China’s Accession into the WTO: Impact on the Malaysian Economy

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Abstract

China’s accession into the WTO will have major implications for China and present both opportunities and challenges for Malaysia. The prospect of China’s deeper integration with the world economy has generated considerable interest in the potential impact of this accession; given China’s already large and rapidly expanding commitments will undoubtedly enhance the trading position of China in the world economy. However, most of the studies have focused on the impact of this accession on China’s economy and there are few studies that have investigated its impact on other countries, especially developing countries. This study represents an attempt to fill the research gap in this area by assessing the implications of China’s entry into the WTO on Malaysian manufacturing exports. We quantify the implications using multiple Revealed Comparative advantage indexes on the Electrical and Electronic sectors of Malaysia and China. The result shows that significant changes in comparative advantage have occurred in China since 2001. Malaysia on the other hand is experiencing declining comparative advantage since the accession of China to the WTO.
1. Introduction

Since the mid-90’s, Malaysia has developed a strong export-oriented economy, having a manufacturing sector as a major contributor to the economy, contributing for 31 per cent of national GDP in 2003 and 81.1 per cent of total exports in 2003 (MIDA 2003). Malaysia is known as a hub for the production of E&E products. Backed by strong productivity growth (5.3 per cent in 2003), the E&E sector remains competitive at international level to date.

However, when China became a member of WTO in 2001, the rules and nature of global competition in the international trade has changed. China’s trade liberalization and growth will have mixed impacts on the manufacturing sector of developing countries like Malaysia (Ianchovichina and Walmsley, 2003). Opportunities exist for Malaysia to participate in global production networks in manufacturing sectors such as electronics, machinery and equipment that are likely to expand with China’s further integration into the global economy. In contrast, competition with China in the manufacturing sector would also intensify as a result of China’s accession to the WTO. This will present a challenge for many countries especially Malaysia that have similar comparative advantage in labor-intensive goods. Malaysia competes with China in world markets for manufactures, especially labor-intensive products, and increasingly higher value added products, such as semi conductors and other E&E products (Ianchovichina and Walmsley, 2003). Since both countries competes in the same export market (MIDA 2003), the competitiveness of the E&E sector in Malaysia must be maintained and improved over time. As the issue investigated in this paper deals with the impact China’s entry into the WTO on the Malaysian economy, the ability to compete or the competitiveness of Malaysian E&E export versus China’s E&E export competitiveness will play a key role in determining the outcome.
Likewise, the issue of competitiveness correlates strongly with FDI. In Malaysia, the expansion of manufactured exports was closely correlated with a rapid increase in the FDI, having an E&E sector as the major recipient of FDI\(^1\) (UNCTAD 2003). However, due to the slowdown in the E&E industry in 2001 and 2002, the total investments in 2003 showed a reduction of 11.9 per cent (MIDA 2003). Notwithstanding, the relationship between the slowdown in investment flow with the impacts of China’s WTO accession has not much been evaluated. Ianchovichina and Walmsley (2003) found that the WTO accession would increase foreign investment in China as trade liberalization could lower production costs and the price of capital goods, and could increase the rental rates, resulting in rising returns to capital in China. However, mixed results were obtained from the same study on the East Asian developing countries’ foreign investment flows. Hence, the main objective of the study is to analyze the impacts of China’s WTO accession on the Malaysian economy. Specifically, the competitiveness of Malaysian E&E sector for the period of 1996-2003 is also examined.

2. Literature Review

A number of studies have investigated China’s growing competitiveness with the competitiveness of the economies in the ASEAN. Siew-Yan (2001) investigated the issue of competitiveness in the manufacturing sectors of Malaysia and China during China’s pre-WTO accession period. He utilized three measures of revealed comparative advantage\(^2\). He found that Malaysia still has relatively high comparative advantage for high-technology sectors and resource-based

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1 Malaysia’s share of world electronic components exports increased from almost nothing in 1970 to about 10 per cent in 2000 (UNCTAD 2003).

2 Siew-Yan adopted three methods namely the net export to total trade ratio given by \(\text{NX}_{ij} = \frac{(X_{ij} - M_{ij})}{(X_{ij} + M_{ij})}\); and World Export Ratio given by \(\text{WES}_{ij} = \frac{(X_{ij}/X_{ij})/(X_{wj}/X_{w})}\) and HTS: Share of Export of High Technology Products as the Percentage of Manufacturing Goods, \(\text{HTS}_{ij} = \frac{(X_{ij}/X_{wj})}\).
products such as woods and woods products may be able to increase their market share in China due to the relatively high comparative advantage that Malaysia has for this product group.

Tyers et al.; (1987) examined the impact of China’s increasing exports of labor-intensive manufactures (LIM) on ASEAN exporters of the same products. Their results revealed that in 1981, despite some differences in emphasis in the export of LIM between China and ASEAN as a bloc, they do compete in the exports of clothing, textiles, footwear, furniture, textile yarn, and thread and toys, especially in the United States and Japanese markets. A subsequent study by Herschede (1991) on export rivalry between ASEAN, China, and the Newly Industrialized Economies (NIEs) in the Japanese import market between 1982-1987, concluded that ASEAN exports suffered the most from the entrance of China to the Japanese import market. In the case of manufactured goods, ASEAN was found to have experienced competitive disadvantage in the export of machinery and transport equipment and miscellaneous manufactures (SITC 7 and 8) and competitive advantage in the export of chemicals and manufactures (SITC 5 and 6). China, in contrast, experienced competitive disadvantage in the export of manufactured goods and miscellaneous manufactures (SITC 6 and 8) and competitive advantage in the export of chemicals and machinery and transport equipment (SITC 5 and 7).

Voon (1998), in turn, analyzed the export competitiveness of China and ASEAN in the market of the United States of America. The results obtained indicate ASEAN-4’s exports of manufactured goods in the United States have grown absolutely between 1980-1994, despite the entry of China since 1979. However, China’s share of more labor-intensive goods (MLIM, SITC 6 and 8) increased very rapidly over this period vis-à-vis the ASEAN-4 due to the lower cost of labor in the former country as opposed to the latter group of economies. But in the case of less labor-intensive goods (LLIM, SITC 5, 7, and 9), China’s share in the United States market has been increasing steadily from 1980-1994 while Malaysia’s share declined from 1980-1990 and increased from 1991-1994.
More importantly, the study showed that the ASEAN-4 as a region experienced a competitive advantage in the United States market as opposed to Herschede (1991)’s results that showed a competitive disadvantage for ASEAN in the Japanese market. This result was attributed to the appropriate emphasis in the MILM in China’s industrial structure while ASEAN economies especially Singapore and Malaysia focused, again appropriately, in the LLIM. Moreover the larger annual capital outflow of the United States in terms of direct manufacturing investment to the ASEAN-4 than to China, particularly between 1992-1994, was also perceived to have contributed to the competitive edge of the ASEAN-4 vis-à-vis China.

So far, it can be concluded that China has a growing advantage in labor-intensive goods while Malaysia has a declining advantage in these goods at the SITC single digit. However, in the case of technology-intensive products, the contrasting trend between China and Malaysia was not obtained. Instead, Das (1998)’s study disclosed the RCA for technology-intensive goods from China increased from 0.39 to 0.45 between 1980-1993 while Malaysia’s comparative advantage for the same product group also increased from 0.15 to 0.75 during the same period. Subsequent study by Sunil (2000) gave additional supporting evidence for the increasing importance of high technology exports from China and Malaysia as well as a few other developing countries. Sunil’s RCA indices of high technology exports show an improvement in the competitiveness of China and Malaysia in these exports from 1992-1998³. However, while Malaysia’s RCA index ranked third among the developing countries in 1997, China’s RCA index ranked last in the same year. Wilson and Wong (1999)’s study on the export competitiveness of ASEAN economies between 1986-1995, found Malaysia to be the main rival for Singapore in key manufacturing categories of electrical machinery, telecommunications/sound equipment and organic chemicals in the Japanese market.

3. Data and Estimation Method

Data

The paper relies heavily on secondary data produced by United Nation Commodity Trade Statistic Database (COMTRADE), Malaysia Industrial Development Authority (MIDA) annual reports and Bank Negara Malaysia (BNM) annual reports. Other relevant information was taken from newspaper articles, on-line reviews and etc.

Revealed Comparative Advantage

The concept of ‘revealed’ comparative advantage was first introduced by Liesner (1958) but defined and popularized by Balassa (1965). The ‘Balassa index’\(^4\), is widely used empirically to identify a country’s weak and strong export sectors. He proposes that comparative advantage may be ‘revealed’ by observed trade patterns that are assumed to reflect the availability and cost of raw materials in material-intensive commodities, whereas for instance, labor costs appear to be the major factor determining the comparative advantage in textile products (Balassa, 1989. p. 59). Revealed Comparative Advantage (Balassa, 1965) can be defined as:

\[
RCA_{ij} = \frac{X_{ij}}{\sum X_{ij}} \div \frac{\sum X_{wj}}{\sum \sum X_{wj}}
\]  

(1)

Where \(X_{ij}\) is exports by country \(i\) in commodity \(j\). This equation analyses a country’s world export share of a commodity with the country’s total export share of total world exports. If country \(i\)’s share of world exports of commodity \(j\) is greater that country \(i\)’s share of world exports of all goods, the \(RCA\) will be greater than 1 which suggests that a country has a “revealed” comparative advantage in the production of that particular commodity.

\(^4\) The issue of Revealed Comparative Advantage will be discussed in detail in Chapter 2.
Bhagwati (1997)\(^5\) recognizes the likelihood of a large shift in comparative advantage consequence upon small variations in production costs. The phenomenon is referred to as “kaleidoscope” or “knife-edge” comparative advantage. Countries need to be ever aware of these potential costs shifts and ensure constant industrial upgrading so as to remain important competitive in the larger regional production network. By definition, one country -- no matter how big -- cannot have a comparative advantage in the production of all goods and services. As comparative advantage acquired by a country could be improved and retained but nevertheless ‘shifted-away’ to another competing country, it is of great importance to ensure that the latter is avoided at all costs or stands to lose in the global competition of world trade.

However, it is difficult, if not impossible, to theoretically derive the distribution of the standard \(RCA\)’s in (1). The dependence of the distribution on the number of countries and sectors further complicates the interpretation of the results. In fact, its unstable mean is much larger than the ‘expected’ value of 1, which indicates that it does not have a useful interpretation\(^6\). The root cause of the problems lies in the multiplicative character of the standard \(RCA\) in (1). Since computing an average implies adding \(RCA\)’s, the mean and the distribution around it do not give meaningful information either. Hence, it is worthwhile to develop indexes that have less or none of these problems. The two modified indexes of \(RCA\) are i) Index of Additive \(RCA\) ii) Vollrath’s Index of \(RCA\)

**Index of Additive \(RCA\)**

The additive \(RCA\) of a country \(A\) in sector \(j\) is given by:


This index is zero if the export share of sector $j$ in country $A$ is equal to that of the reference countries. It is larger than zero if country $A$ has a “revealed comparative advantage” in sector $j$, and it is smaller than zero if country $A$ has a ‘revealed comparative disadvantage’. Since (2) is additive in the export shares, the mean of the additive RCA’s has a value of zero, independent of the number and classification of the sectors or countries. Simply summing (2) over $j$ shows this. Hoen. & Oosterhaven (2003) showed that the additive RCA has an even, bell-shaped distribution between -1 and +1 with mean of zero that by definition is independent of the number and the classification of the countries and sectors distinguished.

**Vollrath’s Index of RCA**

Vollrath (1991) pointed out that appraising of comparative advantage at aggregate and disaggregated levels can ‘identify the overall direction and drive in which a country’s investment and trade should take in order to exploit international differences in product and factory supply and demand’ as well as ‘to evaluate socially desirable specialization patterns along narrow product lines’. He further argued that the estimation of comparative advantage might be particularly beneficial when considering trade between countries with different factor endowments.

Vollrath (1991) attempted a critical link of some empirical measures of comparative advantage and the underlying theory. He pointed out some factors that may limit an accurate inference from post-trade data to actual comparative advantage. Vollrath (1991) stresses that it is important to differentiates between two-countries’ trade link and their economies associations with the rest of the world. Therefore, Vollarh (1991) offers the measures that enable the estimation of comparative advantage in an environment exposed to
Various degrees of distortions.

Vollrath (1991) offered four alternatives specifications of revealed comparative advantage, in particular, the relative export advantage index (RXA), relative import advantage (RMA), relative import advantage (RMA), relative trade advantage index (RTA) and relative competitiveness index (RC). According to Vollrath, positive values of the three indices (RTA, RXA and RC) indicate comparative advantage, whereas negative values indicate comparative disadvantage. Vollrath pointed out that an important feature of these measures is that they allow one to distinguish between a specific commodity/country and the rest of the commodities/reference countries. In this way, the indices eliminate country and commodity double counting in the world trade. The indexes are as follows:

\[
RXA_{ij} = \frac{X_{ij}}{X_{it}} / \left( \frac{X_{j}^{\text{REF}}}{X_{t}^{\text{REF}}} \right) \quad (3)
\]

\[
RMA_{ij} = \frac{M_{ij}}{M_{it}} / \left( \frac{M_{j}^{\text{REF}}}{M_{t}^{\text{REF}}} \right) \quad (4)
\]

\[
RTA_{ij} = RXA_{ij} - RMA_{ij} \quad (5)
\]

\[
RC_{ij} = \ln (RXA_{ij}) - \ln (RMA_{ij}) \quad (6)
\]

where,

- \(RXA_{ij}\) = relative export advantage of country \(j\) in commodity \(i\)
- \(RMA_{ij}\) = relative import advantage of country \(j\) in commodity \(i\)
- \(RTA_{ij}\) = relative trade advantage of country \(j\) in commodity \(i\)
- \(RC_{ij}\) = revealed competitiveness index of country \(j\) in commodity \(I\)
- \(X\) = exports
- \(M\) = imports
- \(t\) = rest of commodities
- \(\text{REF}\) = ASEAN +3 countries
- \(\ln\) = natural logarithm

The $RC$ index provides a better picture of the actual comparative advantage of a commodity/country because of the supply and demand balance embodied in the index. However, the index has some limitations, in particular, its application is restricted when a bilateral trade does not occur, that is either export or import is zero. It is also very sensitive to small values of exports and imports. On the other hand, the relative trade advantage index, $RTA$, has the embodied potential to weigh the relative contribution of export and import advantages in the overall revealed comparative advantage in a particular commodity group/industry. Considering the shortcomings of the above three indices, Vollrath admits that the Relative Export Advantage ($RXA$) index that reduces the effects of distortions is more widely used in practice\(^8\).

**Estimation of $RCA$ in the E&E Sector**

Due to the limitations of standard $RCA$ in (1), the study employs the two improvised version of $RCA$ namely index of additive $RCA$ and Vollrath’s index of $RCA$. The index of additive $RCA$ and Vollrath’s index of $RCA$ will be used to calculate the $RCA$ of E&E products in Malaysia and China for the period of 1996-2003.

The reference countries (referred to REF) in (2) and (3) is defined as ASEAN + 3. The ASEAN + 3 countries includes all ASEAN member countries namely Myanmar, Philippines, Singapore, Thailand, Vietnam, Brunei, Cambodia, Indonesia, Laos and Malaysia. The +3 countries are Republic of Korea, China and Japan.

The ASEAN + 3 is chosen as the REF in (2) and (3) instead of world in (1) because it would allow the analysis of $RCA$ to measure the competitiveness of both economies’ E&E sector in the Asian region only. The REF in (2) and (3) includes one general exception. The (2) and (3) in 2003 will only include the ASEAN, Japan and China.

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Republic of Korea is not included due to unavailability of data from the COMTRADE database.

**The E&E Products**

In this paper, the E&E products include commodities at SITC\(^9\) two-digit level of 75-77. The commodities are defined as follows:

i) 75 - Office machines and automatic data processing machines

ii) 76 - Telecommunications and sound recording and reproducing apparatus and equipment

iii) 77 - Electrical machinery, apparatus and appliances, and electrical parts thereof (including non-electrical counterparts of household type)

**4. Empirical Results**

**RCA of E&E Products: Malaysia**

Based on Table 1, Malaysia has relatively high RCA in all three groups of the E&E goods, that is computers-office machines (SITC 75), electronics-telecommunications products (SITC 76) and electrical machinery-electrical parts (SITC 77). Specifically, the RXA index for computer-office machines has grown from 1.34 in 1996 to 2.63 in 2000 but decline constantly to 1.51 in 2003. Similarly, the additive RCA index revealed the same pattern, an increase from 0.03 in 1996 to 0.17 in 2000 but decline constantly to 0.05 in 2003 (Table 3). On the other hand, the RXA index and the additive RCA index for the electronics-telecommunications products (SITC 76) registered a decline for the period of 1996-2003. The loss in competitive strength in this product group was mirrored by the decline in the export by 19 per cent from 2000-2003 (Figure 1).

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\(^9\) SITC is the abbreviation of the Standard International Trade Classification System.
The electrical machinery-electrical parts (SITC 77) registered a drop in the RXA from 2.17 in 1998 to 1.84 in 2000 but increase continually to 2.5 in 2003. Similarly, the additive RCA index fell from 0.18 in 1999 to 0.15 in 2000 but increased constantly to 0.22 in 2003. The improvement in the RCA led to an increase of export by 17 per cent in 2000-2003 (Figure 1). In general, the E&E products of Malaysia revealed positive but declining RCA within the ASEAN + 3 countries.
The decrease could be attributed to the reduction in the export of two E&E products namely SITC 75 and SITC 77.

**RCA of E&E Products: China**

For China, the RCA index for E&E products revealed a more dispersed pattern. From 1996 to 2000, China have comparative disadvantage for all E&E group products, as shown in Table 2 and Table 3. However, the computers-office machines (SITC 75) registered a comparative advantage from 2001 to 2003. The RTA index increased from -0.04 in 2000 to 0.97 in 2003. Similarly, the RC index increased from -0.05 in 2000 to 0.77 in 2003. For electronics-telecommunications products (SITC 76), it registered a comparative advantage in 2002-2003. However, for electrical machinery-electrical parts (SITC 77), the RCA indexes (RC, RTA and additive RCA) recorded a comparative disadvantage for the period of 1996-2003.

**Table 2 Vollrath’s Index of RCA: China, 1996-2003**

<table>
<thead>
<tr>
<th>Year</th>
<th>RTA</th>
<th>RC</th>
<th>RXA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75</td>
<td>76</td>
<td>77</td>
</tr>
<tr>
<td>1996</td>
<td>-0.018</td>
<td>-0.310</td>
<td>-0.288</td>
</tr>
<tr>
<td>1997</td>
<td>-0.068</td>
<td>-0.284</td>
<td>-0.368</td>
</tr>
<tr>
<td>1998</td>
<td>-0.075</td>
<td>-0.768</td>
<td>-0.365</td>
</tr>
<tr>
<td>1999</td>
<td>-0.108</td>
<td>-0.6401</td>
<td>-0.448</td>
</tr>
<tr>
<td>2000</td>
<td>-0.038</td>
<td>-0.325</td>
<td>-0.531</td>
</tr>
<tr>
<td>2001</td>
<td>0.069</td>
<td>-0.073</td>
<td>-0.645</td>
</tr>
<tr>
<td>2002</td>
<td>0.263</td>
<td>0.129</td>
<td>-0.755</td>
</tr>
<tr>
<td>2003</td>
<td>0.967</td>
<td>0.432</td>
<td>-0.867</td>
</tr>
</tbody>
</table>
In general, China did not have comparative advantage in the E&E sector. Nonetheless, the competitive strength of China’s E&E sector had improved after the accession into the WTO in 2001. Although small, the RCA indexes began to increase especially for products in SITC 75 and SITC 76. Export of these two categories increase by 165 per cent for SITC 75 and 68 per cent for SITC 76 respectively for the period of 2001-2003 (Figure 2).

Table 3 Index of Additive RCA: Malaysia and China, 1996-2003

<table>
<thead>
<tr>
<th>Year</th>
<th>MALAYSIA</th>
<th>CHINA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75</td>
<td>76</td>
</tr>
<tr>
<td>1996</td>
<td>0.033</td>
<td>0.116</td>
</tr>
<tr>
<td>1997</td>
<td>0.069</td>
<td>0.099</td>
</tr>
<tr>
<td>1998</td>
<td>0.090</td>
<td>0.084</td>
</tr>
<tr>
<td>1999</td>
<td>0.154</td>
<td>0.072</td>
</tr>
<tr>
<td>2000</td>
<td>0.165</td>
<td>0.085</td>
</tr>
<tr>
<td>2001</td>
<td>0.136</td>
<td>0.089</td>
</tr>
<tr>
<td>2002</td>
<td>0.138</td>
<td>0.049</td>
</tr>
<tr>
<td>2003</td>
<td>0.054</td>
<td>0.031</td>
</tr>
</tbody>
</table>
Impacts of China’s WTO Accession on FDI Flow to Malaysia
Short Term Impacts

In general, China’s domestic capital-intensive and technology-intensive manufacturing industries have no comparative advantage in international markets, postulated by the negative $RCA$ indexes tabulated above. However, the accession into the WTO will put pressure on China’s domestic enterprises to improve their management and technology and consequently increase their efficiency in the world export market. Today, China’s exports are dominated by low-end labor-intensive products such as office machines and automatic data processing machines (SITC 75) and electrical machinery, apparatus and appliances (SITC 77) (OECD 2003). The shift in the overall export structure away from the traditional exports such as textiles and clothing, and in favor of electrical machinery and appliances, suggests the upgrading of China’s comparative advantage.

The changing comparative advantage of China’s exports can be examined by looking at the market share of various Chinese products in the world markets. In the G7 market\textsuperscript{10}, China’s share in clothing doubled from around 10 per cent in 1989 to around 20 per cent in 1999, and its share in footwear increased more than five times, from around 7 per cent to around 38 per cent (OECD 2003). These were categories of exports for which the share of the Asian Newly Industrialized Economies (NIEs) declined rapidly. Relying on its cost advantage in labor-intensive manufacturing, China was able to erode the market share of these countries, whose exports shifted toward more capital- and technology-intensive exports.

Malaysia on the contrary is experiencing a continuous decline in $RCA$ for E&E products from 2001-2003. The future of E&E industry that utilizes skilled labor will depend on the future of FDI, given the dependency for FDI in this sub-sector (UNCTAD 2003). However, the current trend of FDI is not in favor of Malaysia. In 2001

\textsuperscript{10} The Group of Seven countries include the United States, Japan, Germany, France, Britain, Italy and Canada.
onwards, Malaysia is constantly receiving fewer capital injections from major developed countries like UK and Japan. In figure 3, it is evident that UK, US, Singapore and Japan are pouring lesser amount of capital into our country throughout the two-year period of 2002 and 2003. A recent news report makes clear that the drop in inward FDI in Malaysia has been substantial in 2002, and that the Malaysia government has no doubt that much of the drop is attributable to FDI diversion to China:

Malaysia attracted approved manufacturing FDI of only RM 2.16 billion ... for the first six months of this year [2002]. This is a sharp drop from the RM 18.82 billion it pulled in for the whole of last year. ... ‘Everybody is feeling the pinch because the amount of FDI has shrunk and then, a lot of that is going to China,’ Dr. Mahathir told a news conference later.  

![Figure 3: Malaysia: Sources of FDI, 1996-2003](image)

9 Malaysia turns inward for growth,” The Straits Times, 21 September 2002. Six months later, The Straits Times reported (“Malaysia is losing investors to China, Vietnam,” 6 February 2003) that “Asia-Taiwan Businesses Association honorary president Tan Kun Huang said that the 82-per cent contraction [in FDI from Taiwan] compared with the previous year was largely due to Malaysia losing its edge as a cheap labor market. Sin Chew [a newspaper]
In 2001, based on companies in production, Japanese Direct Investment (JDI) in Malaysia in the E&E sector amounted to RM 7,326 million (Table 4) and accounted for 52 per cent of total FDI in the E&E sector (MIDA 2004). In contrast, American FDI in the same sub-sector for the same year in Malaysia accounted to only RM 962 million (Table 4) and accounted for only 7 per cent of total FDI. Consequently the future of high technology exports depends on the future of JDI in this sub-sector. This in turn depends on both Japan’s supply of FDI and the locational advantages offered by Malaysia as a host economy.

Table 4 E&E Industry of Malaysia, as at 31.12.2001

<table>
<thead>
<tr>
<th>Country</th>
<th>Number</th>
<th>Total Employment</th>
<th>Foreign Investments (RM)</th>
<th>% of Total FDI in E&amp;E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>87</td>
<td>51021</td>
<td>1,032,388,276</td>
<td>7%</td>
</tr>
<tr>
<td>Japan</td>
<td>140</td>
<td>110,622</td>
<td>7,326,738,528</td>
<td>52%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>9</td>
<td>2625</td>
<td>102,584,902</td>
<td>0.7%</td>
</tr>
<tr>
<td>United States</td>
<td>34</td>
<td>29,661</td>
<td>962,352,692</td>
<td>7%</td>
</tr>
</tbody>
</table>


In terms of Japanese outflows of FDI, Table 5 shows that over the period 1996-2003, JDI in Malaysia registered negative growth for each year except in 1997, 2001 and 2003. Investment diversion to China may have contributed to the negative growth. In 1998-2000, China’s performance index rank was 47 compared with 44 for Malaysia. In 2001, the proportion of Japanese TNCs that identified China as one of the 10 most promising locations for manufacturing FDI jumped to 82 per cent from 65 per cent in 2000. Malaysia on

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the contrary, recorded a drop from 20 per cent to 12 per cent in 2000\textsuperscript{14}.

Despite the poor ranking, Malaysia remained an important destination for JDI. A detailed analysis by Ong-Giger (1999) showed that there were neither massive relocations nor plant closures by key Japanese electronic companies in Malaysia such as Fujitsu, Hitachi, Matsushita, NEC and Sony. Thus although JDI did fall from 1998 to 2000, the ensuing recovery of the economy in 2001 led to a 25 per cent growth in JDI from 2000-2001 and a massive growth of 433 per cent from 2002-2003 (Table 5). This recovery indicates that Malaysia continues to remain attractive to Japanese electronic companies.

**Table 5**  Japan’s manufacturing investment in ASEAN countries and China, 1996-2003

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>Y100m %</td>
<td>Y100m %</td>
<td>Y100m %</td>
<td>Y100m %</td>
<td>Y100m %</td>
<td>Y100m %</td>
<td>Y100m %</td>
<td>Y100m %</td>
</tr>
<tr>
<td>Thailand</td>
<td>1581 0</td>
<td>2291 44</td>
<td>1798 (21)</td>
<td>934 (48)</td>
<td>1030 10</td>
<td>1106 7</td>
<td>614 (44)</td>
<td>711 16</td>
</tr>
<tr>
<td>Singapore</td>
<td>1256 0</td>
<td>2238 78</td>
<td>839 (62)</td>
<td>1158 38</td>
<td>505 (56)</td>
<td>1435 184</td>
<td>917 (36)</td>
<td>364 (60)</td>
</tr>
<tr>
<td>China</td>
<td>2828 0</td>
<td>2438 (3)</td>
<td>1377 (43)</td>
<td>858 (38)</td>
<td>1114 30</td>
<td>1819 63</td>
<td>2152 18</td>
<td>3553 65</td>
</tr>
<tr>
<td>Malaysia</td>
<td>644 0</td>
<td>971 50</td>
<td>668 (31)</td>
<td>588 (12)</td>
<td>256 (56)</td>
<td>321 56</td>
<td>98 (223)</td>
<td>523 433</td>
</tr>
<tr>
<td>Philippine</td>
<td>630 0</td>
<td>642 2</td>
<td>488 (23)</td>
<td>711 46</td>
<td>514 (28)</td>
<td>989 92</td>
<td>500 (49)</td>
<td>222 (56)</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2720 0</td>
<td>3085 13</td>
<td>1428 (54)</td>
<td>1070 (25)</td>
<td>464 (57)</td>
<td>785 69</td>
<td>644 (18)</td>
<td>732 14</td>
</tr>
</tbody>
</table>


*Note: Figures in percent show the investment growth rate for each country from year to year.*

JDI in China, however, exhibited negative growth since 1997 to 1999 (Table 5). The initial decline in 1996/97 may be attributed to the removal of the duty-free status on capital goods imports for the enterprises with foreign investment in April 1996 (Henley, *et al.*; 1999). Subsequent decline in 1998 may in turn be due to the negative impact of the Asian financial crisis on Japanese corporate profits as well as the recession in the Japanese economy. In 1999, JDI in

China has fallen to less than one fifth its historic high in 1995, perhaps reflecting disenchantment with the “market potential” that was part of China’s magnetism for FDI\(^{15}\).

In 2000-2003, JDI in China registered positive growth within 30-65 per cent. China has made substantial commitments to liberalize the terms and conditions for foreign investment and the activities of foreign-owned or invested enterprises in the domestic economy. In particular, multiple tax incentives have had a positive impact on attracting foreign direct investment inflows into China (OECD 2004). The accession to WTO obligates China to adhere to several longer-standing WTO agreements that would have important effects on the investment climate for foreign direct investment.

**Long Term Impacts**

While the RCA indices as well as JDI data indicate that Malaysia still has a competitive edge over China in the production and exports of E&E products, the long-term development of this sub-sector in both countries inevitably depends on the science and technology capabilities of these countries. Table 6 reveals that China appears to have an edge over Malaysia in all the science and technology indicators shown. This certainly does not augur well for Malaysia’s drive to move up the value-added chain and away from assembly type operations. Ong-Giger (1999) has also noted that China is a formidable threat to South-East Asia in the area of investment in information technology due to its large pool of computer programmers, many of who are trained in the United States.

The expenditures for research and development (R&D) as a percentage of GDP in Malaysia were relatively low in comparison with China and Singapore (Table 6). The response from the private sector to engage in R&D activities had not been encouraging. The use of the R&D incentives on offer has been relatively low (Tan, 1999).

In 2001, 582 applications approved for double deduction for R&D were valued at only RM 57 million (MITI, 2002). The 1998 National Survey of Research and Development reported that only 43 foreign-owned and 30 foreign controlled companies were engaged in R&D that year, accounting for not more than RM 309 million, or 38 per cent of total private R&D expenditure (MASTIC, 1998).

### Table 6 Science and Technology Indicators

<table>
<thead>
<tr>
<th>Country</th>
<th>Scientists and engineers in R&amp;D per million people</th>
<th>Technicians in R&amp;D per million people</th>
<th>Expenditures for R&amp;D % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>545</td>
<td>187</td>
<td>1.00</td>
</tr>
<tr>
<td>Thailand</td>
<td>74</td>
<td>74</td>
<td>0.10</td>
</tr>
<tr>
<td>Malaysia</td>
<td>160</td>
<td>45</td>
<td>0.40</td>
</tr>
<tr>
<td>Singapore</td>
<td>4140</td>
<td>335</td>
<td>1.88</td>
</tr>
</tbody>
</table>

*Source: The World Bank, World Bank Development Indicators 2003 (2003).*

However, the recent Multimedia Super Corridor initiatives to attract technology investors appear to have been relatively successful. According to the Multimedia Development Corporation, as of 9 August 2004, 1087 Multimedia Super Corridor status companies had been approved, of which more than 290 were foreign-owned and some 60 companies considered “world-class” (MDC 2004). The two largest activities among Multimedia Super Corridor companies were focused on related software development (MDC 2004).

Despite the relatively low uptake of R&D incentives, inward FDI in Malaysia has resulted in important technology transfers. This has been most visible in the electronics cluster in Penang, in which leading local supporting industries have managed to absorb and adapt to the high quality practices and standards applied by TNCs and the rapid technical innovation in the global electronics industry (UNCTAD 2003). As a result, the most successful local supporting industries today fully comply with international standards.
and produce components, machinery and equipment for TNCs, not only in Malaysia but also elsewhere (UNCTAD 2003).

5. Conclusions

The study has analyzed the implications of China’s WTO accession to the Malaysian economy for the period of 1996-2003. In the analysis of revealed comparative advantage, it was found that the comparative advantage of Malaysian E&E sector had declined albeit the relatively high RCA indices. On the contrary, China’s RCA in the E&E sector has increased albeit the negative RCA indices. The comparative advantage of Malaysian E&E sector is deteriorating within the ASEAN +3 countries. The drop in Malaysian E&E comparative advantage could be attributed to the drop in FDI flow to Malaysia in 2000-2002.

In the analysis of FDI flow to Malaysia, results showed a reduction in FDI from Japan and US to Malaysia in 2000-2002. However, Malaysia is still an attractive spot for JDI. A significant improvement in JDI was registered in 2003. Whether China’s WTO accession has diverted FDI away from Malaysia is still inconclusive. Nevertheless, the future development of E&E sector depends on the future outflows of FDI and this may face constraints as Japan struggles with the restructuring of its economy while the scarcity of skilled labor within Malaysia continues to impede the desired technological transformation. Moreover Malaysia also faces competition from within ASEAN as they share common strategies and goals in developing their respective economies.

Since the 1980s, China has been a tough competitor to many ASEAN economies, particularly in terms of major export markets for labor-intensive manufactures, including textiles, clothing, leather products, and electronics. Whether China will be a threat or not depends on the degree of complementarities between the Malaysian economy and the Chinese economy, and the capabilities of Malaysian firms to exploit the ample opportunities available there. China will be
a competitor for markets and foreign investments, but it will also be a potential market for investors, as well as a development partner for East Asian economies. Thus, it is vital for Malaysia to secure a niche before China swamps the world with her cheaper products.

With the accession to the WTO, China will be under international pressures to comply with the WTO agreements and need to confer “national treatment” to foreign enterprises in those sectors previously protected. Some state-owned-enterprises (SOEs) have responded to the competitive pressures by entering into joint-stock companies with domestic and foreign private enterprises. For instance, BASF, BP, and Shell have all entered into billion-dollar joint ventures with Chinese firms in the petrochemical sector. This offers an opportunity for Malaysian firms, particularly those dealing with resource-based products such as petroleum, palm oil, timber products, agricultural goods, some niche manufacturing products, and perhaps selected services like tourism and education in the Chinese market.

A way to tap these opportunities is for Malaysia to seek cooperation with China, as it is believed that bilateral trade agreements between China and Malaysia or regional trading arrangements such as ASEAN-China and ASEAN + 3 initiatives would expand market opportunities, coordinate regional interests, and discourage the duplication of investment in certain industries. The formation of an ASEAN-China free trade area for instance should attract more investments into the region. Not only will more ASEAN and Chinese companies be willing to invest within the integrated market, since market risk and uncertainty are lowered, but US, European and Japanese companies, which are interested in making inroads into the Asian market, will also be attracted to invest in the integrated market. The integration of ASEAN with China can entice more foreign corporations, which each market alone cannot otherwise attract. With a larger market, more intense competition, increased investment and economies of scale, enterprises will invest more in research and development, hence promoting technological innovation.
On the other hand, there will be challenges arising from the establishment of a Free Trade Agreement between ASEAN and China. There would be intensified competition in each region’s domestic market given the similarity in industrial structures. In order to attract FDI, it is important to emphasize what can Malaysia offer that others cannot. In dealing with the awakened giant, many suggested that Malaysia has to move up the value-added ladder by advancing to a knowledge-based economy. While this is crucial, one cannot help but notice that the profile of FDI flowing into China has broadened over the years. Most of the higher technology Chinese output depends on foreign know-how and tax breaks, and they are vulnerable to a shift in their flow or direction.

These results provide some important findings about the likely response of the Chinese economy to accession but, at the same time, highlight a number of areas in which our ignorance is profound, and more research is needed if appropriate policy responses are to be adopted. Policymakers would be forced to craft an appropriate response that will ultimately allow Malaysians to ride on the Chinese economic powerhouse. This involves the re-invention of Malaysian businesses so that they are able to take advantage of this new market and trading environment. The rise of China is not a zero-sum game. Instead of seeing it as a threat, we should perceive it more as a challenge with many opportunities to come. As Kenichi Ohmae has aptly put it, “the winners will be those who use China as if it was part of their own body”.

References


21, pp. 121-140.


