.

The rapid growth of net FDI inflows into Malaysia, specifically the FDI from China, motivate this study to investigate the relationship between China's FDI and export activities in Malaysia. The study attempts to determine whether the FDI inflow from China to Malaysia can explain the increasing export trend in Malaysia.[2] Nevertheless, the impact of rapid growth in FDI, specifically sourced from China, on promoting economic growth is yet to be revealed. This study intends to provide new insights into the existing literature of FDI–growth nexus.

The remaining of this study is organized as follows: Section 2 reviews some literature related to this study. Section 3 then discusses the methodology and data used in the analysis. The empirical result is presented in Section 4, and the last section concludes.

2. Literature Review

The FDI–growth nexus has been analyzed in many studies. For instance, Gorg and Greenaway (2004) summarized 40 studies in FDI spillovers that ranged from developing countries to developed countries and from as early as the 1960s to the recent 2000s. Several channels are suggested to link the FDI with growth. One of the channels, namely export promotion, stresses the role of FDI in promoting domestic firms' export capacity more through collaboration or imitation of MNCs' practices. Many studies have explored the significance of this channel and suggested it as a critical factor in promoting the host country's productivity, at least among fast-growing countries (Montobbio and Rampa, 2005). Though the direction of causality is inconclusive, it is widely accepted that a significant link between export activities and productivity exists. For instance, some argue that the relationship exists because of "auto-selection", where countries enhance their productivity to promote export. Some, however, found a reverse causality. It is suggested that "learning by exporting" is possible (Suárez-Porto and Guisado-González, 2014), especially among developing countries due to a more significant technological gap with developed countries (Yang and Mallick, 2014). Domestic firms are expected to enhance their post-export performance by receiving feedback and information from international buyers and competitors. Besides, the growth of export in some countries is even greater than their economic growth, e.g. India, mainly because of FDI (Sharma, 2003).

Export promotion effects from FDI inflow, however, does not guarantee a long-run benefit. FDI exerts only limited impact on the domestic market's export activity when the investment aims to capture market share in the domestic economy. In contrast, FDI will promote the domestic market's export activity to capture the comparative advantage presented in the domestic market to penetrate the foreign market. Domestic firms are then exposed to learning from the MNCs regarding foreign market penetration. The impact of FDI in export is therefore ambiguous as it depends on the motive of FDI (Sharma, 2003).

Recent studies found that even a deeper analysis is needed to understand FDI better. Besides whether FDI is grabbing domestic market share or gaining from domestic comparative advantage, it is essential to ensure that the type of comparative advantage is appropriate. Countries with lower labour cost as comparative advantage attract only cheap labour seeking FDI. Though it promotes labour-intensive production, it offers very little help in upgrading technology. However, the latter is crucial in fostering medium and high tech industries' performance, improving the long-run growth (Tang and Zhang, 2016). Thus, opening up the economy to attract FDI is just the first step but ensuring the existence of the "right" FDI is the key to long-run growth. This is particularly crucial for countries with limited domestic innovation or when MNCs dominate the industries, usually in developing countries. FDI is the primary engine behind high-tech export instead of domestic innovation (Braunerhjelm and Thulin, 2008; Sandu and Ciocanel, 2014). This is attributable to the phenomena that although innovation helps in promoting export, its role is varied for innovator and non-innovator countries (Roper and Love, 2002). Domestic innovation is less related to export capacity among developing countries as they tend to import technology from foreign countries (Montobbio and Rampa, 2005).

Recent studies found that outward FDI from China affects the host countries' export performance among the FDI source countries. For example, Timini and El-Dahrawy Sánchez-Albornoz (2019) suggested that FDI from China stimulates trading activities, productivity and technology transfer in Latin America. Meanwhile, Ha (2019) reported that Chinese FDI in Vietnam focuses on export-oriented sectors, leading to more robust export performance. Nevertheless, the latter study also highlighted that FDI from China could lead to overexposure to risks, pollution and transfer pricing.[3] This positive linkage between Chinese FDI and host countries' trade performance is also found among EU countries and Western Balkan countries (Jacimovic et al., 2018; Ma et al., 2019) and non-EU countries (Abeliansky and Martínez-Zarzoso, 2019). On the other hand, Wu and Chen (2021) examined the implication of China's outward FDI on the export and import intensity between China and 64 Belt and Road countries. Overall, the export intensity has demonstrated a negative sign while the import intensity shows the opposite sign. The results, however, are inconsistent when the sample is grouped according to income level.

These findings are vital for Malaysia. On the one hand, Malaysia relies heavily on FDI in promoting growth, especially during the industrialisation process in the 1980s (Ang, 2008). Therefore, both short-run and long-run effects of FDI are always a concern for Malaysian policymakers. On the other hand, a relatively lower wage rate attracted FDI to Malaysia in earlier years (Ismail and Yussof, 2003). However, medium and high-tech industries could have limited gains from the FDI inflow. Besides, the major contributor of FDI in Malaysia also changed in recent years. China is now the largest contributor of net FDI inflows. The Malaysian government is welcoming such a change with the expectation to benefit from China's Belt and Road initiative. For instance, Malaysia tries to develop itself as an offshore renminbi centre in trade, investment and financing. Malaysia is the second country in Southeast Asia (after Singapore) to launch the renminbi cross-border settlement scheme in 2009 (Malaysia, 2016). Therefore, a question arises: can Malaysia's export activity benefit from the FDI, particularly from China, in the long run?

By looking at the impact of FDI inflows in Malaysia, specifically sourced from China, on Malaysian export performance, this study is expected to contribute to the current literature gap by providing a deeper analysis of the relationship between FDI and export activities.

3. Methodology

This study employs a model similar to others, e.g. Sharma (2003), in examining the impact of FDI on export activities. However, although export activities will be affected by foreign demand and domestic supply (Sharma, 2003), this study focuses on technology transfer. Thus, we employ the domestic supply function as follows:

$$X_t = \alpha + \beta_1 FDI_t + \beta_2 INF_t + \beta_3 TOT_t + \varepsilon \quad (1)$$

where X is the total export, FDI is the foreign direct investment inflow, INF is the infrastructure facilities, TOT is the terms of trade. Foreign direct investment inflow is used to capture the impact of technology spillovers as proposed in the literature (Azman-Saini, Baharumshah and Law, 2010; Durham, 2004; Tee, Azman-Saini and Ibrahim, 2018) to consider the FDI influence on economic growth (Crespo and Fontoura, 2007; Greenaway, Sousa and Wakelin, 2004).

In order to examine the specific impact of China's FDI on Malaysia's different categories of export, equation (1) is extended to three equations as below:

$$X_t = \alpha + \beta_1 ChinaFDI_t + \beta_2 INF_t + \beta_3 TOT_t + \varepsilon \quad (2)$$

$$XManu_t = \alpha + \beta_1 ChinaFDI_t + \beta_2 INF_t + \beta_3 TOT_t + \varepsilon \quad (3)$$

$$XMac_t = \alpha + \beta_1 ChinaFDI_t + \beta_2 INF_t + \beta_3 TOT_t + \varepsilon \quad (4)$$

where X is the total export, $XManu$ and $XMac$ are the gross export of higher technology products, i.e. gross export of manufactured product and gross export of machinery, equipment and parts, as proposed by Coe, Helpman and Hoffmaister (1997). $ChinaFDI$ is the foreign direct investment inflow from China. Equations (2), (3) and (4) will capture the impact of China's FDI on Malaysia total export, the export of manufactured products and the export of machinery, equipment and parts, respectively.

The empirical study of this paper is conducted using quarterly data for Malaysia over 2010:Q1–2018:Q1 as there is a significant increment of

China's FDI in Malaysia during this period. Therefore, the export performance (including gross exports, gross export of manufactured product, gross export of machinery, equipment and parts) is considered a dependent variable in the empirical regression.

A positive link is expected between export performance and infrastructure facilities, represented by government spending on the economic sector, as its efficiency determines the cost (Sharma, 2003). On the other hand, the terms of trade are expected to promote export performance due to better incentives for export from higher export price (Sharma, 2003; Vianna, 2016). Nevertheless, the relationship varies on the terms of trade as a positive relationship exists only with the past terms of trade. In contrast, a negative relationship exists when the current or future terms of trade is in the model (Backus, Kehoe and Kydland, 1994).

FDI inflows, the total FDI from a specific source (i.e. China), are the variables of interest in this paper and proxied by the net FDI inflow in Malaysia. All of the above data are sourced from various Bank Negara Malaysia publication issues, Monthly Highlights and Statistics except terms of trade drawn from the Department of Statistics Malaysia.

The autoregressive distributed lag (ARDL) model introduced by Pesaran, Shin and Smith (2001) is employed in this paper due to several advantages. Firstly, it does not restrict that all data to have the same order of integrations. Thus, it is applicable for regressors of the I(0) or I(1) order of cointegration (Pesaran and Pesaran, 1997). Furthermore, endogeneity is also less likely a problem with the ARDL model since it is free from residual correlation. Thus, estimation is possible even when the explanatory variables are endogenous (Harris and Sollis, 2003). Besides, the true parameters produced are consistent with the small sample size (Jalil, Mahmood and Idrees, 2013), which is relevant for this paper with limited observations of 32 quarters.

ARDL framework from equations (1), (2), (3) and (4) are as follows:

$$\Delta X_t = \delta_0 + \sum_{i=1}^{p} \delta_1 \Delta X_{t-i} + \sum_{i=1}^{p} \delta_2 \Delta FDI_{t-i} + \sum_{i=1}^{p} \delta_1 \Delta INF_{t-i} + \sum_{i=1}^{p} \delta_1 \Delta TOT_{t-i} + \gamma_1 X_{-1} + \gamma_2 FDI_{t-1} + \gamma_3 INF_{t-1} + \gamma_4 TOT + \varepsilon_t \quad (5)$$

$$\Delta X_t = \delta_0 + \sum_{i=1}^{p} \delta_1 \Delta X_{t-i} + \sum_{i=1}^{p} \delta_2 \Delta ChinaFDI_{t-i} + \sum_{i=1}^{p} \delta_1 \Delta INF_{t-i} + \sum_{i=1}^{p} \delta_1 \Delta TOT_{t-i} + \gamma_1 X_{-1} + \gamma_2 ChinaFDI_{t-1} + \gamma_3 INF_{t-1} + \gamma_4 TOT + \varepsilon_t \quad (6)$$

$$\Delta XManu_t = \delta_0 + \sum_{i=1}^{p} \delta_1 \Delta X_{t-i} + \sum_{i=1}^{p} \delta_2 \Delta ChinaFDI_{t-i} + \sum_{i=1}^{p} \delta_1 \Delta INF_{t-i} + \sum_{i=1}^{p} \delta_1 \Delta TOT_{t-i} + \gamma_1 X_{-1} + \gamma_2 ChinaFDI_{t-1} + \gamma_3 INF_{t-1} + \gamma_4 TOT + \varepsilon_t \quad (7)$$

$$\Delta XNoneManu_t = \delta_0 + \sum_{i=1}^{p} \delta_1 \Delta X_{t-i} + \sum_{i=1}^{p} \delta_2 \Delta ChinaFDI_{t-i} + \sum_{i=1}^{p} \delta_1 \Delta INF_{t-i} + \sum_{i=1}^{p} \delta_1 \Delta TOT_{t-i} + \gamma_1 X_{-1} + \gamma_2 ChinaFDI_{t-1} + \gamma_3 INF_{t-1} + \gamma_4 TOT + \varepsilon_t \quad (8)$$

where $\mathcal{E}$ is the white noise error term and Δ is the first difference operator.

An F-test will first be conducted to analyse the joint significance between the variables with the null hypothesis of no cointegration (H0: $\gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = 0$) against alternative hypothesis (H_A: $\gamma_1 \neq \gamma_2 \neq \gamma_3 \neq \gamma_4 \neq 0$). The computed F-statistic is then compared with the upper and lower critical values from Narayan (2005) instead of Pesaran et al. (2001) as the former is specifically for smaller sample data (Alhassan and Fiador, 2014). The null hypothesis will be rejected if the computed statistic exceeds the upper critical bound. In contrast, the null hypothesis cannot be rejected if the computed F-statistic is below the lower bound. At the same time, the cointegration test is inconclusive if the statistic falls between the bounds.

If a cointegration relationship is found, the long-run elasticities can be calculated from the respective lagged variables divided by the lagged dependent variable. Short-run elasticities are represented by the first differenced variables in the estimated unrestricted error correction model (UECM) (Hoque & Yusop, 2010). Several diagnostic and stability tests will be conducted to evaluate the robustness of the model.

The descriptive data statistics including the maximum values, minimum values, mean and standard deviation are presented in Table 1. In addition, this paper transforms all the data into their natural logarithm form to enable the capture of the variables' elasticities (Hoque and Yusop, 2010).

Table 1 Descriptive Statistics

	Max	Min	Mean	SD
X	12.146170	12.409590	11.963820	0.121560
XManu	11.893910	12.213500	11.695760	0.155935
XMac	8.914827	9.251417	8.542315	0.229464
FDI	9.293719	9.863754	8.511318	0.298091
ChinaFDI	6.597819	8.120798	0.146643	1.312645
INF	8.003397	8.895884	7.400246	0.378357
TOT	4.743576	4.887309	4.654075	0.045205

Notes: *X*, *Xm*, *Xxm*, *FDI*, *ChinaFDI*, *INF* and *TOT* are gross total export, gross export of manufactured product, gross export of machinery, equipment and parts, total net FDI inflow, net FDI inflow from China, infrastructure facilities and terms of trade, respectively.

4. Empirical Results

Although ARDL is applicable for regressors of I(0) or I(1) order of cointegration, it may not be able to handle the data with I(2) or beyond. Therefore, this paper is applying two stationary tests, namely, the Augmented Dickey-Fuller (ADF) test and Philip-Perron (PP) test, to ensure the stationary

Table 2 Unit Root Tests

	ADF		PP	
	Intercept	Intercept & Trend	Intercept	Intercept & Trend
		Level		
X	-0.7627	-2.7153	0.05933	-2.6992
XManu	-0.1878	-2.7604	0.7195	-2.5804
XMac	-0.9808	-3.6950**	-0.6846	-3.5123
FDI	-6.4734***	-6.7385***	-6.4974***	-7.7436***
ChinaFDI	-4.5098***	-9.4948***	-4.5676***	-5.5583***
INF	-5.3210***	-5.3847***	-5.3350***	-5.3877***
TOT	-2.7967	-3.3997	-4.3717***	-4.4702***
		First Difference		
X	-5.6395***	-4.8181***	-9.3203***	-9.6698***
XManu	-6.0222***	-1.1170	-7.6165***	-10.6819***
XMac	-7.4837***	-7.3356***	-15.8740***	-15.6646***
FDI	-3.6262**	-5.8071***	-24.8637***	-33.1693***
ChinaFDI	-5.5553***	-5.4287***	-26.5261***	-25.8061***
INF	-10.8510***	-10.7266***	-12.8399***	-12.6017***
TOT	-6.9733***	-7.0312***	-13.3686***	-16.8089***

Notes: *X*, *XMac*, *XManu*, *FDI*, *ChinaFDI*, *INF* and *TOT* are gross total export, gross export of manufactured product, gross export of machinery, equipment and parts, total net FDI inflow, net FDI inflow from China, infrastructure facilities and terms of trade, respectively. The numbers shown are t-statistics. *** and ** represent 1% and 5% level of significance, respectively.

level of data. Table 2 shows that none of the data is cointegrated of order 2, [I(2)] or above except for XManu. XManu is insignificant for the equation of intercept and trend at the first difference in the ADF test. Nevertheless, it is significant under the PP test, and thus this paper considers the variable is cointegrated of order 1. The results, therefore, justify that the data is suitable to apply the ARDL estimator.

The *F*-statistics is then computed and compared with the critical values provided by Narayan (2005), which are more suitable for a smaller sample size than the one provided by Pesaran et al. (2001). This paper first estimates the relationship between FDI and export, and the result is reported in Table 3. Four models have been set up for the analysis purpose. The first model aims to analyze the general impact of total FDI inflows in Malaysia's export activity. Therefore, Model 1 uses total export in Malaysia as the dependent

Table 3 Bound Tests for the Existence of Cointegration

	Model 1	Model 2	Model 3	Model 4
F-statistics	9.0498	9.1722	13.5417	0.2896
			Critical Values	
			Lower	Upper
1% significant level			5.333	7.063
5% significant level			3.710	5.018

Notes: Dependent variables are total export in Model 1 and Model 2, the export of manufactured products in Model 3, the export of machinery, equipment and parts in Model 4. Total FDI inflows are used in Model 1, FDI inflows from China are used in Model 2, Model 3 and Model 4. The critical values are taken from Table 3: Unrestricted Intercept and No Trend (Narayan, 2005).

variable and total FDI inflows as an explanatory variable. The following models are then set up to reveal China's FDI impact on Malaysia's export activity at a different level. Model 2, Model 3 and Model 4 subsequently replace the total FDI with FDI from China with other dependent variables: total export in Model 2, the export of manufactured products in Model 3 and export of machinery, equipment and parts in Model 4.

Except for Model 4, the *F*-statistics from all models are above the upper bound's critical values. These findings imply that the null hypothesis of no cointegration within the models can be rejected for Model 1, Model 2 and Model 3. In other words, a long-run relationship exists in these models. However, there is insufficient evidence to support the impact on the export of machinery, equipment and parts from China's FDI in Malaysia.

The estimated coefficients for the long-run relationship are shown in Table 4. All the models have passed the diagnostic tests, including normality test, auto-correlation test and stability test. The result in Model 1 indicates that the effect of FDI on total export is positive and significant, which is in line with the general belief that FDI led export growth among Asian countries (Majeed and Ahmad, 2007). This paper then disaggregates the FDI by focusing on only FDI from China as shown in Model 2; the result reveals a similar relationship between China's FDI and export activity.

In order to understand better the impact of China's FDI on Malaysia's export, Model 3 and Model 4 replace the dependent variable with the export of manufactured products and export of machinery, equipment and parts, respectively. Model 4 indicates that there is insufficient evidence to suggest China's FDI having a significant impact on Malaysia's machinery and

Table 4 Estimates of the Long-run Coefficients

	Model 1	Model 2	Model 3	Model 4
Dependent Variable	*X*	*X*	*XManu*	*XMac*
FDI	0.9098***			
	(4.8642)			
ChinaFDI		0.2424***	0.2967***	-0.1909
		(8.1626)	(6.9385)	(-0.4947)
INF	0.2746**	0.6517***	0.6920***	-0.2856
	(2.5700)	(7.1221)	(5.7325)	(-0.3205)
TOT	-2.5675***	-1.2153***	-2.1608***	-7.5648
	(-4.6722)	(-3.9168)	(-4.3681)	(-0.7865)
Jacque-Bera	1.4901	0.9379	0.6288	0.0347
Breusch-Godfrey Serial Correlation LM Test	0.1195	1.6590	3.4756	0.9936
Breusch-Pagan-Godfrey Heteroskedasticity Test	0.9170	0.7291	0.7146	0.9154
Ramsey RESET Test	0.5061	0.3747	0.0009	0.2840
CUSUM Test	Stable	Stable	Stable	Stable
CUSUMSQ Test	Stable	Stable	Stable	Stable

Notes: *X*, *XManu*, *XMac*, *FDI*, *ChinaFDI*, *INF* and *TOT* are gross total export, gross export of manufactured products, gross export of machinery, equipment and parts, total net FDI inflow, net FDI inflow from China, infrastructure facilities and terms of trade respectively. *** and ** represent 1% and 5% level of significance respectively. The t-statistics are shown in parentheses.

equipment export. This outcome is not a surprise as no long-run relationship is found in the bound tests in Table 3. This could be because China is upgrading the industries by emphasizing high value-added goods (Ohashi, 2015) and thus offshoring the existing production to countries with investment-friendly policies, e.g. Malaysia (Malaysia, 2016). As a result, China's FDI exerts a limited impact on producing high value-added goods in the host country.

Meanwhile, recent studies in FDI also highlight the importance of host countries' ability to gain from the presence of FDI, e.g. economic freedom (Azman-Saini, Baharumshah, et al., 2010; Tee, Azman-Saini, Ibrahim and Ismail, 2015) and financial development (Azman-Saini, Law, & Ahmad, 2010; Durham, 2004). Possibly, Malaysia did not possess sufficient "absorptive capacities" to meet the threshold. A future study by including the absorptive capacity in the model would help to improve the findings.

The findings of other variables in the models align with previous studies except for Model 4, as indicated by the cointegration test (Table 3). The improvement in the infrastructure facilities does promote export performance as it is expected to reduce the trade cost, especially in developing countries (Portugal-Perez and Wilson, 2012). Meanwhile, a negative relationship is presented between the terms of trade and export performance which is similar to Backus et al. (1994).

A series of diagnosis and stability tests are performed to ensure the reliability of the results. The tests included the Jacque-Bera Normality Test, Breusch-Godfrey Serial Correlation LM Test, Breusch-Pagan-Godfrey Heteroskedasticity Test, Ramsey Reset Test to check the correct functional form and stability, CUSUM and CUSUM square tests for the constancy of coefficient in the models. As a result, the null hypothesis of these models are failed to be rejected by all models and suggested that the long-run coefficients reported are reliable and stable.

Table 5 reports the estimates of the Error Correction Model for the short-run relationship within the models. The significant ECM shows that there is a short-run relationship exists in all models except Model 4. In addition, all

Table 5 Error Correction Model

	Model 1	Model 2	Model 3	Model 4
Dependent Variable	*X*	*X*	*XManu*	*XMac*
FDI	0.003901			
	(0.2566)			
ChinaFDI		0.0091**	0.0068	-0.0094
	(2.7819)	(1.6335)	(-0.9592)	
INF	0.0081	-0.0250	-0.0256	-0.0141
	(0.3416)	(-1.3561)	(-1.0738)	(-0.3936)
TOT	0.0648	-0.4257	-0.4060	0.2714
	(0.3568)	(-1.7751)	(-1.4838)	(0.6175)
ECM(-1)	-0.3898***	-0.5146***	-0.3695***	-0.0492
	(-3.6730)	(-5.2213)	(-3.9048)	(-0.6969)

Notes: *X*, *XManu*, *XMac*, *FDI*, *ChinaFDI*, *INF* and *TOT* are gross total export, gross export of manufactured products, gross export of machinery, equipment and parts, total net FDI inflow, net FDI inflow from China, infrastructure facilities and terms of trade respectively. *** and ** represent 1% and 5% level of significance respectively. The t-statistics are shown in parentheses.

variables show an insignificant impact on export performance in the short run except China's FDI in Model 2. In short, the results indicate that China's FDI is positively linked with Malaysia's total export and export of manufactured products. The latter, however, is only presented in the long run.

5. Conclusion

FDI is widely recognized for its impact on economic growth, affecting export performance as one of the major channels. Malaysia is a classic example of this hypothesis. Many have found that export-led growth and FDI inflows are among the main growth engines in Malaysia. Nevertheless, Malaysia had experienced a change in terms of major FDI contributors in recent years. For instance, China is now the largest contributor to FDI inflows in Malaysia. However, it contributed little a decade ago.

This paper aims to investigate the influence of this change in major FDI contributor in Malaysia towards the export performance and contribute to the current literature of FDI's impact. Specifically, this paper assessed if China's FDI affects export activities in Malaysia and, if it does, whether such influence is on the export of more excellent technological components or the opposite. Furthermore, this paper takes a further step to achieve the objective than conventional analysis by disaggregating both the FDI and export activity.

Several main findings can be summarized. First of all, FDI is positively linked with Malaysia's exports, as suggested in the literature. Secondly, China's FDI is exerting a similar effect which is promoting export performance. This effect is presented for both the total export and a narrower export channel, the export of manufactured products containing more excellent technological components. Thirdly, there is insufficient evidence to support the impact of China's FDI on the export of machinery, equipment and parts, which contains even greater technological components.

The following policy implications are proposed from the results. First, the study finds that there is a limited influence of China's FDI on the export of high technology products, even though China's FDI promotes overall export activities in Malaysia. Threfore, the investment policies in Malaysia would need to be improved in order to benefit better from the FDI. Secondly, current investment policies should integrate the efforts of attracting FDI of higher value-added products. It is expected that the FDI inflows with greater technological components are able to benefit the economic performance in both the short run and long run through improving the productivity and innovation performance of the host country.

Notes

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1. Excluding SAR of Hong Kong.
2. Growth by 56% from 153.37 billion in 2000 to 240.499 billion USD (constant at 2010 price) in 2016 (adopted from *World Development Indicators*).
3. Ha (2019) explained that transfer pricing behaviour is found among foreign companies. Among the behaviour categorized as transfer pricing is to overstate the investment values and input prices. The host countries will suffer from ineffective FDI and lower tax income.

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