FOREIGN DIRECT INVESTMENT, TECHNOLOGY ACCUMULATION AND DOMESTIC INVESTMENT IN MALAYSIA

By

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July 2018

Chairman : **Professor Zulkornain bin Yusop, PhD**
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The Malaysian economy progressed dynamically over time due to the vibrant industrial policy which focused on expanding the manufacturing sector and increasing the inward foreign direct investment (IFDI). This contributed towards technology accumulation in the domestic manufacturing sector and enabled firms to become part of global supply chain leading to higher outward foreign direct investment (OFDI) and ameliorating domestic investment. However, after Asian financial crisis in 1997, the economic growth rate decelerated due to the sluggish pace of technology accumulation from IFDI. Horizontal and vertical linkages with the foreign firms in the Malaysian manufacturing sector weakened and the manufacturing sector specific IFDI growth rate itself witnessed a significant fall in the region. Since technology accumulation leads to higher OFDI, limited increase in that factor may have been responsible for lower OFDI that slithered away inauspiciously since 2005 particularly from the manufacturing sector and overall from all sectors since 2014 further exacerbating the state of affairs. Other issues such as counterproductive macroeconomic situation reflected in slow economic growth rate, high inflation and falling trade surplus, and decreasing institutional quality due to higher crime rates and corruption, also could have played their part in restricting OFDI from Malaysia. Higher OFDI can have a positive impact on domestic investment but due to stagnant local investment as percentage of GDP since Asian financial crisis in 1997, it .appears that it did not complement OFDI. Encumbered with such possibilities and issues, Malaysian policymakers shall find it more challenging to gain higher technology transfer from IFDI, raise cross border investments and crowd-in domestic investment from higher OFDI which can also be a hurdle in the aim of achieving a high income nation status by the year 2020. Therefore, this study analyzes the following objectives which can help in addressing the issues and in devising more effective policies. Firstly, it estimates the impact of IFDI related horizontal, backward and forward linkages on technology accumulation of the domestic manufacturing sector. It is a panel data analysis and based on the diagnostics, fixed effects estimator has been employed. Secondly, it investigates the factors that can generate higher OFDI and thirdly, it analyzes the impact of OFDI on domestic investment. For fulfilling second and third objectives,

Autoregressive Distributed Lag (ARDL) methodology has been utilized. The analyses reveal that the technology accumulation of the domestic manufacturing sector falls due to weak horizontal and backward linkages whereas forward linkages significantly increase it. Technology accumulation, trade surplus, appreciation of Ringgit Malaysia (RM) and GDP contribute to high OFDI. Institutional factors such as high law and order, low corruption and low economic risk rating also significantly increase OFDI. Empirical outcome also shows that OFDI crowds-out domestic investment in Malaysia. Such outcomes imply that the policymakers should primarily increase technology accumulation by focusing on high-end tasks across all sectors, accelerating research and development (R&D) and developing domestic suppliers, especially in the import-competing sector. Government support and domestic spin-offs by international Malaysian-based firms are also essential in this regard. Besides, more IFDI should be channeled towards downstream sector as that would provide more growth opportunities to local suppliers. Such policies can improve horizontal and backward linkages. To raise OFDI, the policies should yet again focus on technology accumulation, increase high value added exports and reduce hi-tech import burden pacing up trade surplus. Counteracting corruption and crime rate can also accelerate OFDI. Increasing technology-seeking OFDI and domestic presence in the upstream sector, especially in subsectors where foreign presence is higher such as pharmaceuticals, medical devices and electrical and electronics (E&E), shall not only increase OFDI but also crowd-in domestic investment providing opportunities for local suppliers to become part of the supply chain.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah.

FOREIGN DIRECT INVESTMENT, TECHNOLOGY ACCUMULATION AND DOMESTIC INVESTMENT IN MALAYSIA

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Ekonomi Malaysia berkembang secara dinamik dari semasa ke semasa disebabkan oleh dasar perindustrian yang memberi tumpuan kepada pertumbuhan sektor perkilangan dan meningkatkan kemasukan pelaburan langsung asing (IFDI). Ini menyumbang ke arah pengumpulan teknologi dalam sektor perkilangan domestik dan membolehkan firma menjadi sebahagian daripada pengeluar dalam rantaian global seterusnya membawa kepada pelaburan langsung luar negeri (OFDI) yang lebih tinggi. Walaubagaimanapun, selepas krisis kewangan Asia pada tahun 1997, kadar pertumbuhan ekonomi merosot disebabkan oleh kemasukan pelaburan langsung asing yang rendah serta kadar pengumpulan teknologi yang perlahan. OFDI khusus bagi sektor perkilangan merosot sejak tahun 2005 dan OFDI keseluruhan mengalami kejatuhan drastik selepas 2014.Ini memberi cabaran yang besar bagi pembuat dasar di Malaysia untuk mencapai status negara berpendapatan tinggi menjelang tahun 2020. Oleh yang demikian, kajian ini dirangka melalui beberapa objektif berikut. Pertama, ia menganggarkan kesan IFDI yang berkaitan dengan rantaian mendatar, ke belakang dan ke hadapan terhadap pengumpulan teknologi bagi sektor perkilangan domestik. Kaedah data panel statik iaitu penganggaran kesan tetap (fixed effects) digunakan dalam analisis ini. Kedua, menyiasat faktor-faktor yang boleh mendorong kepada OFDI yang lebih tinggi disemua sektor dan ketiga, menganalisis impak OFDI keatas pelaburan domestik. Kaedah Lat Tertabur Autoregresif (*ARDL)* digunakan bagi analisis objektif kedua dan ketiga. Analisis ini menunjukkan bahawa pengumpulan teknologi bagi sektor perkilangan domestik jatuh disebabkan oleh rantaian mendatar dan ke belakang yang lemah. OFDI meningkat disebabkan oleh KDNK yang tinggi, lebihan perdagangan, naik nilai Ringgit Malaysia (RM) dan pengumpulan teknologi. Faktor institusi seperti undang-undang dan peraturan yang ketat, korupsi yang rendah dan risiko ekonomi yang rendah turut menyumbang kepada OFDI yang lebih tinggi. Hubungan antara OFDI dan pelaburan domestik adalah negatif dan signifikan di Malaysia. Kesimpulan ini menunjukkan bahawa pembuat dasar perlu memberi tumpuan kepada pembangunan pembekal domestik, terutamanya dalam sektor yang bersaing dengan import, supaya rantaian mendatar dan ke belakang dapat ditambah baik. Ini boleh dilakukan melalui sokongan kerajaan dan komitmen syarikat Malaysia

yang beroperasi di peringkat antarabangsa. Di samping itu, penyaluran lebih banyak IFDI ke arah sektor hiliran adalah penting kerana ia akan memberi lebih banyak peluang kepada pembekal tempatan untuk menjadi sebahagian daripada rantaian penawaran. Untuk meningkatkan OFDI, dasar harus menekankan kepelbagaian struktur eksport dalam aktiviti nilai tambah yang tinggi supaya lebihan perdagangan dapat ditingkatkan. Menangani korupsi dan kadar jenayah meningkatkan kualiti institusi juga dapat meningkatkan OFDI. Meningkatkan OFDI dan kehadiran domestik dalam sektor huluan industri perkilangan, terutamanya dalam subsektor yang mana kehadiran pelaburan asing lebih tinggi seperti farmaseutikal, peralatan perubatan serta elektrik dan elektronik (E & E), bukan sahaja dapat meningkatkan OFDI tetapi juga asakan masuk pelabur domestik seterusnya menyediakan peluang untuk pembekal tempatan menjadi sebahagian daripada rantaian bekalan.

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Declaration by Members of the Supervisory Committee

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- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) are adhered to.

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
ADF	Augmented Dicky-Fuller
AEC	ASEAN Economic Community
AIC	Akaike Information Criterion
AMS	ASEAN Member States
APBN	Asia-Pacific Biotech News
ARCH	Autoregressive Conditional Heteroskedasticity
ARDL	Autoregressive Distributed Lags
ASEAN	Association of Southeast Asian Economies
ASMI	Annual Survey of Manufacturing Industries
BD4	Benchmark Definition of Foreign Direct Investment
BNM	Bank Negara Malaysia
BPM6	Balance of Payments and International Investment Position Manual
BRICS	Brazil, Russia, India, China and South Africa
C4	Center to Combat Corruption and Cronyism
CARI	CIMB ASEAN Research Institution
CCR	Canonical Cointegrating Regression
CECs	Central European Countries
CECF	Conditional Error Correction Forms
CSD	Cross-Sectional Dependence
DEA	Data Envelopment Analysis
DOLS	Dynamic OLS
DOSM	Department of Statistics, Malaysia
E&E	Electrical & Electronics
ECI	Economic Complexity Index

ECM	Error Correction Model
EOI	Export Oriented Industrialization
EPF	Employees Provident Fund
'EPU	Economic Planning Unit
EPZ	Export Processing Zones
ESI	Engineering Support Industry
ETP	Economic Transformation Programme
EU-FTA	European Union Free Trade Agreement
FTA	Free Trade Agreements
FMOLS	Fully Modified OLS
GCC	Gulf Cooperation Council
GCR	Global Competitiveness Report
GDP	Gross Domestic Product
GGDC	Groningen Growth and Development Centre
GLCs	Government Linked Corporations
GLS	Generalized Least Squares
GNI	Gross National Income
GNP	Gross National Product
GPN	Global Production Network
GSP	Global Supplier Program
HHI	Herfindahl-Hirschman Index
HICOM	Heavy Industries Corporation
HIP	Heavy Industrial Policy
H-O	Heckscher-Ohlin
ICT	Information and Communication Technology
IDP	Investment Developing Path
ICRG	International Country Risk Guide

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IFDI	Inwards Foreign Direct Investment
ILP	Industrial Linkage Program
IMF	International Monetary Fund
IMP	Industrial Master Plan
IND	Industries
IO	Input-Output
IPA	Investment Promotion Act
ISI	Import Substitution Industrialization
ISS	Import Substitution Strategy
IT	Information Technology
LM	Lagrangian Multiplier
LNG	Liquefied Natural Gas
LSDV	Least Squares Dummy Variable
M&As	Mergers and Acquisitions
M&E	Machinery and Equipment
MACC	Malaysian Anti-Corruption Commission
MATRADE	Malaysia External Trade Development Corporation
MFP	Multi-Factor Productivity
MIDA	Malaysian Investment Development Authority
MIER	Malaysia Institute of Economic Research
MISC	Malaysian Industrial Standard Classification
MNCs	Multinational Companies
MPC	Malaysian Productivity Corporation
MSC	Multimedia Super Corridor
MSME	Micro, Small and Medium Sector
MyNDS	Malaysian National Development Strategy
NEAC	National Economic Advisory Council

N.E.C.	Not Elsewhere Classified
NEM	New Economic Model
NEP	New Economic Policy
N.E.S.	Not Elsewhere Stated
NIEs	Newly Industrialized Economies
NKEA	National Key Economic Areas
NOI	Net Outward Investment
OBM	Own Brand Manufacturing
ODM	Own Design Manufacturing
OECD	Organization of Economic Co-operation and Development
OEM	Own Equipment Manufacturing
OFDI	Outward Foreign Direct Investment
OL-EO	Outward looking, Export oriented
OLI	Ownership, Location and Internalization
OLS	Ordinary Least Squares
OPEC	Organization of the Petroleum Exporting Countries
PC	Personal Computers
PhAMA	Pharmaceutical Association of Malaysia
PLC	Public Limited Company
POLS	Pooled Ordinary Least Squares
PP	Phillips-Perron
PPI	Producer Price Index
PPP	Purchasing Power Parity
PSDC	Penang Skills Development Center
R&D	Research and Development
RCEP	Regional Comprehensive Economic Partnership
RM	Ringgit Malaysia

SITC	Standard Industrial Trade Classification
SMEs	Small and Medium Enterprises
SOE	State-Owned Enterprises
SRI	Strategic Reform Initiatives
TFP	Total Factor Productivity
TFPG	Total Factor Productivity Growth
TNCs	Transnational Corporations
TPPA	Trans-Pacific Partnership Agreement
TVET	Technical and Vocational Education and Training
UN Comtrade	United Nations Commodity Trade Statistics Database
UNCTAD	United Nations Conference on Trade and Development
VA	Real Value Added
VDF	Vietnam Development Forum
VIF	Variance Inflation Factors
WDI	World Development Indicators
WIPO	World Intellectual Property Organization

CHAPTER 1

INTRODUCTION

1.1 An Overview

Inwards foreign direct investment (IFDI) in the manufacturing sector is known to facilitate technology transfer in the local economy from foreign to local firms which leads to higher domestic technology accumulation (Hymer, 1976; Kindleberger, 1984; Wang 1990; Walz, 1997; Javorcik, 2010). As domestic technology accumulation piles up, it increases the abilities of the domestic firms over time. Among other factors in the economic theoretical literature, such as favorable macroeconomic environment and strong institutional quality, higher technology accumulation from IFDI also enables local firms to engage in outward foreign direct investment (OFDI) (Mishra and Daly, 2007; Bhuiyan, 2011; Torrecillas and Alvarez, 2013; Si, 2014). Rising OFDI in turn has the potential to crowd-in domestic investment (Stevens and Lipsey, 1992; Goedegebuure, 2006). For instance, if the foreign subsidiaries of local Multinational Companies (MNCs) are dependent on domestic suppliers for provision of intermediate inputs, OFDI and domestic investment can increase together. Building up this chain of growth, which begins with increasing IFDI in the manufacturing sector and culminates at higher domestic investment at the macroeconomic level, has the potential to perk up the economic environment of a rapidly developing economy.

It is thus evident that in the case of Malaysia, which is a rapidly developing economy and aims to be in the league of high income nations by 2020 (Economic Planning Unit, EPU, 2016), strengthening the chain of growth holds considerable importance. Subsequently, relevant economic analyses on estimation of the impact of IFDI on domestic technology accumulation in the manufacturing sector, on examination of factors that can lead to higher OFDI, such as better macroeconomic environment, technology accumulation and higher institutional quality, and estimation of whether OFDI is crowding-in domestic investment in Malaysia or not can be beneficial for the policymakers. In the presence of gaps in the economic literature with respect to such relationships, this study contributes by filling them up and also helps in paving ways for more effective policymaking. The next section describes the background of the study which comprises of the economic issues in Malaysia related to the chain of growth and is followed by the problem statement, research questions, research objectives and significance of the study.

1.2 Background of the study

Malaysia managed to grow at the economic growth rate of 7 % on average for more than 25 years. Its rapid economic development can be reflected from its Gross Domestic Product (GDP) per capita which grew from USD 790 in 1957 to USD 4400 by 2005 (Commission on Growth and Development, 2008). However, it is seen in Figure 1.1 that the pre Asian financial crisis growth momentum of more than 9 % could not be sustained as the GDP growth rate of Malaysia slowed down after the crisis in 1997 (World

Development Indicators, WDI, 2018). In fact, from 2002 until 2016, the growth rate remained close to 5 % on average. Although the growth rate in 2017 has shown positive trend, the expected growth rate in the subsequent years of 2018 and 2019 is less than 6 % which is the annual average growth rate required between 2016 and 2020 to be in the league of high income nations by 2020 (Kana, 2017). Since weak chain of growth may constitute for the slowdown in economic growth rate, the next three subsections focus on the economic issues that are likely to threaten the technology accumulation from IFDI, the increase in OFDI and the impact of OFDI on domestic investment respectively in Malaysia.
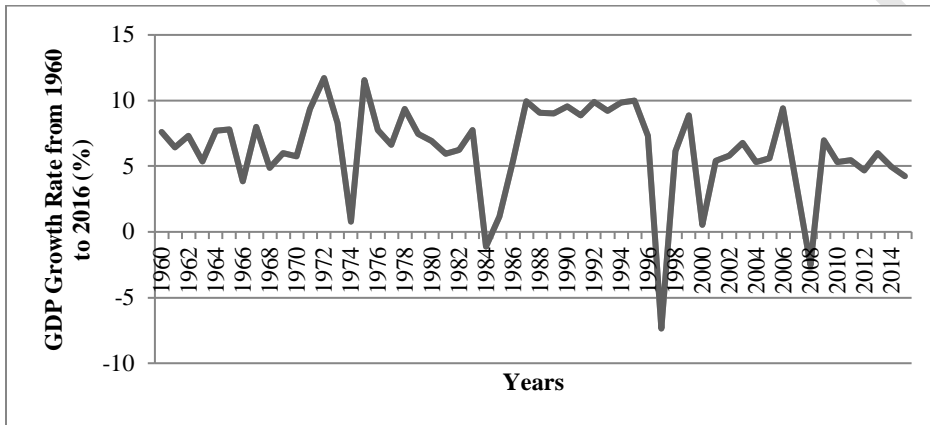
Figure 1.1 : Real GDP Growth Rate in Malaysia
[Source: WDI (2018)]

1.2.1   IFDI and Technology Accumulation

A primary issue in the Malaysian economy has been the lack of significant technology accumulation. One of the indicators of technology accumulation, total factor productivity growth (TFPG), is seen to be diverging away in the negative direction for the local firms (Kam, 2014). It has been argued that East Asian growth miracle in Malaysia has mainly been input driven rather than TFPG driven. The International Monitory Fund (IMF) (Cherif and Hasanov, 2015) reports that in the manufacturing sector of Malaysia, the total factor productivity (TFP) had been 0.05 on average from 2011 to 2014, down from 2.74 on average from 2006 to 2010. Figure 1.2 further shows that Malaysia's TFPG has remained sluggish over time. On comparing it with the economies in the East and South Asian regions, which are also Malaysia's major competitors such as China and India, it can be seen that Malaysia's TFPG has remained lower. The increase in technology accumulation experienced by countries such as India, China and South Korea has been much more significant as compared to Malaysia despite the fact that these economies had analogous economic environment in early 1990s.

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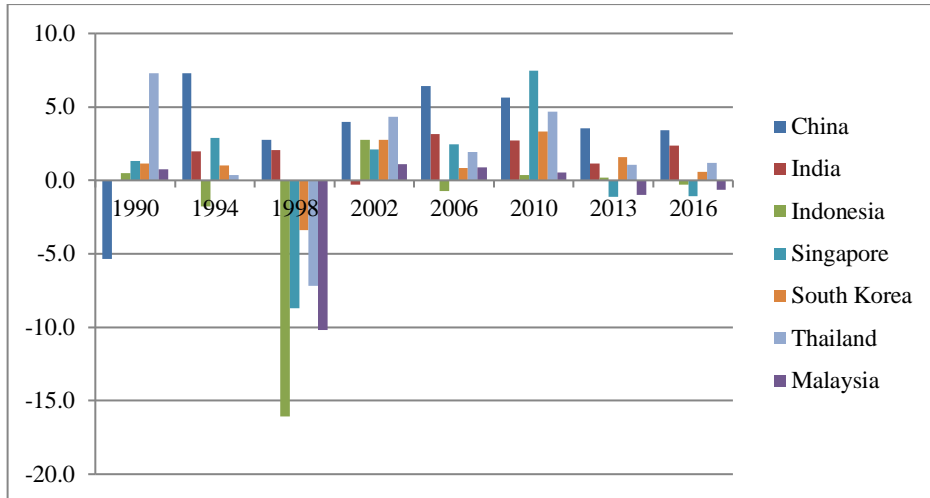
Figure 1.2 : TFPG in Selected Asian Economies
[Source: Total Economy Database, Groningen Growth and Development Centre (GGDC, 2018)]

Another indicator of technology accumulation, the local competitiveness, has also been lacking in Malaysia. The Global Competitiveness Report (GCR, 2017) reveals that with respect to basic requirements, efficiency enhancers, innovation and sophistication, Malaysia ranks 23rd out of 137 countries in competitiveness (GCR, 2017). In technological readiness, which measures the ability of the country to adopt existing technologies for enhancing the productivity and efficiency of the industries and enabling innovation for competitiveness, Malaysia ranks 46th which makes it as one of the weaker pillars of competitiveness for the economy. The trends in availability of latest technology, firm-level absorption and technology transfer from IFDI are also seen to be declining in GCR (2017). Apart from TFPG and competitiveness, Malaysia has not shown favorable trends in other indicators of technology accumulation such as innovation capability and patents granted as well. The global innovation index went down to 42.7 in 2017 from 46 in 2015 ranking Malaysia at 37 out of 127 countries (World Intellectual Property Organization, WIPO, 2018). Malaysia's position improved in institutions, human capital, and infrastructure but slipped in business sophistication, and knowledge, technology and creative output pillars. In addition to that, the local Research and Development (R&D) efforts have been well below than that of China and Newly Industrialized Economies (NIEs), which can be validated by Figure 1.3 that shows total patents granted to Malaysia as compared to the similar set of South and East Asian economies as reported in Figure 1.2. The patents granted are so low comparatively that they are not visible in Figure 1.3. Therefore, for clarity, Figure 1.4 has been shown whereby it can be seen that the local patents have been higher than only Thailand and remain lower than other economies. Furthermore, it can also be deduced from Figures 1.3 and 1.4 that the rate of increase in patents granted to high-income and upper-middle-income economies is much higher than rate at which they are granted to Malaysia. Hence, with inauspicious trends of TFPG, competitiveness, innovation index and patents granted, it can be claimed that technology accumulation has remained limited in Malaysia.

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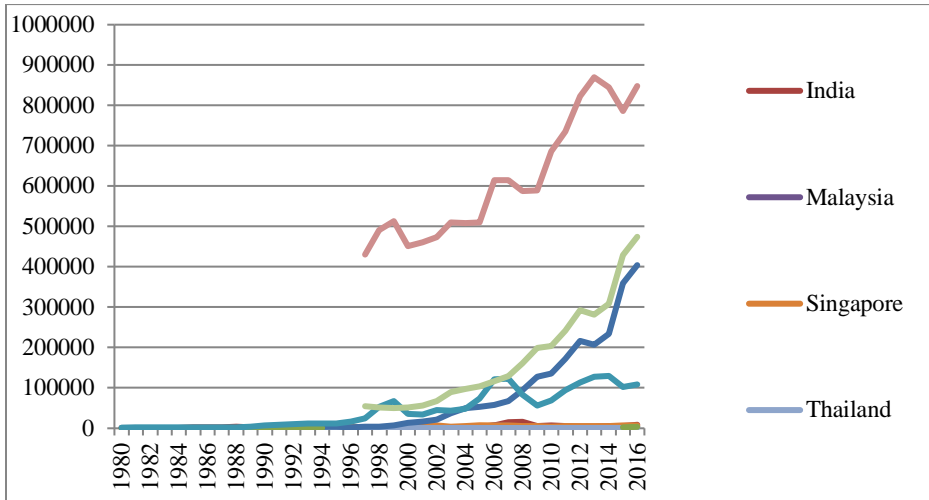
Figure 1.3 : Total Patents Granted
[Source: WIPO (2018)]
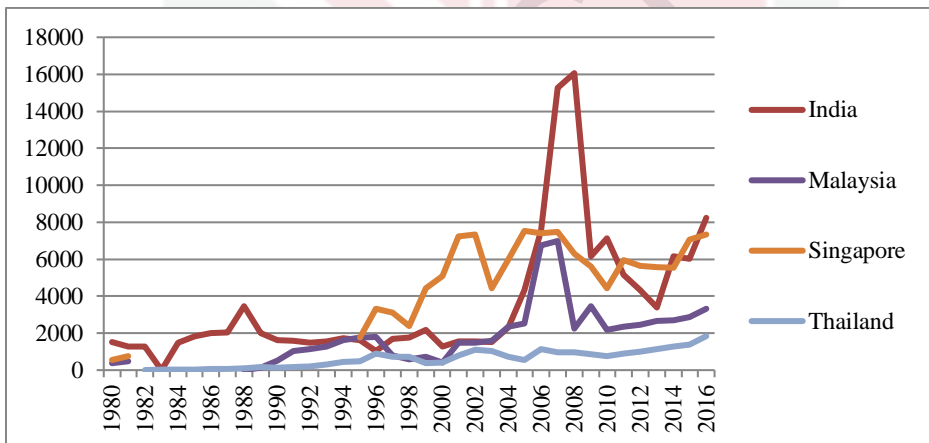
Figure 1.4 : Total Patents Granted
[Source: WIPO (2018)]

Since it has been stated in the theoretical literature (Hymer, 1976; Kindleberger, 1984; Wang 1990; Walz, 1997; Javorcik, 2010) and in the chain of growth explained earlier that IFDI is an important source of technology accumulation, the deceleration in IFDI might be responsible behind such limited technology accumulation. Malaysia had been receiving significant IFDI since 1990 amongst Association of Southeast Asian Nations (ASEAN) (Diaconu, 2014). However, the inflows lost the growth momentum since Asian financial crisis in 1997. As IFDI diverted to East and South Asia to exploit low wages in developing regions such as China and India and to access technology in relatively more developed region such as Singapore, Malaysia's IFDI flows declined

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from USD 8.5 billion in 2007 to USD 1.4 billion in 2009 with one of the lowest IFDI inflows in the ASEAN region in 2009 (United Nations Conference on Trade and Development, UNCTAD, 2018). In Figure 1.5, it can be seen that the rate of increase in IFDI in Malaysia after 1990 is very low as compared to the East and South Asian economies. Figure 1.6 further reflects the slower rate of increase in IFDI as compared to high-income and upper middle-income economies, especially from 1990 to 2010 in the case of latter.
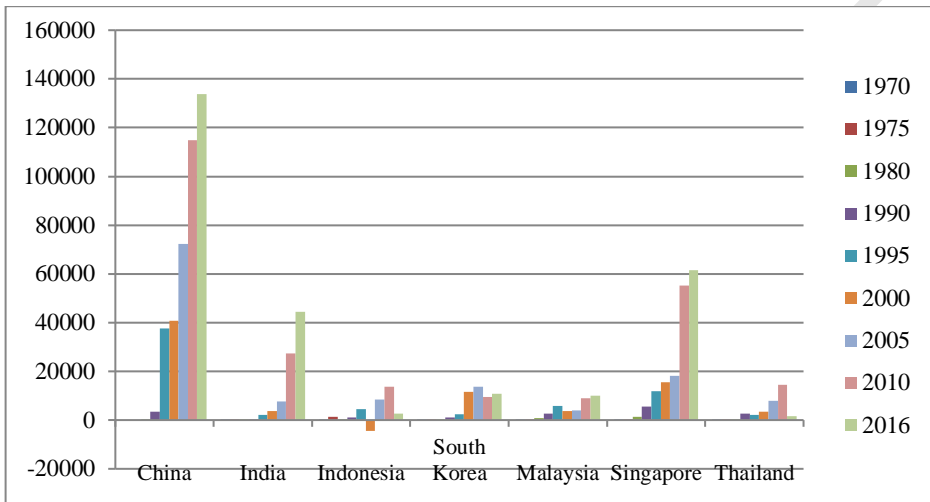
Figure 1.5 : IFDI in Selected Asian Economies
[Source: UNCTAD (2018)]
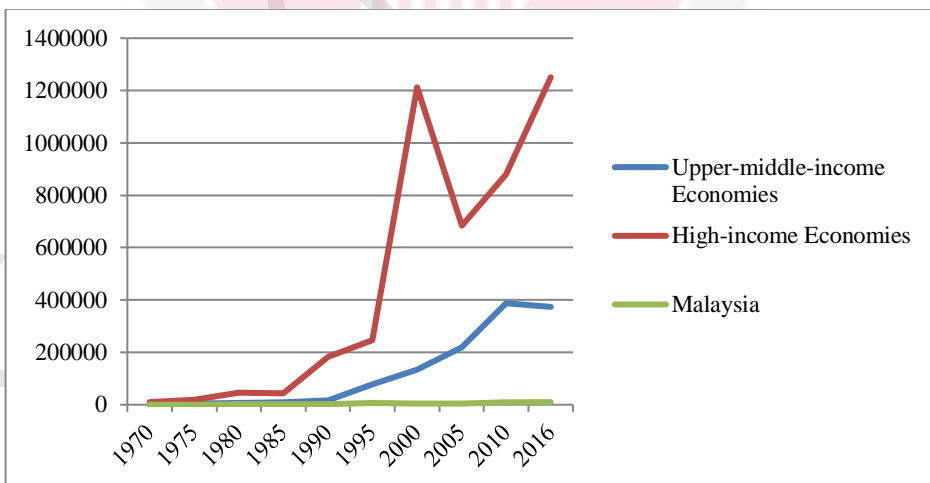
Figure 1.6 : IFDI in Upper middle income and high income Economies and Malaysia
[Source: UNCTAD (2018)]

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The IFDI in Malaysian manufacturing sector has also remained limited. In order to discuss its trend and related issues, it is imperative to understand the various types of IFDI done in the manufacturing sector. The first one is the horizontal IFDI which is done by foreign firms within the same manufacturing industry and is also called intra-industry IFDI. It can lead to higher technology accumulation if domestic firms learn and adapt the novel technologies brought in the local economy by the foreign firms. The competition provided by foreign firms can also lead to higher innovation in the local firms as the latter strive to stay in the market by imitating or innovating thereby increasing their technology accumulation. In Malaysia, horizontal IFDI has not only remained low but has also given tough competition to the local firms. The amount of foreign firms in the manufacturing sector increased from 1569 to 1656 in six years from 2010 to 2015 with an annual average increase of only 1 % to 2 % within the manufacturing industry groups. According to the Economic Census report of 2010 (Department of Statistics Malaysia, DOSM, 2011), the proportion of foreign firms in high value added industry group of 'Electrical and transport equipment' is stated as 21.4 % and their corresponding contribution in aggregate value added is stated as 66.7 %. The Economic Census report of 2015 (DOSM, 2016) shows that the proportion of foreign firms in the same industry group reduced to 21.2 % whereas the proportion of value added increased to a substantial 75.6 %. Such data trends reflect the low level of competitiveness and low participation of local firms in the high value added activities. Another issue for the local firms is that foreign firms occupy considerable market share within various subsectors such as Electrical Components and Electronics (E&E), pharmaceuticals, tobacco and metal products (EPU, 2016). This also has the potential of dampening the impact of horizontal IFDI on technology accumulation as local firms remain in the danger of being displaced by foreign firms.

Another type of IFDI in manufacturing sector is known as vertical IFDI and comprises of backward and forward IFDI. The backward IFDI is done in the downstream sector by the foreign firms and can lead to higher technology accumulation of the local suppliers in the upstream sector if they exploit the opportunity and strive to become part of the supply chain by providing high quality inputs to foreign firms. This phenomenon is known as formation of backward linkages of the foreign firms in the downstream sector with the local firms in the upstream sector. In Malaysia, according to the data published by DOSM (2011), within the high value added category of 'Petroleum, Chemicals, Rubber and Plastics', approximately 44 out of 1192 foreign firms have backward linkages with local suppliers in other industry groups. Likewise, within the category of 'Minerals and Metal Products', the backward linkage is with approximately 164 out of 1298 foreign firms and within the industry group of 'Electronics, Electricity and Transport', the backward linkage of local suppliers in other categories is with approximately only 1.5 firms out of 982 foreign firms. The corresponding values in 2015 (DOSM, 2016), are 47, 174 and 1.5 firms out of 1264, 1368 and 1036 foreign firms respectively. This not only shows slowdown in the rate of increase in backward IFDI in manufacturing sector but also reflects lack of local suppliers in the upstream sectors especially within the subsectors of E&E, chemicals, plastics and transport machinery. Probable issues behind this scenario could be that firstly, supplies needed by the foreign firms may not be available with the local suppliers and secondly, the available local supplies might be of low quality.

The forward IFDI is done in the upstream sector by the foreign suppliers and can lead to higher technology accumulation of the local firms in the downstream sector if the supplies provided are of high quality. This phenomenon is known as formation of forward linkages of the foreign firms in the upstream sector with the local firms in the downstream sector. In Malaysia, according to the data published by DOSM (2011), within the similar high value added category of 'Petroleum, Chemicals, Rubber and Plastics', approximately 182 out of 1192 foreign firms have forward linkages with local firms. Within the category of 'Minerals and Metal Products', the forward linkage is with approximately 397 out of 1298 firms and within the industry group of 'Electronics, Electricity and Transport', the forward linkage is with approximately 298 out of 982 firms. The corresponding values in 2015 (DOSM, 2016), are 200, 414 and 313 firms out of 1264, 1368 and 1036 foreign firms respectively. This shows that although the extent of forward linkages or foreign supplies being sold to local firms is higher than the extent of backward linkages or local supplies being sold to foreign firms, the proportion of foreign firms that have forward linkages with local firms is quite low. This could be because major proportion of the inputs supplied by foreign firms might be purchased by the MNCs located in Malaysia leaving lesser share for the local firms.

The impact of horizontal, backward and forward IFDI on the technology accumulation in the manufacturing sector is also contingent upon the existing technology level of the local firms (Khalifah, Saleh and Adam, 2015). On one hand, if it deviates significantly from frontier technology or it is at low level, it would be more difficult and challenging for the local firms to formulate strong linkages with foreign firms as high deviation reflects low absorptive capacity. Hence, even if the horizontal and vertical IFDI increase, its impact on technology accumulation would dampen due to low capabilities of the local firms. This is also known as 'technology accumulation hypothesis' (Khalifah et al., 2015). On the other hand, Findlay (1978) claimed that technology accumulation from IFDI takes place only if there is high technology gap between local firms and frontier technology. If this gap is low or minimal, then there is no room for technology spillovers and hence, there is less likelihood of technology accumulation from IFDI. This concept is also called 'catching-up hypothesis' (Findlay, 1978). In Malaysia, according to Kam (2014) and Cherif and Hasano (2015), the TFPG of local firms has been falling since 2010. Furthermore, the low rank of Malaysia in technological readiness pillar of competitiveness (GCR, 2017) and low innovation index (WIPO, 2018) show that the existing technology accumulation of local firms is not substantial. This can potentially act as a barrier in technology accumulation from all types of IFDI under 'technology accumulation hypothesis' or be a source of opportunity for local firms to gain from IFDI under 'catching-up hypothesis'. It remains to be seen that which of these hypothesis is relevant under respective types of IFDI in Malaysian manufacturing sector.

Based on such issues, it can be argued that with limited increase in existing technology of the local firms in the manufacturing sector, slowdown in the manufacturing sector-specific IFDI and seemingly small extent of horizontal IFDI and vertical linkages with foreign firms, IFDI may not have led to technology accumulation in the local firms. Furthermore, it remains to be seen that in the presence of technology difference between local and frontier technology level, how Malaysian manufacturing sector is gaining from horizontal and vertical IFDI. These constitute as crucial literature gaps and chief economic concerns for the policymakers and need to be appropriately analyzed and explored so that a clearer picture can emerge.

1.2.2 OFDI from Malaysia

Technology accumulation, whether it is from IFDI or from the efforts of the local firms to innovate and invent novel technologies, has many benefits for the economy and one of them is its contribution towards higher OFDI (Si, 2014). This is because higher technology accumulation makes the local firms more competitive and enables them to face foreign competition by engaging in cross border investments more effectively. Since Figures 1.3 to 1.5, the GCR (2017) and innovation index (WIPO, 2018) show limited increase in technology accumulation of Malaysia, it may have contributed towards the fall in OFDI, especially from high value added sectors. Figure 1.7 shows the scatter plot of the data for 37 years from 1980 to 2016 and reflects the positive correlation between OFDI and one of the technological accumulation indicators, TFP of Malaysia. Thus, if the technology accumulation remains limited, it may dampen the growth in OFDI which could be detrimental for Malaysia.
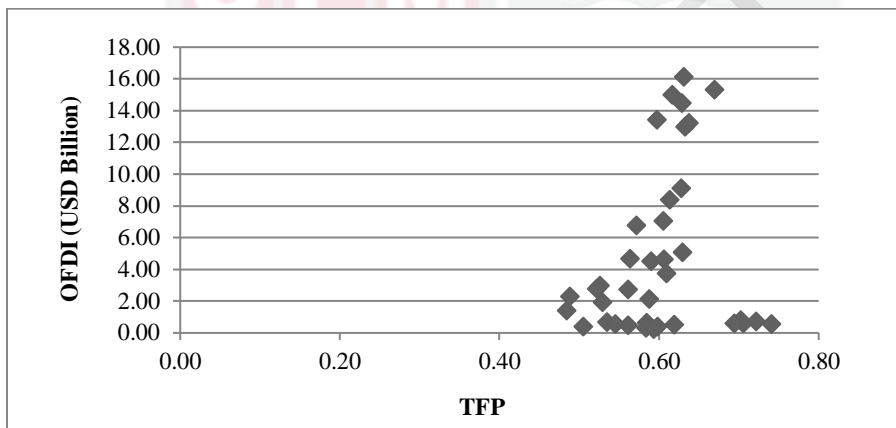
Figure 1.7 : TFP and OFDI in Malaysia
[Source: UNCTAD (2018)]

As explicated in section 1.1, another factor behind lower OFDI could be unfavorable macroeconomic environment. This is because a poor state of economic environment indicates lower output or lower investment in the economy which has the potential of confining the budgets for investments in foreign economies as well. In the case of Malaysia, the slowdown in the GDP growth rate (Figure 1.1), GDP per capita and aggregate GDP, especially since 2014 (WDI, 2018) reflect the worsening state of macroeconomic environment. Besides, the recent fall in trade openness, as seen in Figure 1.8, reinforces the deterioration. It can be seen from Figure 1.9 that Malaysia was earlier gaining export revenues mainly from low value added product categories such as those in Standard Industrial Trade Classification (SITC) categories of 0, 2 and 8. During the high growth period, Malaysia transformed the export structure and became leading exporter of electrical appliances and electronic parts represented by category seven in SITC titled as machinery and transport equipment (United Nations Commodity Trade Statistics Database, UN Comtrade, 2018). This showed high export diversification and expanding manufacturing sector. However, after 2000, exports in SITC category seven

started to contract and were replaced by exports in SITC categories three and eight which are relatively low value added categories and comprise of petroleum, beverages and non-metallic items. As a result, Malaysia's export revenues were adversely affected and that shrank the trade surplus as percentage of GDP from 4.23 % in 2010 to 1.90 % in 2016.
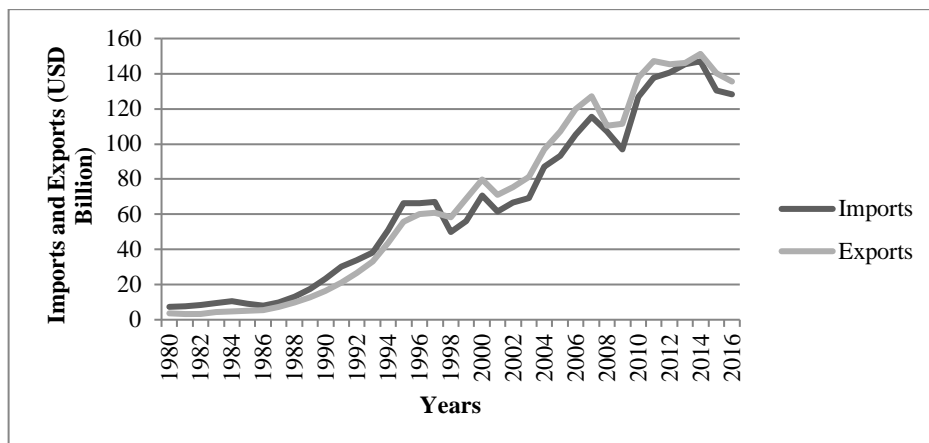
Figure 1.8 : Export Revenues and Import Expenses in Malaysia
[Source: WDI (2018)]
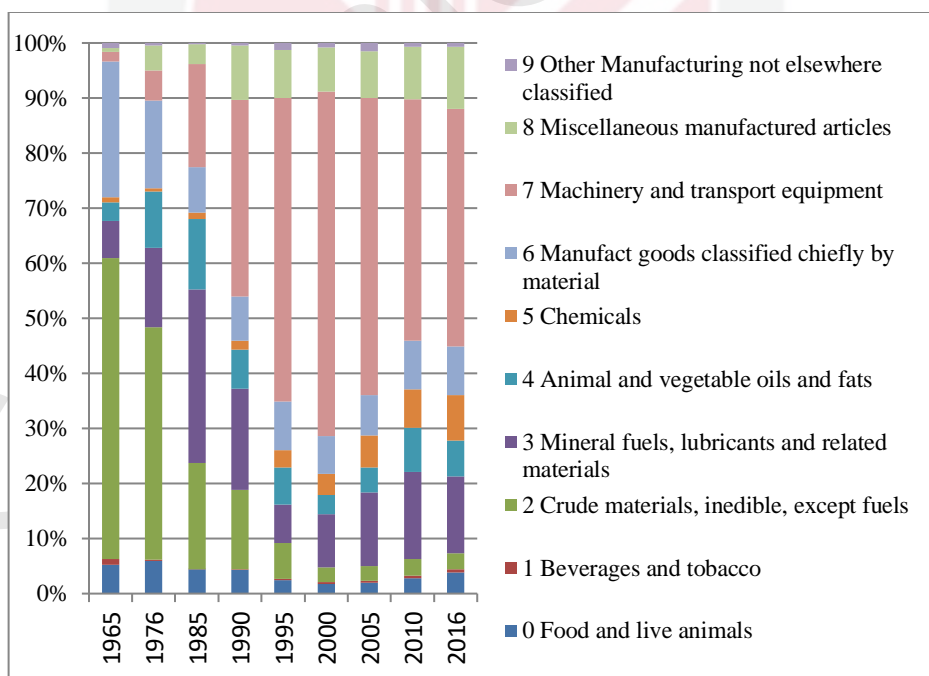
Figure 1.9 : Proportion of Export Earnings in Malaysia
[Source: UN Comtrade (2018)]

For rapidly developing open economies, in addition to GDP and trade openness, the strength of local currency also portrays the state of macroeconomic environment. In Figure 1.10, it can be seen that the real effective exchange rate of Ringgit Malaysia (RM) with respect to the basket of currencies that comprise of major trading partners dropped considerably over time. The continuous depreciation of RM not only led to higher cost of intermediate imported inputs, which further reduced trade surplus but also made OFDI more expensive.
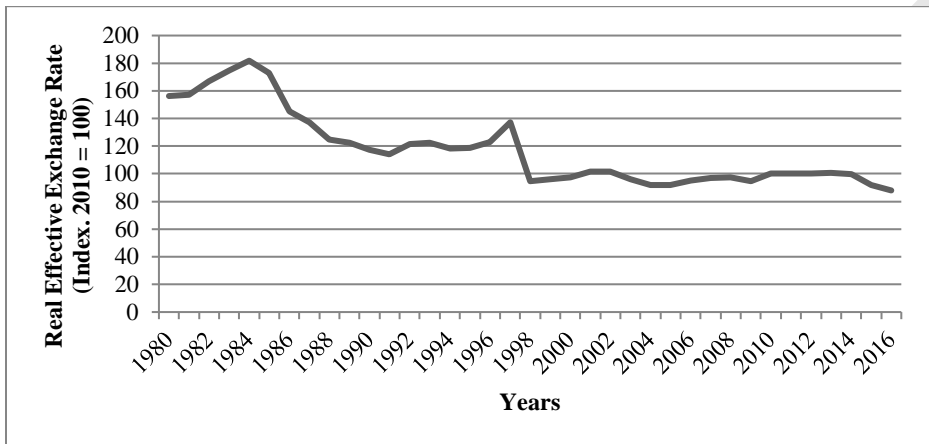
Figure 1.10 : Real Effective Exchange Rate of RM
[Source: WDI (2018)]

To further highlight the challenges that unfavorable macroeconomic factors can pose for the policymakers who prefer an increase in OFDI, Figure 1.11 is taken into account. The data in Figure 1.11 comprises of 37 years from 1980 to 2016. Positive correlations between 'trade openness and OFDI' and 'GDP and OFDI', whereby GDP and trade openness are considered as the two relevant macroeconomic factors, show that any drop in them may be harmful for the Malaysian OFDI. Hence, the macroeconomic implications of Figures 1.1, 1.8, 1.9 and 1.10 are crucial concerns for the policymakers.

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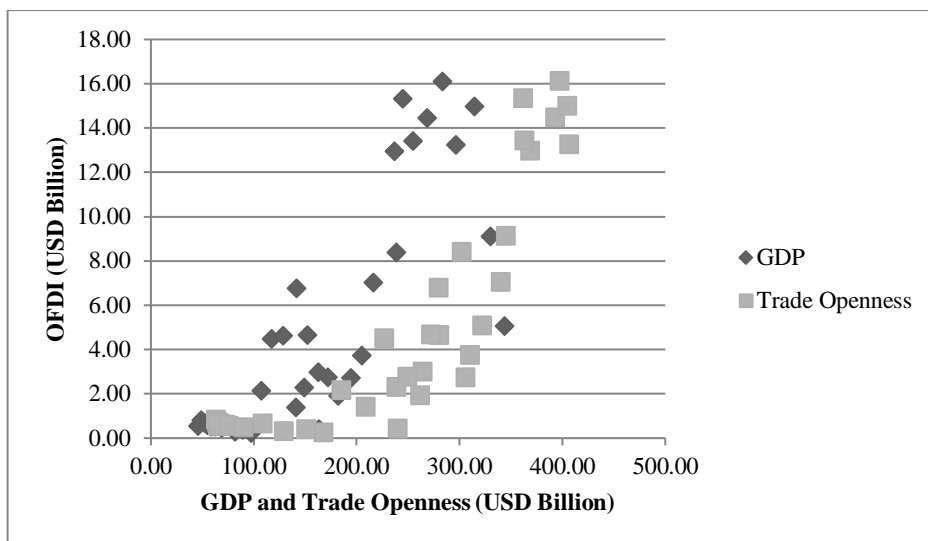
Figure 1.11 : GDP and Trade Openness and their correlation with OFDI in Malaysia
[Source: WDI (2018)]

Apart from macroeconomic issues, weak institutional quality can also be responsible for falling OFDI (Mishra and Daly, 2007). This is because strong institutions in terms of stable law and order, bureaucracy culture, low corruption and low economic risk rating provide protection to the businesses and increase the ease of executing investments. This encourages a stable environment and can contribute towards higher OFDI. In Malaysia, the institutional quality ranking has been slipping recently in terms of weak judiciary and political interference. The crime rate in Malaysia has been steadily increasing worsening the law and order situation. The crime index released by Numbeo (2018) ranked Malaysia at the top in Southeast Asian region. The institutional quality has also been dropping in the fields of corruption and heavy regulations. Transparency International (2018) reported that Malaysia's rank in corruption worsened from 50th in 2014 to 62nd in 2017. With respect to bureaucracy, which is also part of the institutional quality, the executive opinion survey of World Economic Forum (GCR, 2017) showed that low quality of bureaucracy has remained as one of the top three problems that deter the ease with which a business can be done in Malaysia. In terms of economic risk rating, Malaysia has performed well. However, the rating has fallen over time due to dropping GDP per capita, GDP growth rate and low trade surplus as percentage of GDP (WDI, 2018). Due to their relevance and importance for the Malaysian economy, these factors are taken as primary reflections of institutional quality in Malaysia. Consider Figure 1.12 which shows the scatter plot of the institutional quality indices with OFDI over the time frame of 37 years from 1980 to 2016. The scatter plot of economic risk rating has been shown in Figure 1.13 due to a different scale. They are all positively correlated with OFDI which indicates that poor quality of bureaucracy, high corruption (represented by low index number), low law and order and dropping economic risk rating may hinder the growth in OFDI.
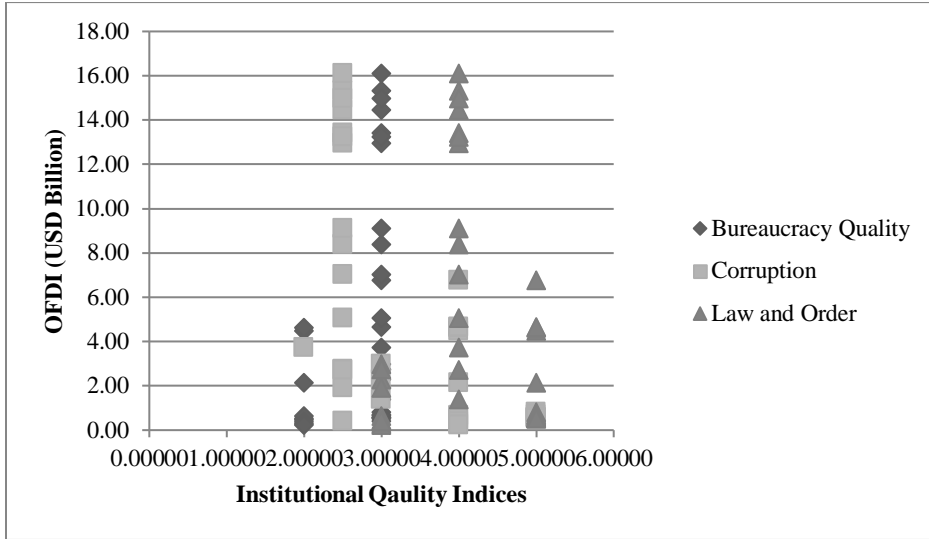
Figure 1.12 : Institutional Quality and OFDI in Malaysia
[Source: UNCTAD (2018) and International Country Risk Guide (ICRG, 2018)]
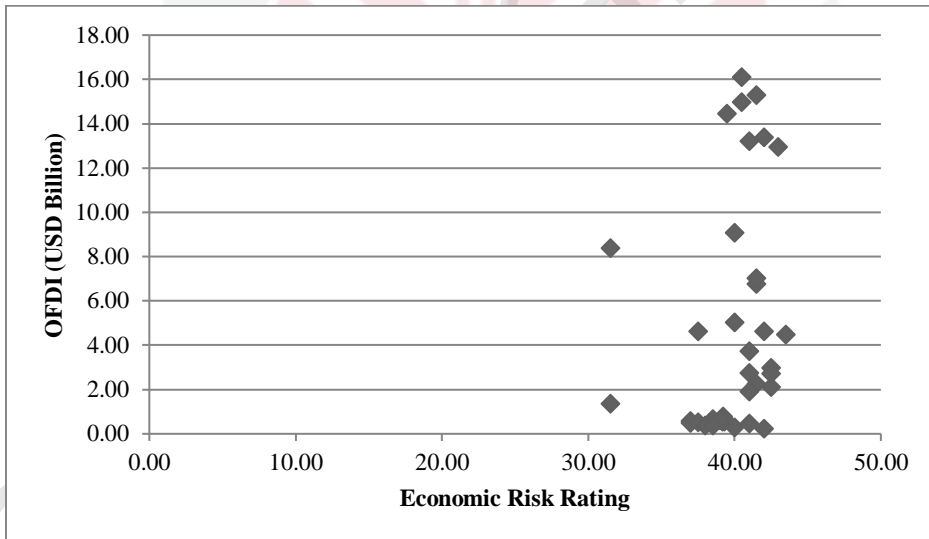
Figure 1.13 : Institutional Quality and OFDI in Malaysia
[Source: UNCTAD (2018) and ICRG (2018)]

Time series data of the OFDI in Malaysia shows that it increased steadily over time. It can be seen in Figure 1.14 that OFDI gained pace in 1992 after the goal of Vision 2020 was announced a year earlier and accelerated after 2004 after OFDI became a salient feature of Malaysian industrial policy. Local firms in the manufacturing and services

sectors were supported and encouraged by the government to engage in OFDI (Bank Negara Malaysia, BNM, 2018).
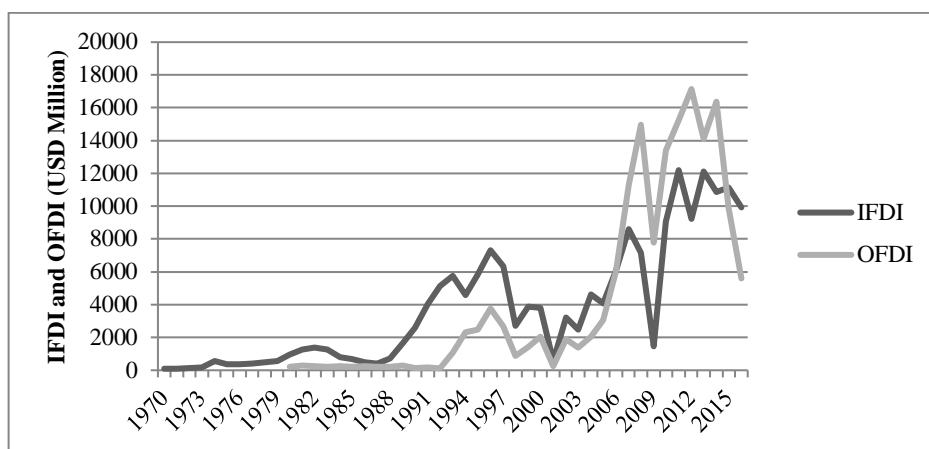
Figure 1.14 : IFDI and OFDI in Malaysia
[Source: UNCTAD (2018)]

According to Ariff and Lopez (2008), OFDI from high value added manufacturing sector had been equivalent to 30 % on average from 1999 to 2005. However, from 2006 to 2014, when Malaysia witnessed increasing levels of OFDI, BNM (2018) reported that OFDI from manufacturing sector reduced and fell to 16 % of the total OFDI in 2016. Hence, OFDI increased from relatively low value added sector of mining and quarrying at the expense of other sectors. Following 2014, due to plunging oil prices, OFDI encountered a significant fall and could not be compensated by higher OFDI in other high value added sectors. This reduced aggregate OFDI by more than 66 % from 2014 to 2016 such that Malaysia became a net importer of capital. Since increasing OFDI is crucial as that reflects higher competitiveness of local firms and can lead to higher economic development, the possible factors behind the fall in OFDI, such as worsening macroeconomic environment, limited technological accumulation and lowering institutional quality, need to be analyzed so that the issues behind dropping OFDI in Malaysia can be addressed.

1.2.3 OFDI and Domestic Investment in Malaysia

As stated in section 1.1, OFDI can have a positive or a negative impact on domestic investment. A vertical OFDI or an efficiency seeking OFDI, which is done to seek cheaper resources abroad, can increase domestic investment if subsidiaries of local MNCs are dependent on domestic inputs and domestic expertise. In this case, even if production is done abroad, the local suppliers remain part of the international supply chain which crowds-in domestic investment as OFDI increases. Likewise, a horizontal OFDI, which is executed in foreign economies to gain strategic assets or technology, increases domestic investment if the strategic assets and technology gained is adapted in the local economy. Section 1.2.2 vividly stated that Malaysian OFDI mainly emanates

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from financial and oil and gas subsectors and is low from high value added sectors. Therefore, there is weak evidence of vertical and horizontal OFDI from Malaysia which is a major issue for local policymakers as that restricts the channels through which OFDI can crowd-in domestic investment.

In addition to that, Malaysia's industrial output structure has also been altering inauspiciously. It was only marginally lower than South Korea and Taiwan and more advanced than Organization of Economic Co-operation and Development (OECD) countries in terms of E&E in 1990. However, as seen in Figure 1.15, it could not be maintained. Over time, Malaysian manufacturing sector started disinvesting in Machinery and E&E related industries and channeled more investment into less value added categories of Beverages and Non-Metallic items (Tan, 2013). Industrial sector's value added, therefore, remained stagnant in Malaysia as compared to competitors such as China and South Korea as seen in Figure 1.16. The rate of growth of industrial value added in Malaysia has also been much lower than that of upper middle and high income countries (Figure 1.17).

Manufacturing growth, selected industries, 1990–2008 (%)
Notes: E&E (electronics and electrical components); MAN (manufacturing)
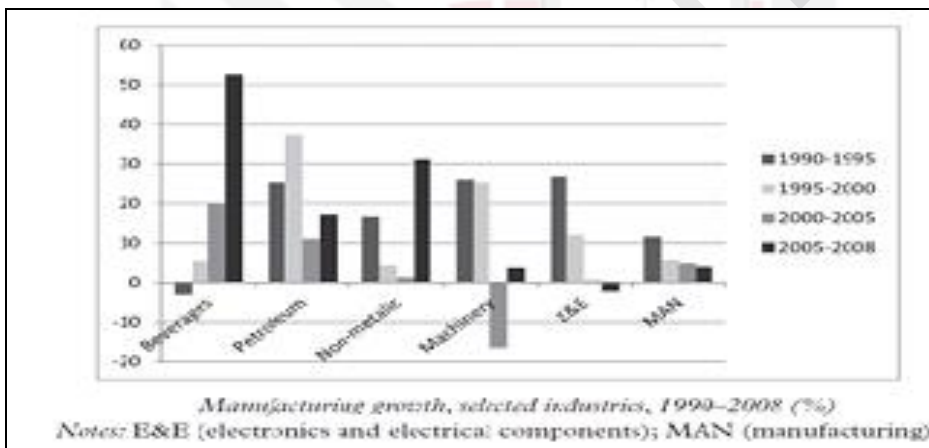
Figure 1.15 : Manufacturing Growth in Selected Industries, 1990-2008 (%)
[Source: Tan (2013)]

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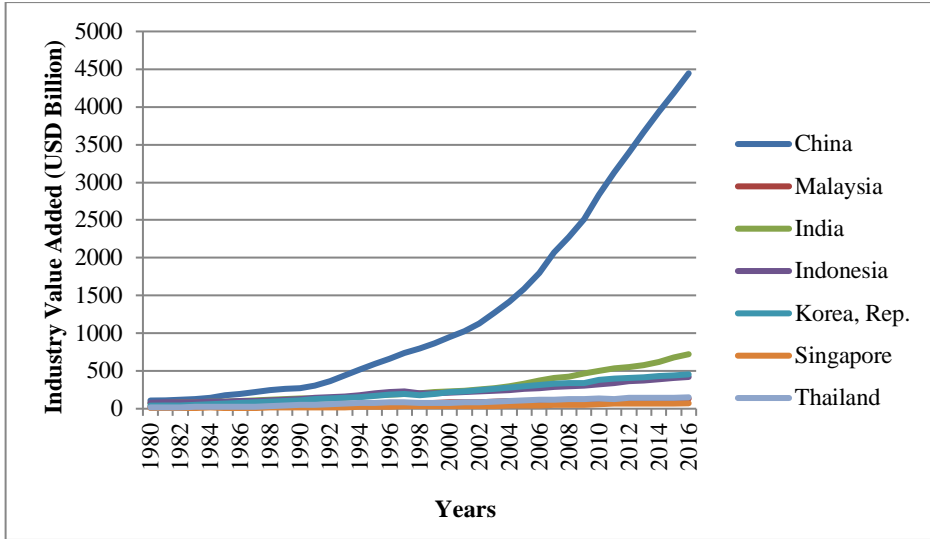
Figure 1.16 : Industry Value Added
[Source: WDI (2018)]
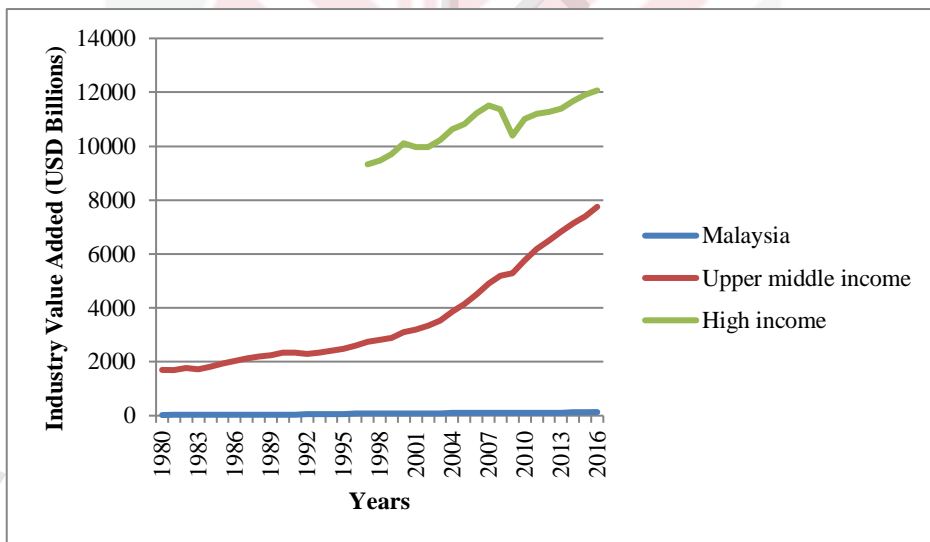
Figure 1.17 : Industry Value Added
[Source: WDI (2018)]

Figure 1.18 shows that local investment fell drastically following the Asian financial crisis in 1997. It is equivalent to 25 % of GDP which is lower than other developing Asian economies (WDI, 2018). Figure 1.19 too shows that local investment as percentage of GDP is lower than the average value for upper middle income countries which is also a cause of concern. New Economic Policy (NEP) introduced a heavily

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regulated and protected economy leading to inefficiencies in the private investment sector and domination of Government Linked Corporations (GLCs) which discouraged new firms to enter the market (Menon, 2014). Deloitte's report on Malaysia's economic outlook (Deloitte, 2015) shows that in petroleum products, the number of investment projects fell from 19 in 2014 to 3 in 2015. This is because low gas and oil prices worldwide have raised concerns for oil based companies in Malaysia thereby causing a plunge in their investments. Malaysia Institute of Economic Research (MIER, 2016) has further stated that a gush of investment is required in both private and public sectors of Malaysia.
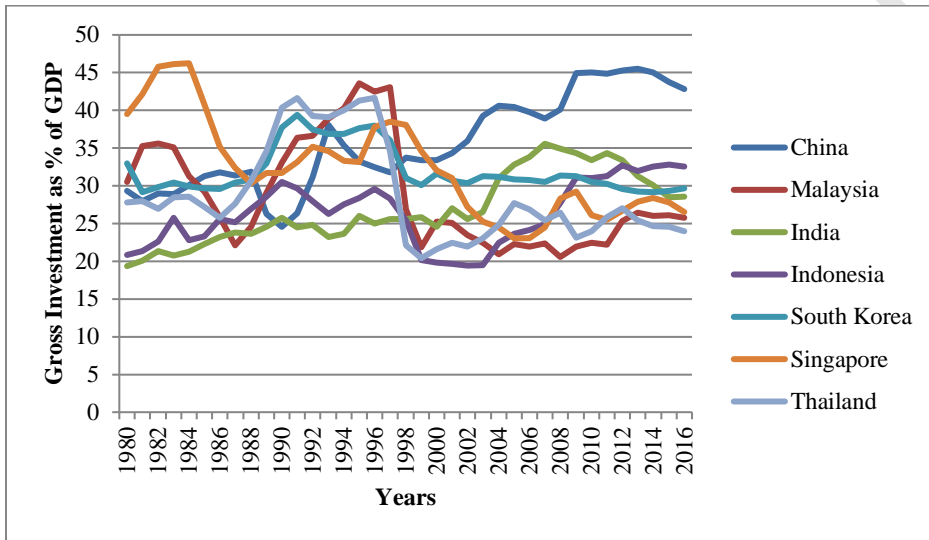
Figure 1.18 : Gross Investment as Percentage of GDP
[Source: WDI (2018)]
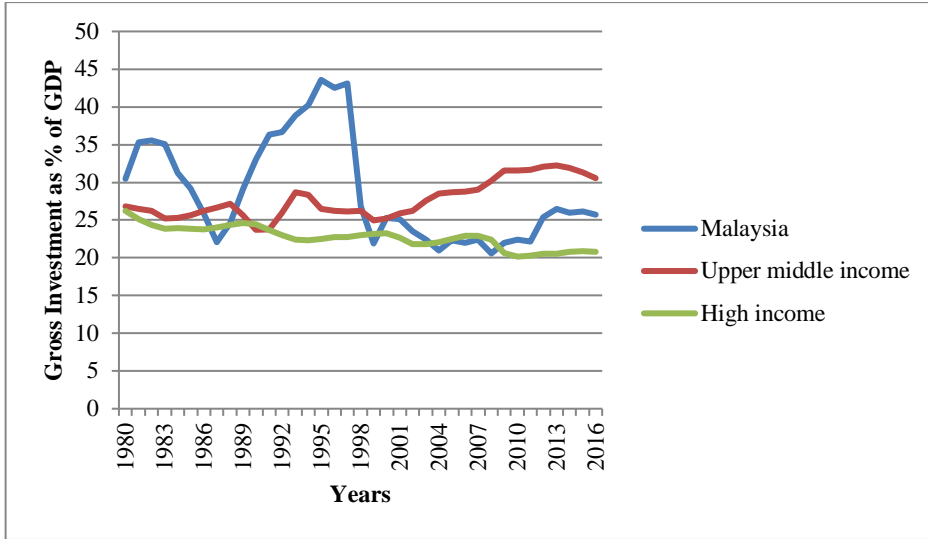
Figure 1.19 : Gross Investment as Percentage of GDP
[Source: WDI (2018)]

The altering structure of industrial output as shown in Figures 1.15 and 1.16 and the stagnant domestic investment as percentage of GDP, especially after Asian financial crisis in 1997, as shown in Figures 1.18 and 1.19 reflect that domestic investment did not pick up in high value added sectors over time in Malaysia. Even when OFDI had been high during 2006 to 2014, domestic investment as percentage of GDP remained stagnant and the output kept shifting towards low value added categories. The scatter plot of OFDI and domestic investment as percentage of GDP shown in Figure 1.20 for the data between 1980 and 2016 too depicts a negative correlation among the two variables. Therefore, it can be stated that issues such as lack of significant vertical and horizontal OFDI, stagnant domestic investment as percentage of GDP and changing output structure from high value added categories to low value added categories may have made crowded-out domestic investment due to OFDI. They also hint towards the related policies that may not have prioritized a complimentary relationship between the two factors. Therefore, an analysis on these issues is also crucial as that can provide a clearer picture and help in crowding-in domestic investment from OFDI.
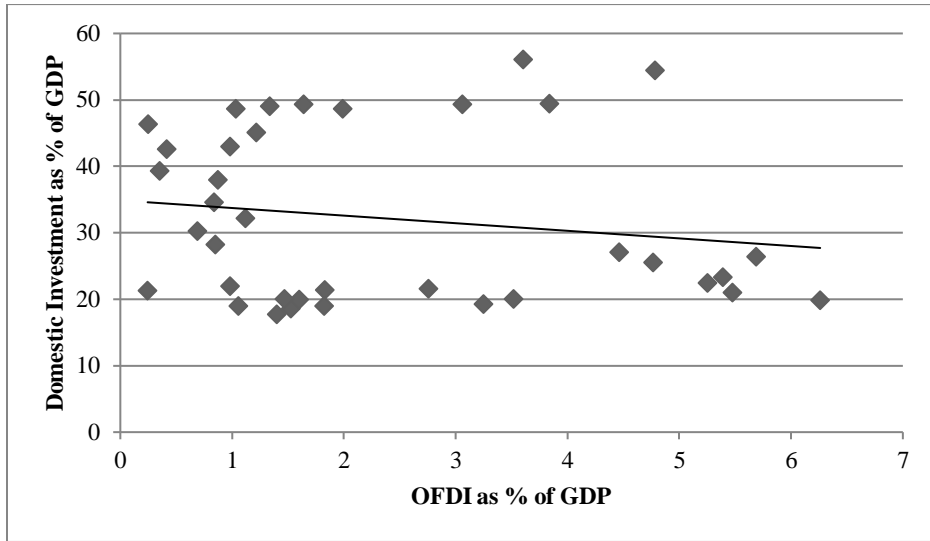
Figure 1.20 : OFDI and Domestic Investment as Percentage of GDP in Malaysia
[Source: WDI (2018) and UNCTAD (2018)]

1.3 Problem Statement

A primary issue and cause of concern is that the economic growth of Malaysia, which slowed down after the Asian financial crisis in 1997, is mainly driven by input-growth rather than by productivity-growth. Overall TFPG increased by only 1.4 % from 1997 to 2016 (GGDC, 2018). Furthermore, GCR (2017) reports that Malaysia ranks low in technological readiness pillar of competitiveness with declining trends in technology transfer from IFDI, availability of latest technologies and firm-level absorption. Besides, innovation index of Malaysia in 2017 is lower than that of developed economies (WIPO, 2018). Such scenario could be due to the slowdown in the growth rate of IFDI at the macroeconomic level that is much lower as compared to other countries in Asian region such as China, India and Singapore (WDI, 2018). Despite the fact that the Malaysian manufacturing sector consistently remained a major recipient of IFDI, the growth of IFDI in the sector has also been very limited (DOSM, 2011 and 2016). With respect to horizontal IFDI, the foreign firms within high value added manufacturing industry groups such as 'Electrical and transport machinery', 'Petroleum, chemical, rubber and plastic products' and 'Non-metallic mineral products, basic metal and fabricated metal products' have a significant contribution in aggregate value added despite being scanty in numbers (DOSM, 2011 and 2016). In fact, in E&E cluster in Penang, Klang Valley and Johor, local firms invested in basic assembly operations rather than R&D and value added activities. High-end tasks in the manufacturing sector were mostly controlled by foreigners and their presence was not acting as a positive externality for local firms (Tan, 2013). This indicates that Malaysia's local firms did not fully benefit from the presence of foreign firms within an industry and were unable to innovate and move up the quality ladder. In the case of vertical IFDI or the inter-industry linkages, the proportion of local supplies sold to foreign firms in downstream sector has remained very low as significant proportion of intermediate inputs are imported especially in the subsector of E&E.

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Likewise, the proportion of supplies purchased from foreign firms in the upstream sector is also meager in amount (DOSM, 2011 and 2016). The low quantity of vertical IFDI is a major cause of concern for Malaysian economy as that may restrict its positive impact on technology accumulation of local firms. Moreover, the presence of high technology gap between local firms and foreign firms is also a crucial factor when analyzing the relationship between IFDI and technology accumulation. The local firms can either see this gap as an opportunity and catch up with the technology of the more advanced firms or view it as a threat and get displaced by them strengthening and weakening the impact of horizontal linkages respectively in the two case scenarios. As far as vertical linkages are concerned, the impact on technology accumulation may be insignificant if the technology gap is high as foreign firms may want to keep their supply chains separate and restrict the participation of local firms due to low quality of the local inputs. Similarly, higher technology difference also indicates that foreign supplies in the local upstream market are not needed in significant amounts by local firms in downstream market as their finished product is not yet technologically at an advanced stage. Hence, the outcome of vertical IFDI on technology accumulation of local firms may slow down further in the presence of high technology difference.

Higher horizontal IFDI is critical as that paves way for local firms to increase their technology accumulation. Domestic firms can learn from foreign technology, managerial efficiency and expertise. Competitive environment can also propel local firms to increase their innovation capability. Similarly, as a result of higher backward IFDI in the downstream sector, local suppliers are given an opportunity to become part of the supply chain and provide high quality inputs to foreign firms in downstream sector thereby strengthening backward linkages while building up on their technology accumulation. In the case of higher forward IFDI in the upstream sector, the probability of buying high quality inputs from foreign suppliers increases which has the potential of augmenting domestic technology accumulation of firms in downstream sectors. Therefore, all three types of IFDI are important for enhancing technology accumulation of local manufacturing sector. However, in the presence of limited increase in IFDI, TFP, competitiveness, innovation index and patents granted, a prominent argument has been that technology accumulation from horizontal and vertical IFDI has remained diminutive. Another point is that it is unknown that how local firms are enhancing their technology accumulation from the horizontal and vertical IFDI in the presence of high deviation from frontier technology; are they closer to 'technology accumulation hypothesis' or 'catching-up hypothesis' under various types of IFDI. Based on these issues, it would be of use to conduct an analysis that allows the examination of the impact of backward, forward and horizontal IFDI on technology accumulation of the domestic manufacturing sector and to examine that how does this impact change in the presence of high technology gap between local firms and frontier technology. Since the impact of various types of IFDI on local technology accumulation varies across industries, (for example, an industry with relatively high labor quality would accumulate more technology from IFDI as opposed to an industry with lower labor quality), a microeconomic analysis is more constructive and would put forth a more comprehensive insight in terms of the impact of IFDI on technology accumulation of local manufacturing sector than a macroeconomic analysis. Unlike the previous studies (Masron, Zulkafli and Ibrahim, 2012, Sufian and Habibullah, 2013 and Khalifah et al. 2015), this study adds to the existing literature by taking into account inter-and-intra

industry linkages from IFDI and examine their impact on technology accumulation in the manufacturing sector of Malaysia.

If technology accumulation is significant, whether it is from IFDI or other sources, it increases the competitiveness of local firms enabling them to engage in OFDI (Si, 2014). Favorable macroeconomic environment and stronger institutional quality can also contribute towards higher OFDI as stated in section 1.2.2. A consistently higher OFDI reflects that local firms have gained maturity and capabilities to the extent that they are willing and able to invest in international market. Malaysia witnessed increasing levels of OFDI from 2006 to 2014 particularly due to expansion of oil and gas subsector in which Malaysia possesses a natural competitive advantage. However, during this time, OFDI increased from relatively low value added sector of mining and quarrying at the expense of other sectors. Following 2014, as the oil prices plunged, aggregate OFDI encountered significant fall in oil and gas subsector and could not be compensated by OFDI in other high value added sectors. Possible reasons behind such trends could be limited technology accumulation, low institutional quality, or worsening economy.

As explained, the technology accumulation in Malaysia has remained limited. Various indicators of technology levels, such as TFP, competitiveness report, patents granted and innovation index, have not grown substantially over time. Apart from that, the decrease in export revenues, trade surplus as percentage of GDP, lower GDP growth rate and currency depreciation reflect the lower output and worsening state of the economy. Institutional quality in terms of bureaucracy quality, law and order, corruption and economic risk rating has also been deteriorating as elucidated in section 1.2.2. Since increasing OFDI is imperative for a rapidly developing open economy, such issues are a threat to the OFDI that is already declining significantly since 2014 in Malaysia. Therefore, it is pertinent to conduct an analysis on these issues and estimate their impact on Malaysian OFDI. Existing studies (Ariff and Lopez, 2008, Goh and Wong, 2010 and Saad, Noor and Nor, 2014) have examined the macroeconomic and, to an extent, technological push factors that can alter OFDI but examination of the other relevant push factors such as the stated institutional quality variables remains limited in the literature. Taking them into account would, therefore, fill up the research gaps and also assist in making effective policies that can raise OFDI.

OFDI has the potential to increase domestic investment. If the local enterprises that are engaged in foreign investment are dependent on domestic intermediate inputs and domestic expertise, then OFDI can crowd-in domestic investment. Similarly, if the primary motivation behind OFDI is to gain strategic assets and foreign technology, domestic investment can be positively affected. However, if firms engaged in OFDI do not have backward linkages with local suppliers or the primary motivation is not to access technology, then OFDI can displace domestic investment. As it has been stated in the economic literature (Ariff and Lopez, 2008, Menon, 2014 and WDI, 2018), domestic investment as percentage of GDP in Malaysia is lower than other rapidly developing economies. It remained stagnant at 25 % since the Asian financial crisis in 1997. In addition to that, there has been slow growth in manufacturing value added and production in high value added product categories has also been falling over time (Tan, 2013 and WDI, 2018). This signifies that domestic investment remained sluggish during 2006 to 2014 as well when OFDI had been the highest in Malaysia and local economy

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was termed as net exporter of capital. This may indicate that OFDI and domestic investment either must have been substitutes or insignificantly related to each other. In both cases, Malaysian economy is adversely affected as OFDI fails to crowd-in domestic investment. Since it is imperative to increase OFDI as that reflects higher productivity, it is equally important for OFDI and domestic investment to be complements as that indicates that local suppliers are also participating in global production chains and accumulating strategic assets. Thus, to get a robust picture regarding the relationship, it is useful to examine the impact of OFDI on domestic investment in Malaysia. It contributes to the existing literature (Goh and Wong, 2012) by including additional relevant determinants of domestic investment including OFDI for the latest time period that can act as push factors behind higher local investment. These include the interest rate, exchange rate and credit disbursement in Malaysia.

1.4 Research Questions

Based on the economic issues raised in section 1.2 and the problem statement, the following research questions emerge.

1. What is the impact of horizontal and vertical IFDI on the technology accumulation in Malaysia's domestic manufacturing sector both individually and in the presence of high technology gap between existing and frontier technology level?

2. How do macroeconomic, technological and institutional factors influence OFDI in Malaysia?

3. What is the impact of OFDI on domestic investment in Malaysia?

1.5 Research Objectives

The general objective of the study is to examine the macroeconomic impacts of IFDI and OFDI in Malaysia. Specifically, this research intends to:

1. Examine the impact of horizontal and vertical IFDI on technology accumulation in domestic manufacturing sector both individually and in the presence of high technology gap.

2. Analyze the impact of macroeconomic, technological and institutional factors on OFDI from Malaysia.

3. Examine the impact of OFDI on domestic investment in Malaysia.

1.6 Significance of the Study

With respect to the first objective, which is estimating the impact of horizontal and vertical IFDI on technology accumulation in domestic manufacturing sector both individually and in the presence of high technology gap, the previous related studies are

mostly theoretical in nature. For example, Wad (2009), Rasiah (2009, 2010), Ahmed (2012), Tan (2013), Kam (2014) and Menon (2014) have pointed out theoretically that TFPG of Malaysian firms has moved on sporadically as opposed to foreign firms. Masron et al. (2012) examined the IFDI spillover effects within manufacturing industry taking output of the industry as dependent variable rather than technology accumulation whereas other studies such as by Sufian and Habibullah (2013) and Khalifah et al. (2015) have looked into the subsectors only. Thus, a comprehensive analysis of the impact of vertical and horizontal linkages with foreign firms on technology accumulation of local manufacturing industries individually and in the presence of high technology gap is limited in the existing literature. This study fills up this particular gap.

Mishra and Daly (2007), Amal, Raboch and Tomio (2009), Stal and Cuervo-Cazurra (2011), Ramasamy, Yeung and Laforet (2012), Kang and Jiang (2012), Buckley, Forsans and Munjal (2012), Stoian (2013), and Deng and Yang (2014) have clearly established the importance of institutional quality indices as important determinants of OFDI for various economies. In the case of Malaysia, previous studies have examined the economic and technological push factors such as exports, GDP, IFDI, tax rate and patents causing OFDI from Malaysia (Ariff and Lopez, 2008, Goh and Wong, 2010, Saad et al., 2011, Saad et al., 2014, and Chen, Chin, Law and Azman-Saini, 2016). However, in these studies, other relevant technological factors such as TFP and institutional factors such as bureaucracy quality, corruption, law and order and economic risk rating have not been considered. Since these can act as crucial push factors behind OFDI, the contribution of this objective is in scrutinizing these factors and thereby adding to the OFDI literature in Malaysia.

Higher OFDI can have a positive and a negative effect on domestic investment. It can be significantly low if part of production cycle is shifted abroad (Agarwal, 1997 and Herzer and Schrooten, 2007). It can also be significantly low if there is evidence of lack of technology seeking OFDI (Goh and Wong, 2012). There are studies that have estimated the impact of OFDI on various economic variables such as domestic investment (Al-Sadig, 2013, and You and Solomon, 2015), R&D activity of manufacturing firms (Chen and Yang, 2013) and economic growth (Herzer, 2010, Lee, 2010, and Chen and Zulkifli, 2012). This particular objective contributes in the existing literature by examining the impact of Malaysian OFDI on domestic investment by taking into account additional relevant determinants of domestic investment as control variables for latest time period that have not been yet considered in the case of Malaysia. It would provide a more robust picture of the relationship between the OFDI and domestic investment. The additional control variables include the interest rate, credit disbursement and exchange rate of RM in Malaysia.

Investigating the impact of horizontal and vertical IFDI on technology accumulation of domestic manufacturing sector establishes the extent of technology accumulation from IFDI. A low accumulation from a certain form of IFDI would guide the authorities to invest and improve the conditions in that direction. Promoting OFDI holds crucial significance for Malaysia. It can help in building linkages in Global Production Networks (GPN) through Mergers and Acquisitions (M&As) and in gaining strategic assets in foreign economies. It can also help in diversifying the OFDI such that fall in OFDI in one subsector can be counteracted by OFDI in other subsector. Hence,

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examining the factors that can increase OFDI at the macroeconomic level holds considerable importance for Malaysia. The impact of OFDI on domestic investment also needs to be significantly positive over time. If this study finds inverse relationship, it can also help in pinpointing the hindrances which can be addressed by the policymakers.

It is pertinent to mention here that the issues discussed in this section raise crucial problems in the economy. This is because any possibility behind low technology accumulation from IFDI in the domestic manufacturing sector, plunging OFDI due to macroeconomic, technological and institutional factors and lack of complementary relationship between OFDI and domestic investment cannot be taken lightly. It not only increases the probability of a weaker chain of growth but also makes it more challenging for the policymakers to achieve the goal of becoming high income nation by the stated time period. Hence, given the fact that the world has become a global village and that overseas investments have gained importance, increasing technology accumulation from IFDI, increasing OFDI and increasing its impact on domestic investment are imperative. This further highlights the importance of conducting this study.

1.7 Organization of the Study

This study is divided into six chapters. In Chapter I, background of the study has been narrated in detail. It highlights research issues, gaps in the literature, the problem statement, research questions, research objectives and significance of the study. Chapter II explicates the background of the Malaysian economy and the evolution of industrial policy. It also comprises of the analysis on trends of IFDI, OFDI and domestic investment. Chapter III contains the theoretical and empirical literature review of the objectives defined in section 1.5. Chapter IV covers the methodological framework for all the objectives of this study. Chapter V presents the regression analyses and discusses the results. Chapter VI focuses on the conclusions, policy implications, limitations and future research arising from the study.

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