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The Export Competition Between China and ASEAN-5 Countries in the U.S and Japan: A Survey on Manufacturing Sectors

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ABSTRACT

The issue of People's Republic of China's (henceforth PRC) competitive threat to ASEAN[1] and other regional exporters has received considerable attention consequent upon PRC's WTO accession in 2001. This article provides a comparison of the changing patterns of export share, product mix, industry structure and export growth among PRC and ASEAN-5 (Indonesia, Malaysia, Singapore, Philippines and Thailand) as manufactures of textiles and electronics products to U.S. and Japan import markets. The degree of export rivalry or competition between PRC and ASEAN-5 in the U.S. and Japan markets are examined by using a conventional shift-share methodology between 1992 and 2003. The results indicated that overall, PRC has strong positive net shifts in the textile and clothing (T&C) products (SITC 26, SITC 65 and SITC 84) in both the US and Japan markets. The ASEAN-5 countries however revealed negative net shifts in the textile and clothing products over the course of 10 years of study. In the electric and electronic (E&E) industry (SITC 75, SITC 76 and SITC 77), countries like Malaysia and Singapore postulated positive net shift alongside PRC in the US market. The inverse however was true for Indonesia, Philippines and Thailand.

JEL Classification: C22; F10; F02; F31
Keywords: Time-series model, Trade, Economic integration, Foreign Exchange

[1] The Association of Southeast Asian Nations (ASEAN), consists of Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei Darussalam, Vietnam, Laos, Myanmar and Cambodia

1. Introduction

PRC and ASEAN have experienced strong economic growth over the last two decades. Specifically, ASEAN has emerged as one of the fastest growing regions in the world. ASEAN real GDP grew at about 6 percent between 1985 and 1995 on an annual average basis, compared to the world average of 2 percent and growth in developed market economies of 3 percent. (see Tongzon, 1998). The dynamic growth of these economies is achieved due to their successful reforms, industrial restructuring and export-led industrializations.

At the same time, substantial changing patterns of export share and export merchandise between ASEAN and China as exporters of primary commodities, labor intensive goods as well as technology or capital-intensive manufactures to their common US and Japan markets has also been observed. More attention is given to the export competition between ASEAN and PRC, as China is not only flooding its low-priced manufactured products into ASEAN market, but also become a direct competitor for manufactured exports in the major developed countries, i.e. the United States, Japan and EU markets (see Wong, 1984).

Foreign trade is an important driving force for both ASEAN and PRC's economic development. PRC's entry into WTO in December 2001 obviously will provide not only new opportunities for ASEAN-PRC trade relations but also will create challenges to ASEAN. Both PRC and ASEAN achieved high growth rates in foreign trade for the last two decades. From 1991 to 2000, PRC's foreign trade grew at an average annual rate of 15 per cent, where in 2000, PRC's exports amounted to US $249.3 billion and its imports totaled US $206.1 billion. For ASEAN's economies, foreign trade grew at an average annual rate of 10.9 per cent during the period from 1993-2000, however the rate was lowered during the financial crisis in 1997.

PRC's export to ASEAN-5 grew from US $2.3 billion in 1987 to US $17.2 billion in 2000 while its imports from ASEAN-5 grew from US $2.1 billion in 1991 to US $21.0 in 2000. (see Table 1). Table 2 shows the GDP growth rates for the ASEAN-5 economies, where they achieved a strong performance before the 1997 financial crisis, averaging 7.2 per cent per

annum between 1987-1997. Nonetheless, from 1987 to 2000, PRC's real GDP growth had averaged 9.3 per cent, the fastest rate of real GDP growth in the world.

As PRC joined the WTO in 2001, the rules and nature of global competition in the international trade has changed. PRC's trade liberalization and growth has mixed impacts on the manufacturing sector of developing countries. Opportunities exist for the ASEAN-5 to participate in global production networks in manufacturing sectors such as electronics, machinery and equipment that are likely to expand with PRC's further integration into the global economy. In contrast, competition with PRC in the manufacturing sector would also intensify as a result of PRC's accession to the WTO. This will present a challenge for many countries especially ASEAN-5 that have similar comparative advantage in labor-intensive goods. Whether the accession of PRC into WTO will provide good opportunities for ASEAN-5 or entail serious competition in the world market between two economies is an interesting issue. The aim of this paper is to provide a comparison of the changing pattern of export competitiveness among PRC and ASEAN-5 (Indonesia, Malaysia, Singapore, Philippines and Thailand) as exporters of textiles and electronics products to U.S and Japan export markets. The degree of export rivalry or competition among PRC and ASEAN-5 in the U.S and Japan markets are examined by using a conventional shift-share methodology between 1990 and 2003. The analysis is conducted both for the main ASEAN-5 exporters as a group and then moves to consider individual economies.

The next section reviews the previous literature on the issue of competition between PRC and ASEAN. A description of the shift-share methodology used to compare changes in the countries competitive positions and the empirical results are followed in section three and section four respectively. A brief conclusion and implications are presented in section five.

Table 1: PRC's imports/exports from/to ASEAN-5 (Million of US dollars)

Year	Indonesia		Malaysia		Philippines		Singapore		Thailand		ASEAN-5	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
1987	591	188	302	255	140	245	618	1323	405	301	2056	2312
1988	681	236	570	309	135	268	1018	1494	633	512	3037	2819
1989	582	223	692	352	83	239	1499	1692	756	500	3612	3006
1990	849	401	852	370	90	205	849	2016	386	854	3026	3846
1991	1403	481	804	528	130	253	1063	2014	422	848	3822	4124
1992	1554	471	830	645	155	209	1238	2031	424	894	4201	4250
1993	1446	693	1084	704	213	281	2647	2245	601	750	5991	4673
1994	1589	1052	1623	1118	272	476	2481	2563	864	864	6829	6073
1995	2053	1438	2065	1281	276	1030	3398	3500	1611	1611	9403	8860
1996	2289	1428	2246	1374	372	1015	3613	3753	1890	1890	10410	9460
1997	2674	1844	2485	1921	327	1334	4385	4321	2005	2005	11876	11425
1998	2462	1172	2675	1594	517	1499	4226	3901	2423	2423	12303	10589
1999	3051	1779	6306	1674	908	1379	4061	4502	2780	2780	14406	12114
2000	4402	3062	5480	2565	1677	1464	5060	5761	4381	4381	21000	17223

Source: Direction of Trade Statistics Yearbook, IMF, 1994-2000

Table 2: Real GDP growth rate of ASEAN-5 and PRC (%)

Year	Indonesia	Malaysia	Philippines	Singapore	Thailand	PRC
1987	4.9	5.4	4.8	9.4	9.5	11.1
1988	5.8	8.9	6.3	11.1	13.3	11.3
1989	7.5	9.2	6.1	9.2	12.3	4.3
1990	7.1	9.7	2.7	8.3	11.6	3.9
1991	6.6	8.7	-0.7	6.7	7.9	8.0
1992	5.8	8.5	0.0	5.8	7.5	13.2
1993	5.9	8.4	1.0	9.9	7.7	13.5
1994	7.5	9.2	4.4	11.4	9.0	12.7
1995	8.2	9.8	4.7	8.0	9.3	10.5
1996	7.8	10.0	5.8	7.6	5.9	9.6
1997	4.7	7.3	5.2	8.5	-1.4	8.8
1998	-13.1	-7.4	-0.6	0.1	-10.8	7.8
1999	0.8	6.1	3.4	5.9	4.2	7.1
2000	4.8	8.3	4.0	9.9	4.4	8.0

Source: Asian Development Bank, (1999-2001)

2. Literature Review

Several studies have been conducted to examine the export competition between PRC and ASEAN. Tyers et.al. (1987) focused on labor-intensive manufacture (LIM) export competition between PRC and each of the ASEAN-5. They used the constant market share analysis and examined the respective patterns of comparative advantage. Their results revealed that in 1981, despite some differences in the exports of LIM between PRC 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 U.S and Japanese markets.

Herschade (1991) in his study presented a comparison of the changing pattern of export competition between PRC and ASEAN for products at SITC 1- digit level focusing on the Japanese market over the period 1982-87. He concluded that ASEAN export suffered the most from the entrance of PRC to the Japanese 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). PRC, in contrast, experienced competitive disadvantage in the export of manufactures and miscellaneous

manufactures (SITC 6 and 8) and competitive advantage in the export of chemicals and machinery and transport equipment (SITC 5 and 7).

Using the shift-share analysis to measure the magnitude of economic rivalry, Voon (1998) examined the degree of export rivalry or competition between PRC and ASEAN-4 for four product groups in the U.S market during period 1982-86 and 1990-94. The results obtained indicate ASEAN-4's exports of manufactured goods in the United States have grown absolutely between 1980-94, despite the entry of PRC since 1979. However, PRC'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), PRC's share in the United States market has been increasing steadily from 1980-1994. 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 result that showed a competitive disadvantage for ASEAN in the Japanese market. This result was attributed to the appropriate emphasis in the MILM in PRC'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 PRC, particularly between 1992-94, was also perceived to have contributed to the competitive edge of the ASEAN-4 *vis-à-vis* PRC.

Chew and Liu (1997) used the market share simple regression (MSSR) method and regression analysis based on two-digit historical data from SITC and using U.S as the common market to examine the competition and complementary in trade between PRC and ASEAN-5. Their results showed that competition between ASEAN and PRC in the U.S market largely occurs in the competition for the U.S market in crude materials. Chang *et al* (1997) also examined the export competition between PRC and each of the ASEAN-5 in the US market and European Union (EU) market during period 1980-1994. "Thailand no longer enjoys a competitive edge in exports over PRC (at least in the US market)" and "PRC has lagged behind Malaysia in export performance by a big margin".

Chandran et.al. (2004) examined the trends, prospects and challenges of Malaysia's export market growth between 1990-2001 using the dynamic shift-share method. Their results

indicated that overall, Malaysia has a strong net shift in the chemical (SITC 5) and machinery and transport equipments (SITC 7) especially in office machinery (SITC 75) and electrical (SITC 77) products in the major markets. Secondly, due to the growing competition in international trade, the study also assessed the degree of competition between Malaysia, PRC and ASEAN-4 countries exporting to the major markets. In general the results revealed that PRC and other ASEAN countries have an impact on the position of Malaysia as an exporter of manufactured products. It was concluded that PRC poses stiff challenges to Malaysia in the major markets such as EU, US and Japan.

3. Shift-share Analysis

To analyze the export competition among PRC and the ASEAN-5 countries in the US and Japan markets for T&C and E&E products, shift-share analysis[2], which has been widely used, is applied here. It is to measure how competitive export country *j* is in the US and Japan markets respectively compared to the like export of reference economy as a whole. The role of shift-share in the present study is to compare changes in competing PRC and ASEAN-5 member's exports at the SITC two-digit level to the USA and Japan with the corresponding exports of a reference group (REF hereafter), in this case the combined PRC and ASEAN-5 exports. Any difference between the performance of the country *j* concerned in a given commodity group and destination and that part of the total change in exports which might be attributed to the rate of export growth of the reference group as a whole – the *share effect* (SE)- is referred to as the *export differential or shift effect* (NS) and is measured in absolute dollar terms. A positive value implies an improvement in competitiveness relative to the reference group and a negative value constitutes deterioration in competitiveness. The export

[2] Here, the modified second version of the Esteban-Marquillas shift-share model is employed. It is defined as:

$AC = SE + ISE + CE + IE$

And the various relevant effects are as follows:

Share effect: $SE = X_{0j}\, P_{ir}\, G_{ir}$

Industry structure effect: $ISE = X_{0j}(P_{ij} - P_{ir})\, G_{ir}$

Competitive effect: $CE = X_{0j}\, P_{ir}\, (G_{ij} - G_{ir})$

Interactive effect: $IE = X_{0j}\, (P_{ij} - P_{ir})\, (G_{ij} - G_{ir})$

Where X_{0j} = total exports to US from competitor (country) j (j=1--3)

P_{ij} = proportion of total exports to the US market from country j accounted for by exports in industry category i of country j

G_{ij} = grow rate of exports from industry category i in country j

P_{ir} = proportion of total exports to US from the reference country (combined China, Malaysia and Thailand)

G_{ir} = growth rate of exports to US from industry category i of the reference country

AC = actual exports change of country j during the period

NS = ISE + CE + IE

differential is in turn accounted for by three additive factors: the *industry structure effect* (ISE), the *competitive effect* (CE), and the *interactive effect* (IE).

The ISE looks at how much of the difference is due to a divergence in the industry structure between the competing country and the reference economy. If the competitor's percentage of export in fast growing industry is higher than the reference economy or its percentage in slow growing industry is lower, the industry structure effect will be favorable, and *vice versa* for unfavorable industry structure. Second, the CE shows the contribution of the differential growth rate between the competing country and the reference economy to the difference. A positive (negative) competitive effect represents that the competitor has competitive advantage (disadvantage). Finally, the IE is the interaction of industry structure and competitiveness. When the competing country focuses its export on those sectors in which it does relatively well (i.e. favorable industry structure effect and competitive advantage), or de-focused on those sectors in which it does relatively poorly (i.e. unfavorable industry structure effect and competitive disadvantage), the interaction effect will demonstrate a positive value. When the competing country specializes in those sectors in which it has a positive industry structure coupled with competitive disadvantage, or it has a negative industry structure with competitive advantage, the interaction effect will take on a negative value.

In recent years, the studies on shift-share analysis were usually applied over a 5-year time period. Recent examples of its use include Herschede (1991), Khalifah (1996), Voon (1998), and Wilson (2000). In this paper however, the study is divided into two time frames, 1992-1996 and 1999-2003. Isolating the study into two time frames is useful in revealing changes in relative competitiveness of a country. The export data of the textile and the E&E products for these countries to the US and Japan markets were obtained from the International Trade Center (COMTRADE), United Nation. The export data included in this study was at 2 digits Standard International Trade Category (SITC) level. The T&C industry includes products at SITC 26, SITC 65 and SITC 84[3] while the E&E industry includes products at SITC 75, SITC 76 and SITC 77[4].

[3] SITC 26 - textile fibers, SITC 65 - textile yarn fabric, etc, SITC 84 - clothing and accessories
[4] SITC 75 – office machines, adp mach, SITC 76 – telecomm, sound equip etc, SITC 77 – electrical machines apparatus, parts

4. Key Findings

This study applies the static shift-share analysis to the exports of textiles and electronics of the six reference economies (PRC, Malaysia, Singapore, Thailand, Indonesia and Philippines) over the period of 1992-1996 and 1999-2003. The key results are summarized in this section.

4.1 Japan as the Export Market Destination

This section discusses the net shifts and the decomposition of the overall net shifts into its additive effects of PRC and ASEAN-5 in textiles and electronics sectors to the common export market of Japan.

4.1.1 Net Shifts

Table 3 and Table 4 decompose the net shifts in export of the T&C and E&E products to Japan. In 1992-1996, all six competing economies registered negative net shifts in export of all T&C products to Japan. In the period of 1999-2003, PRC became the principal gainer to record strong positive net shifts in SITC 26, 65 and 84 while Malaysia, Singapore, Indonesia and Thailand lagging behind with positive net shift only in SITC 26. The similar trend continued in the E&E sector. In 1992-1996, none of the competing economies had positive net shifts in the latter sector. In 1999-2003, positive net shifts were recorded in SITC 75-77 for PRC while other competing economies except Singapore and Thailand had negative net shifts in the same category. Singapore and Thailand registered a respectable positive net shift in electrical machines (SITC 77) [refer to Appendix I and Appendix II for actual figures on shift-share calculations].

4.1.2 Competitive Effects (CE)

The competitive effect, which is the proportion of the export differential due to the difference between the export growth rates of a competing economy and the REF as a whole, were lackluster for ASEAN-5 compared to PRC over the whole 10 years covered by the study. In the electronics and textiles sectors, the CE of ASEAN-5 were negative, or at best marginally positive between 1992-1996 and 1996-2003 due to generally slower growth of the countries' exports vis-à-vis to PRC. The PRC on the contrary rebounded from a streak of negative CE

in the 1992-1996 to record strong positive CE in 1999-2003 in the T&C and E&E sectors. The accelerated growth of the PRC's textiles and electronics industries has been well ahead of other reference economies for the much of the period.

4.1.3 Industry Structure Effect (ISE)

While the ASEAN-5's CE for both T&C and E&E exports were generally weak, this has been offset by a high industry structure effect (ISE) especially in electronic sectors between 1999-2003. In other words, the good overall performance of ASEAN-5 compared to PRC in the E&E could be attributed to the higher concentration of fast-growing electronics in ASEAN-5 exports compared to the reference group, particularly in telecommunication equipment (SITC 76) and electrical machine apparatus (SITC 77). The ASEAN-5's high ISE surpassed PRC economy in 1999-2003, the period within which PRC registered negative ISE in the E&E sectors.

4.1.4 Interaction Effect (IE)

The high concentration of electronics in ASEAN-5 individual country's exports in Japan could be a double-edge sword. While such an industry structure contributes to a positive ISE, the overall shift effect could be dragged down if it is not accompanied by relatively strong growth in these exports (a positive CE) when growth of electronics exports of the reference economies as a whole is positive. The IE component in the NS decomposition embodies the combined effect of a country's export structure interacting with her export growth. Thus, a positive IE will generally be obtained if the ISE and CE reinforce each other[5].

In 1992-1996, the ASEAN-4 (excluding Philippines) registered positive IE despite overall weakness (negative) in CE and ISE in the textiles industry. In 1999-2003, PRC and the ASEAN-4 (excluding Indonesia) maintained strong positive IE despite negative CE and ISE obtained in the same industry. In the E&E sector, the results were more dispersed. While countries like PRC and Indonesia acquired positive IE in the electronics in 1992-1996, other competing economies were still having negative IE. In the second period of study, PRC and

[5] This will hold true only if the growth of electronics exports of the reference economies as a whole is positive.

the members of ASEAN-5 continued to register negative IE in spite of positive ISE obtained in SITC 75 and SITC 76 respectively. However, the results should not cause undue concern. Export structures that are geared towards electronics will continue to be advantageous with the long-term prospects of global electronics remaining tight.

4.2 United States of America as the Export Market Destination

This section discusses the net shifts and the decomposition of the overall net shifts into its additive effects of PRC and ASEAN-5 in textiles and electronics sectors to the common export market of United States.

4.2.1 Net Shifts

As shown in Table 5, all competing economies with the exception of Singapore had at least one product in the T&C category with positive net shifts in exports between 1992-1996. PRC and Philippines registered strong positive net shifts in SITC 65 and SITC 84 while Malaysia and Thailand recorded positive net shifts in SITC 65. In the second period of study as shown in Table 6, PRC increased her lead as the dominant producer of low-cost textiles-based products with positive net shifts in exports of SITC 26, SITC 65 and SITC 84 respectively. The ASEAN-5 on the contrary postulated negative net shifts in export of the T&C products to the US market over the period of 1999-2003. In the E&E sector, PRC registered strong positive net shifts in her export to the US in 1999-2003. It was a marked improvement in the country's competitiveness that had negative net shifts in SITC 75-77 in 1992-1996. Malaysia, Singapore, Thailand and Indonesia on the contrary were able to attain positive net shift in SITC 77 only [see Appendix III and Appendix IV for actual figures on shift-share calculations].

4.2.2 Competitive Effects (CE)

In 1992-1996, the ASEAN-5 appeared strong (recording positive CE) in SITC 26 and SITC 77 while PRC were strong in SITC 65, SITC 75, SITC 76 and SITC 77 respectively (see Table 6). In 1999-2003, a similar pattern is observed in the competing economies. The ASEAN-4 (except Philippines) registered strong positive CE in SITC 26 and SITC 77 while

PRC stretched her lead, gaining strong competitive advantage in SITC 65 and SITC 84, SITC 75, SITC 76 and SITC 77 respectively (see Table 7). The results indicated increased strength in PRC's ability to produce labor-intensive products at lower costs and more efficient.

4.2.3 Industry Structure Effect (ISE)

The shift-share analysis revealed that labor-abundance countries specifically PRC, Indonesia, Thailand and Philippines have industry structures that are geared towards labor-intensive products. These countries acquired positive cumulative ISE in exports to the U.S in the T&C products in 1999-2003 (see Table 7). Malaysia and Singapore on the contrary have positive ISE in electronics sector especially in SITC 75. Overall, the good performance of labor-abundance countries (as mentioned above) in the textiles sector could be attributed to the higher concentration of fast-growing textiles in exports to the U.S compared to the reference group. Malaysia and Singapore on the other hand are concentrating in E&E sector, parallel to the domestic industrial policy of these countries that encourage the development of technology-based products.

4.2.4 Interaction Effect (IE)

In general, there were deteriorating IE among ASEAN-5 countries in the course of ten-year period of study. In 1992-1996, all competing economies had negative cumulative IE in exports to the U.S in the E&E sector (see Table 6). However, due to strong positive ISE and CE especially in SITC 26 and SITC 65, several competing economies that include PRC, Thailand and Singapore were able to obtain moderate positive IE in the T&C sector in 1992-1996. In 1999-2003, majority of competing countries registered negative IE in the electronics sector. This was largely due to weak ISE in SITC 75 and SITC 76 that dragged down the overall IE effect in this sector (see Table 7). Meanwhile, countries like Malaysia, Singapore and PRC registered strong positive IE in the textiles sector despite the fact that the two ASEAN countries were having negative CE and ISE in this sector.

Table 3

COUNTRY		JAPAN 1992-1996							
		TEXTILE PRODUCTS					E&E PRODUCTS			
	SITC	26	65	84	26-84		75	76	77	75-77
	SE	+	+	+	+		+	+	+	+
	ISE	+	+	+	+		-	-	-	-
CHINA	CE	-	-	-	-		-	-	-	-
	IE	-	-	-	-		+	+	+	+
	AC	-	+	+	+		+	+	+	+
	NS	-	-	-	-		-	-	-	-
	SE	+	+	+	+		+	+	+	+
	ISE	-	-	-	-		+	+	+	+
MALAYSIA	CE	-	+	-	-		-	-	-	-
	IE	+	-	+	+		-	-	-	-
	AC	+	+	+	+		+	+	+	+
	NS	-	-	-	-		-	-	+	-
	SE	+	+	+	+		+	+	+	+
	ISE	-	-	-	-		+	+	+	+
THAILAND	CE	-	-	-	-		-	-	-	-
	IE	+	+	+	+		-	-	-	-
	AC	+	+	-	+		+	+	+	+
	NS	-	-	-	-		-	-	-	-
	SE	+	+	+	+		+	+	+	+
	ISE	-	-	-	-		+	+	+	+
SINGAPORE	CE	-	-	-	-		-	-	-	-
	IE	+	+	+	+		-	-	-	-
	AC	+	+	-	-		+	+	+	+
	NS	-	-	-	-		+	-	+	+
	SE	+	+	+	+		+	+	+	+
	ISE	-	-	-	-		-	-	-	-
INDONESIA	CE	-	-	-	-		-	-	-	-
	IE	+	+	+	+		+	+	+	+
	AC	+	-	+	+		+	+	+	+
	NS	-	-	-	-		-	-	-	-
	SE	+	+	+	+		+	+	+	+
	ISE	-	-	-	-		-	+	+	+
PHILIPPINES	CE	-	+	+	-		+	-	+	+
	IE	+	-	-	-		-	-	+	+
	AC	+	+	+	+		+	+	+	+
	NS	-	-	-	-		-	-	+	+

Source: Authors calculation

Table 4

COUNTRY		JAPAN 1999-2003							
		TEXTILE PRODUCTS					E&E PRODUCTS		
	SITC	26	65	84	26-84		75	76	77	75-77
	SE	-	+	+	+		+	+	+	+
	ISE	-	+	+	+		-	-	-	-
CHINA	CE	+	+	+	+		+	+	+	+
	IE	+	+	+	+		-	-	-	-
	AC	-	+	+	+		+	+	+	+
	NS	+	+	+	+		+	+	+	+
	SE	-	+	+	+		+	+	+	+
	ISE	+	-	-	-		+	+	+	+
MALAYSIA	CE	+	-	-	-		-	-	-	-
	IE	-	+	+	+		-	-	-	-
	AC	+	-	-	-		-	+	+	+
	NS	+	-	-	-		-	-	-	-
	SE	-	+	+	+		+	+	+	+
	ISE	+	-	-	-		-	-	+	+
THAILAND	CE	+	-	-	-		-	-	-	-
	IE	-	+	+	+		+	+	-	+
	AC	+	+	+	+		+	+	+	+
	NS	+	-	-	-		-	-	+	-
	SE	-	+	+	+		+	+	+	+
	ISE	+	-	-	-		+	-	+	+
SINGAPORE	CE	-	-	-	-		-	-	-	-
	IE	+	+	+	+		-	+	-	-
	AC	-	-	+	+		-	+	+	+
	NS	+	-	-	-		-	-	+	-
	SE	-	+	+	+		+	+	+	+
	ISE	+	+	-	-		-	-	-	-
INDONESIA	CE	+	-	-	-		-	+	+	+
	IE	-	-	+	+		+	-	-	-
	AC	+	-	+	+		+	+	+	+
	NS	+	-	-	-		-	-	-	-
	SE	-	+	+	+		+	+	+	+
	ISE	+	-	-	-		+	-	+	+
PHILIPPINES	CE	-	-	-	-		-	-	-	-
	IE	+	+	+	+		-	+	-	-
	AC	-	+	+	+		+	-	-	-
	NS	-	-	-	-		-	-	-	-

Source: Authors calculation

Table 5

COUNTRY		USA 1992-1996								
		TEXTILE PRODUCTS					E&E PRODUCTS			
	SITC	26	65	84	26-84		75	76	77	75-77
	SE	+	+	+	+		+	+	+	+
	ISE	+	+	+	+		-	-	-	-
CHINA	CE	-	+	-	-		+	+	+	+
	IE	-	+	-	+		-	-	-	-
	AC	-	+	+	+		+	+	+	+
	NS	-	+	+	+		-	-	-	-
	SE	+	+	+	+		+	+	+	+
	ISE	-	-	-	-		-	+	+	+
MALAYSIA	CE	+	+	-	-		+	+	-	+
	IE	-	-	+	-		-	+	-	-
	AC	+	+	+	+		+	+	+	+
	NS	-	+	-	-		-	+	+	+
	SE	+	+	+	+		+	+	+	+
	ISE	+	+	-	-		-	+	-	-
THAILAND	CE	+	+	-	-		+	-	-	+
	IE	+	+	+	+		-	-	+	-
	AC	+	+	-	+		+	+	+	+
	NS	+	+	-	-		-	-	-	-
	SE	+	+	+	+		+	+	+	+
	ISE	N/A	-	-	-		+	+	+	+
SINGAPORE	CE	N/A	+	-	-		-	-	+	+
	IE	N/A	-	+	+		-	-	+	-
	AC	+	+	-	-		+	+	+	+
	NS	N/A	-	-	-		+	+	+	+
	SE	+	+	+	+		+	+	+	+
	ISE	-	+	+	+		-	-	-	-
INDONESIA	CE	+	-	-	-		+	+	+	+
	IE	-	-	-	-		-	-	-	-
	AC	+	-	+	+		+	+	+	+
	NS	+	-	-	-		-	+	-	-
	SE	+	+	+	+		+	+	+	+
	ISE	+	-	-	-		-	-	-	-
PHILIPPINES	CE	-	+	+	+		+	+	+	+
	IE	-	-	-	-		-	-	-	-
	AC	+	+	+	+		+	+	+	+
	NS	-	+	+	+		-	+	+	+

Source: Authors calculation

Table 6

COUNTRY		USA 1999-2003								
		TEXTILE PRODUCTS					E&E PRODUCTS			
	SITC	26	65	84	26-84		75	76	77	75-77
	SE	+	+	+	+		+	+	-	+
	ISE	+	+	-	+		-	-	+	-
CHINA	CE	-	+	+	+		+	+	+	+
	IE	-	+	-	+		-	-	-	-
	AC	-	+	+	+		+	+	+	+
	NS	-	+	+	+		+	+	+	+
	SE	+	+	+	+		+	+	-	+
	ISE	-	-	-	-		+	+	-	+
MALAYSIA	CE	+	-	-	-		-	-	+	-
	IE	-	+	+	+		-	-	+	-
	AC	+	-	-	-		-	+	+	+
	NS	-	-	-	-		-	-	+	-
	SE	+	+	+	+		+	+	-	+
	ISE	-	+	+	+		-	-	+	-
THAILAND	CE	+	-	-	-		-	-	+	-
	IE	-	-	-	-		+	+	-	-
	AC	+	+	+	+		+	+	+	+
	NS	+	-	-	-		-	-	+	-
	SE	+	+	+	+		+	+	-	+
	ISE	-	-	-	-		+	-	-	+
SINGAPORE	CE	-	-	-	-		-	-	+	-
	IE	+	+	+	+		-	+	+	-
	AC	-	-	+	+		-	+	+	+
	NS	-	-	-	-		-	-	+	-
	SE	+	+	+	+		+	+	-	+
	ISE	+	+	+	+		-	-	+	-
INDONESIA	CE	+	-	-	-		+	-	+	+
	IE	+	-	-	-		-	+	-	-
	AC	+	-	+	+		+	+	+	+
	NS	+	-	-	-		-	-	+	-
	SE	+	+	+	+		+	+	-	+
	ISE	+	-	+	+		-	-	-	-
PHILIPPINES	CE	-	-	-	-		-	-	-	-
	IE	-	+	-	-		+	+	-	+
	AC	-	+	+	+		+	-	-	-
	NS	-	-	-	-		-	-	-	-

Source: Authors calculation

5.0 PRC and Competition to ASEAN-5

In the previous sections, it was shown that PRC was one of the top gainers in global trade over the past decade. Although PRC's electronics exports have been growing at a faster rate than most of the reference economies, her textiles exports appeared strong as well. The changing comparative advantage of PRC's textiles exports can be analyzed by looking at the market share of various Chinese products in the world markets. For instance, in the G7 market, PRC's share in clothing double from around 10% in 1989 to around 20% in 1999 while its share in footwear increased more than five times (from 7% to 38%) [see OECD 2003]. Relying on its cost advantage in labor-intensive manufacturing, PRC was able to erode the market share of the ASEAN-5 countries, whose exports shifted toward more capital-and technology-intensive exports. Table 7 shows total labor force in PRC and ASEAN-5 for the period of 1980 and 2002. Although annual growth rate in PRC was the lowest among the reference economies, the quarter of a billion workforces is undeniably huge and represents a significant source of comparative advantage in labor-intensive sectors.

Table 7: Total Labor Force of ASEAN-5 and PRC

Country	Total (millions)		Average annual growth rate(%)
	1980	2002	1980-2002
Indonesia	58.6	104.2	2.6
Malaysia	5.3	10.3	3.0
Philippines	18.7	34.2	2.7
Singapore	1.1	2.0	2.8
Thailand	24.4	37.5	2.0
China	538.7	769.3	1.6

Source: The World Bank, World Bank Development Indicators 2004 (2004)

In term of FDI, Table 8 shows Japan's manufacturing investment in ASEAN countries and PRC for the period of 1997-2003. As can be seen, ASEAN-5 countries registered negative growth in 2002 and in 2003, only Singapore and Philippines registered negative growth. As for PRC, since year 2000, it experienced positive growth and this may be due to investment diversion from ASEAN countries. Prior to that, from 1997 to 1999, JDI in PRC, exhibited

negative growth and this 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 2000-2003, JDI in PRC registered positive growth within 30-65 per cent. PRC 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. Multiple tax incentives obviously have had a positive impact on attracting foreign direct investment inflows into PRC. PRC accession into WTO also would have important effects on the investment climate for foreign direct investment.

Table 8: Japan's Investment in ASEAN-5 countries and PRC, 1997-2003

Year	1997		1998		1999		2000		2001		2002		2003	
Country	Y100m	%	Y100m	%	Y100m	%	Y100m	%	Y100m	%	Y100m	%	Y100m	%
Indonesia	3085	13	1428	(54)	1070	(25)	464	(57)	785	69	644	(18)	732	14
Malaysia	971	50	668	(31)	588	(12)	256	(56)	321	25	98	(223)	523	433
Philippines	642	2	488	(23)	711	46	514	(28)	989	92	500	(49)	222	(56)
Singapore	2238	78	839	(62)	1158	38	505	(56)	1435	184	917	(36)	364	(60)
Thailand	2291	44	1798	(21)	934	48	1030	10	1106	7	614	44	711	16
China	2438	(3)	1377	(43)	858	(38)	1114	30	1819	63	2152	18	3553	65

Note: Figures in percent show the investment growth rate for each country from year to year
Source: Japan's statistics, Ministry of Finance, http://www.mof.go.jp/english/fdi

U.S. investment in ASEAN-5 at the end of 2003 stood at slightly over US$88 billion. As can be seen in table 9, U.S. investment in the region has grown rapidly. Along with this rapid growth has been an increasing diversification of U.S. investment in the region. In the mid-1980s, much of the American investment in ASEAN was in the oil and gas sector; this has changed steadily since then, and manufacturing and services now account for the largest share of U.S. investment activity in ASEAN. Data for year-end 1999 shows that 36% of U.S. investment in the region is concentrated in the manufacturing sector, while an equal amount is in services and other related industries. The remaining 28% of U.S. investment in the region is in the petroleum sector. U.S investment in PRC also has grown rapidly as indicated

in table 9, the amount was US$3848 million in 1996 increased to US$11877 million in 2003 an increased of 15 per cent from previous year (2002).

Table 9: US's Investment in ASEAN-5 and PRC, 1997-2003

Year	1997		1998		1999		2000		2001		2002		2003	
Country	US mil	%	US mil	%	US mil	%	US mil	%	US mil	%	US mil	%	US mil	%
Indonesia	6729	(19)	8104	20	8402	4	8904	6	10511	18	7546	(28)	10387	38
Malaysia	6530	15	5629	(14)	6222	11	7910	27	7489	(5)	6954	(7)	7580	9
Philippines	3219	(9)	3931	22	3517	(11)	3638	3	3279	(9)	4642	42	4700	1
Singapore	18026	21	17550	(3)	20665	18	24133	17	26749	11	52449	96	57589	10
Thailand	4332	(13)	5209	20	5500	6	5824	6	6444	11	7608	18	7393	(3)
China	5150	34	6350	23	9401	48	11140	18	11387	2	10294	(9)	11877	15

Note: Figures in percent show the investment growth rate for each country from year to year
Source: U.S. Department of Commerce, http://www.us-asean.org/statistics/US_investment.htm

The long-term development of the textiles and electronics sectors in reference economies inevitably depends on the science and technology (S&T) capabilities of these countries. Table 10 reveals that PRC appears to have an edge over Malaysia, Philippines and Thailand in all the S&T indicators shown. This certainly does not augur well for these countries' 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.

In the case of Malaysia, the expenditures for research and development (R&D) as a percentage of GDP were relatively low in comparison with PRC and Singapore (Table 10). The response from the private sector to engage in R&D activities had not been encouraging. 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 10: Science and Technology Indicators

Country	Researchers in R&D Per million people 1990-2001	Technicians in R&D Per million people 1990-2001	Expenditures for R&D % of GDP
Indonesia	na	na	na
Malaysia	160	45	0.40
Philippines	156	22	na
Singapore	4052	335	2.11
Thailand	74	74	0.10
China	584	202	1.09

Source: The World Bank, World Development Indicators 2004 (2004)

6.0 Concluding Remarks and Policy Implications

The results presented in Section 4 suggest that in the earlier period of the study between 1992-1996, the ASEAN-5 were able to keep ahead of PRC with significant positive net shifts in the textiles and electronics sectors particularly in the U.S market. However, the late 90's appeared to be a turning point with net shifts starting to trend downwards and became negatives. PRC began to surface as top performer. The '*awakened giant*', which was less concentrated in electronics in the early 90's emerged relatively unscathed from the 2001 global electronics downturn, while most of the other reference economies suffered a sharp negative supply shock. The results were negative cumulative net shifts in the E&E sector in most of the ASEAN-5 countries in US and Japan export markets.

The above findings revealed serious concerns for the ASEAN-5 as to how to move up the value-added chain and to higher levels of technology, in order to improve their competitiveness, especially for Malaysia, with the entry to the WTO of PRC and bearing fruits of PRC's efforts of structural transformation. Considering the characteristics of T&C and E&E industries in the ASEAN-5, these governments should increase local content and value added of the industry through maintaining their competitive products and promoting supporting industries. Emphasis should be given to support S&T, R&D to promote productivity-driven growth and to provide for competitive advantage. Technical intellectual capital—the skills and knowledge found in scientists, engineers, and high-level technicians—

is playing an increasingly vital role in economic growth and development (Mowery and Oxely, 1995). But during the past decade, ASEAN-5 lagged behind PRC in S&T (see Table 10). Although Chinese E&E industry is still at the lower end of the value chain, its competitive advantage has increased over the period 1995-99.[6] Hence, national innovation systems should be enforced to improve their technological capacity.

Besides stepping up the value added chain and promoting the technological capacity, there are some other ways to reorganize the competition among PRC and the ASEAN-5 in the U.S and Japan markets for T&C and E&E products. Diversification strategy in export market should be paid attention to. Every country needs to explore some other markets, such as Latin America, East Europe and Africa. Another strategy, which may be a more important way, is to strengthen the bilateral trade relations. At the fifth ASEAN Plus China Informal Summit held in Brunei in November 2001, both sides agreed to enhance economic ties through "ASEAN-China Free Trade Area" which proposed to be set up within 10 years. The closer economic relationship will help to promote the division of labor among the region and to decrease the level of rivalry between PRC and ASEAN-5 in the Japan and U.S markets for textiles and electronics products to some extent in the future.

[6] Wen. C, "Export Competition between Thailand, Malaysia and China in the U.S market: A Survey on Electrical and Electronic Products" Asian *Fellows Program 2001*

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Appendix 1

Table 4 – Actual Figures

COUNTRY		Japan 1992-1996							
		TEXTILE PRODUCTS				E&E PRODUCTS			
	SITC	26	65	84	26-84	75	76	77	75-77
	SE	530838875.3	325044818	1673525401	2529409095	1534889011	1140863987	1610209385	4285962383
	ISE	869854973.4	551183283	2891967864	4313006120	-1310016039	-444098695	-1227040983	-2981155716
CHINA	CE	-547826723	-207260940	-1154921850	-1910009513	-219804588	-726186953	-390501352	-1336492893
	IE	-897691977	-351455428	-1995784989	-3244932393	187601535.8	282679339	297576928.3	767857803.1
	AC	-44824851	317511733	1414786427	1687473309	192669919.7	253257678.9	290243978.9	736171577.4
	NS	-575663726	-7533085.38	-258738974	-841935786	-1342219091	-887606308	-1319965406	-3549790806
	SE	248884393	152397622	784634233	1185916248	719634408	534895340	754948449	2009478197
	ISE	-66903481	-103422338	-709678689	-880004508	59498538	432867647	981789521	1474155706
MALAYSIA	CE	-215422141	19860348	-654953188	-850514981	-370422148	-355920444	-323397566	-1049740158
	IE	57908377	-13477924	592385981	636816433	-30626074	-288031010	-420569566	-739226650
	AC	24467147	55357707	12388337	92213191	378084724	323811534	992770837	1694667096
	NS	-224417246	-97039914.9	-772245896	-1093703056	-341549683.4	-211083806	237822388.6	-314811101
	SE	258453078	158256747	814800519.1	1231510344	747301691.1	555460089.4	783973426.2	2086735207
	ISE	-55808885.1	-79605263.9	-233311286	-368725435	852951387.5	194581259.2	237618380.2	1285151027
THAILAND	CE	-223579585	-89434459.8	-819867460	-1132881505	-498522079.1	-468354834	-334731199	-1301608112
	IE	48278501.76	44986731.4	234762162.3	328027395.4	-569000584.5	-164067725	-101455333	-834523643
	AC	27343109.51	34203754.9	-3616065.16	57930799.25	532730414.9	117618789.6	585405274.3	1235754479
	NS	-231109968	-124052992	-818416584	-1173579545	-214571276.2	-437841300	-198568152	-850980728
	SE	219323827.5	134297010	691441440.4	1045062278	634161792.5	471364604.3	665281504.3	1770807901
	ISE	-218641459	-121276637	-634008388	-973926484	1987712846	633407391.7	1065260446	3686380684
SINGAPORE	CE	-209367615	-105259422	-789184535	-1103811572	-463266711	-394200493	-78475572.4	-935942776
	IE	208716222	95054303.9	723632669.1	1027403195	-1452060347	-529716283	-125656467	-2107433097
	AC	30976.15391	2815254.05	-8118813.77	-5272583.56	706547580.3	180855219.9	1526409911	2413812712
	NS	-219292851	-131481756	-699560254	-1050334861	72385787.76	-290509384	861128407	643004810.4
	SE	489103459.4	299489266	1541950112	2330542837	1414213540	1051167405	1483612104	3948993049
	ISE	-480183539	-202759560	-1105892748	-1788835847	-1407799153	-901316330	-1390231620	-3699347104
INDONESIA	CE	-264394445	-299803316	-1412590907	-1976788669	-251783700.2	-340946286	-180245723	-772975709
	IE	259572607.5	202972178	1013115812	1475660598	250641695.8	292342070	168900821.7	711884587.5
	AC	4098083.017	-101432.797	36582269.16	40578919.38	5272382.488	101246858.8	82035582.85	188554824.2
	NS	-485005376	-299590699	-1505367843	-2289963918	-1408941158	-949920546	-1401576521	-3760438225
	SE	79318510.85	48568543.4	250059950.2	377947004.4	229344752.9	170469113.7	240599203.5	640413070
	ISE	-48317609.6	-44119482.6	-209076753	-301513845	-182347579.4	84558727.22	332604255.1	234815402.9
PHILIPPINES	CE	-79181470.3	19399519.9	48046533.05	-11735417.4	300588764	-84525295	358296440.9	574359909.9
	IE	48234130.1	-17622451.1	-40172019.2	-9560340.17	-238992315.3	-41927544.6	495308874.9	214389015
	AC	53561.02229	6226129.51	48857711.24	55137401.76	108593622.2	128575001.3	1426808774	1663977398
	NS	-79264949.8	-42342413.8	-201202239	-322809603	-120751130.7	-41894112.4	1186209571	1023564328

Source: Authors calculation

Appendix 2

TABLE 5– Actual Figures

COUNTRY		JAPAN 1999-2003							
		TEXTILE PRODUCTS				E&E PRODUCTS			
	SITC	26	65	84	26-84	75	76	77	75-77
	SE	-5617529.8	364271301	1561774225	1920427996	2123193668	1557034716	2426027201	6106255585
	ISE	-4323318.4	256322302	1746044759	1998043742	-1345004318	-24329805	-979819868	-2349153992
CHINA	CE	3332582.2	557464138	1484210752	2045007472	9667088073	3487759349	3082205136	1.6237E+10
	IE	2564795.3	392263927	1659329731	2054158453	-6123923315	-54498788	-1244835931	-7423258035
	AC	-4043470.7	1.57E+09	6451359466	8017637663	4321354106	4965965472	3283576537	1.2571E+10
	NS	1574059.1	1.206E+09	4889585241	6097209668	2198160439	3408930756	857549336	6464640531
	SE	-1700765.3	110286907	472843315	581429458	642818864	471408380	734504851	1848732095
	ISE	1146279.9	-79741293	-429767103	-508362116	482000305	649421739	291712708	1423134752
MALAYSIA	CE	4693065.3	-134255405	-582005213	-711567553	-659575049	-435439636	-368326524	-1463341209
	IE	-3163027	97071355	528984308	622892637	-494564476	-599870468	-146282938	-1240717882
	AC	975552.94	-6638435.3	-9944691.97	-15607574.3	-29320355.9	85520015.4	511608097	567807756
	NS	2676318.2	-116925343	-482788007	-597037032	-672139220	-385888365	-222896755	-1280924339
	SE	-1430066.6	92733323	397584202	488887459	540505949	396377655	617598929	1554482534
	ISE	53830.496	-51292197	-293002775	-344241142	-129234550	-59427555	198485623	9823517.26
THAILAND	CE	10323780	-51060481	-347977067	-388713768	-532569128	-66384948	-124464626	-723418702
	IE	-388607.21	28242321	256444410	284298124	127336862	9952869.78	-40000779.9	97288952.2
	AC	8558936.4	18622966	13048770.5	40230672.8	6039133.8	280518021	651619146	938176301
	NS	9989002.9	-74110358	-384535432	-448656786	-534466816	-115859634	34020217.1	-616306232
	SE	-1475330.4	95668479	410168368	504361516	557613813	408923632	637146907	1603684351
	ISE	1453789.5	-92956943	-391550736	-483053889	1048751328	-102981253	413703680	1359473755
SINGAPORE	CE	-7021170.4	-134822195	-276505605	-418348970	-690280103	-316129471	-181027391	-1187436965
	IE	6918656.2	131000924	263954955	401874535	-1298268010	79612442.1	-117542276	-1336197844
	AC	-124055.09	-1109735.4	6066982.03	4833191.53	-382182972	69425350.1	752280920	439523298
	NS	1351275.3	-96778214	-404101385	-499528325	-939796785	-339498281	115134013	-1164161053
	SE	-1802080.8	116856755	501010834	616065508	681111913	499490418	778259681	1958862013
	ISE	1332886.6	8625055.3	-440000104	-430042162	-501758242	-398276179	-664254823	-1564289245
INDONESIA	CE	12156467	-125722430	-414906857	-528472820	-100837645	183250760	594905319	677318434
	IE	-8991379.3	-9279420.1	364381462	346110663	74284590.3	-146117743	-507759475	-579592628
	AC	2695893.7	-9520039.9	10485335.1	3661188.94	152800616	138347256	201150701	492298574
	NS	4497974.5	-126376795	-490525499	-612404319	-528311296	-361143162	-577108980	-1466563439
	SE	-808415.11	52422049	224753928	276367562	305547440	224071868	349128019	878747327
	ISE	336531.87	-40956924	-191724042	-232344433	445245478	-64406947	740172681	1121011212
PHILIPPINES	CE	-936976.85	-48618914	-222854831	-272410721	-231729074	-239850236	-404085975	-875665285
	IE	390050.32	37985564	190104037	228479651	-337676933	68942261.8	-856686896	-1125421567
	AC	-1018809.8	831776.49	279091.678	92058.3989	181386911	-11243053	-171472171	-1328313.37

	NS	-210394.66	-51590273	-224474836	-276275503	-124160529	-235314921	-520600190	-880075640

Source: Authors calculation

Appendix 3

Table 6– Actual Figures

COUNTRY		USA 1992-1996							
		TEXTILE PRODUCTS				E&E PRODUCTS			
	SITC	26	65	84	26-84	75	76	77	75-77
	SE	1792990.32	38424934.6	666623025.4	706840950.4	2369071506	645379070	1754250626	4768701202
	ISE	1674423.27	85110111.2	375434942.2	462219476.7	-2165065734	-544944275	-1520074711	-4230084719
CHINA	CE	-2650682.9	48020738.5	-136018703	-90648647.3	4831325050	657634090	223436931.7	5712396072
	IE	-2475398.2	106364537	-76604275.5	27284863.74	-4415289403	-555292151	-193610208	-5164191763
	AC	-1658667.5	277920322	829434989.1	1105696643	620041418.8	202776735	264002638.2	1086820791
	NS	-3451657.8	239495387	162811963.7	398855693.1	-1749030087	-442602336	-1490247987	-3681880410
	SE	1581503.87	33892644.2	587993636.2	623467784.3	2089635245	569255444	1547333598	4206224287
	ISE	-1495795.5	-21941021	-69164114	-92600930.6	-914788303	660894997	2422724065	2168830759
MALAYSIA	CE	1596876.09	203952401	-338379503	-132830227	1507440940	488750995	-230923581	1765268354
	IE	-1510334.7	-132032305	39802673.22	-93739966.2	-659918683	567430827	-361566580	-454054436
	AC	172249.764	83871719.2	220252692	304296661	2022369199	2286332264	3377567501	7686268964
	NS	-1409254.1	49979075	-367740944	-319171123	-67266046.3	1717076820	1830233903	3480044677
	SE	1522481.81	32627763.4	566049586.3	600199831.5	2011649605	548010707	1489586773	4049247085
	ISE	419123.624	4432012.36	-26176444.2	-21325308.2	-804151951	37713551.9	-348894469	-1115332868
THAILAND	CE	1548264.29	55465296.4	-575091000	-518077439	363947278.2	-70659137	-219195365	74092776.35
	IE	426221.278	7534162.74	26594556.12	34554940.14	-145487024	-4862691.5	51340446.91	-99009268.3
	AC	3916091	100059235	-8623301.84	95352024.05	1425957908	510202431	972837384.9	2908997725
	NS	2393609.2	67431471.5	-574672888	-504847807	-585691697	-37808276	-516749388	-1140249360
	SE	2792462.24	59844260.2	1038220680	1100857403	3689670079	1005134644	2732127767	7426932490
	ISE	N/A	-56911108	-422857620	-479768728	6104270052	142992155	390662036.6	6637924244
SINGAPORE	CE	N/A	20490631.9	-1415191429	-1394700797	-162563243	-91146746	854469072.6	600759083.2
	IE	N/A	-19486323	576394297.1	556907974.3	-268948149	-12966690	122178996.2	-159735843
	AC	2792462.24	3937460.96	-223434071	-216704148	9362428739	1044013363	4099437873	14505879974
	NS	N/A	-55906799	-1261654752	-1317561551	5672758660	38878718.5	1367310105	7078947484
	SE	921390.556	19745991.6	342567471.3	363234853.5	1217429948	331650525	901482814.1	2450563287
	ISE	-157461.3	1537176.01	192577197.3	193956912	-1206762804	-157462971	-805883996	-2170109771
INDONESIA	CE	5406246.7	-19874545	-268749784	-283218083	2332316467	913036602	277197714.2	3522550782
	IE	-923902.05	-1547183.6	-151079961	-153551047	-2311880666	-433496845	-247801953	-2993179464
	AC	5246273.91	-138561.42	115314923.1	120422635.6	31102944.34	653727311	124994579.1	809824834.1
	NS	4324883.35	-19884553	-227252548	-242812218	-1186327004	322076786	-776488235	-1640738453
	SE	801332.2	17173063.9	297930496.3	315904892.5	1058797285	288436042	784018462.7	2131251790
	ISE	2352172.18	-12227170	-49813961.4	-59688959.4	-1013501260	-139193458	-138532925	-1291227644
PHILIPPINES	CE	-780637.21	132032537	614352406.8	745604306.4	7619749087	519312685	2120510890	10259572663
	IE	-2291425.6	-94006772	-102719686	-199017883	-7293771349	-250609904	-374685790	-7919067043

	AC	81441.5509	42971658.9	759749255.7	802802356.2	371273762.8	417945365	2391310638	3180529765
	NS	-719890.65	25798595	461818759.4	486897463.7	-687523522	129509323	1607292175	1049277976

Source: Authors calculation

Appendix 4

Table 7– Actual Figures

COUNTRY		USA 1999-2003							
	SITC	TEXTILE PRODUCTS				E&E PRODUCTS			
		26	65	84	26-84	75	76	77	75-77
	SE	2280273	530565019	1187995962	1720841254	4086013077	3654125627	-527374015	7212764689
	ISE	2286987.31	360315952	-57038493.5	305564446.2	-2290921784	-136444688	295570025.4	-2131796447
CHINA	CE	-2932354.4	143067460	1771513738	1911648844	29423363103	4990460422	11650448297	46064271822
	IE	-2940988.8	97159605.7	-85054560.8	9164056.112	-1.6497E+10	-186343297	-6529565738	-2.3213E+10
	AC	-1306082.8	1131108037	2817416646	3947218600	14721536199	8321798064	4889078570	27932412833
	NS	-3586355.8	600543018	1629420684	2226377346	10635523123	4667672437	5416452585	20719648144
	SE	1006017.92	234076322	524123746.6	759206086.9	1802679934	1612138488	-232668505	3182149917
	ISE	-1003729.1	-171669057	-186276036	-358948822	530786994.9	1705812315	-152026128	2084573182
MALAYSIA	CE	238355.035	-259602008	-678678710	-938042363	-1872076370	-1.522E+09	1310187892	-2084212581
	IE	-237812.74	190389320	241205593.9	431357101.4	-551220309	-1.611E+09	856079733.1	-1305919811
	AC	2831.14322	-6805422.4	-99625405.4	-106427997	-89829751.1	184847466	1781572992	1876590707
	NS	-1003186.8	-240881745	-623749152	-865634084	-1892509685	-1.427E+09	2014241497	-1305559210
	SE	687250.5	159906763	358049592.1	518643605.5	1231481724	1101315351	-158945028	2173852047
	ISE	-207296.89	71489384.5	156285024.8	227567112.4	-248733063	-45458384	42083376.43	-252108071
THAILAND	CE	2317621.83	-123849961	-300986735	-422519074	-1204775890	-431858714	1337894388	-298740217
	IE	-699069.39	-55369500	-131377665	-187446234	243339053.9	17825593.1	-354230101	-93065454
	AC	2098506.04	52176686.9	81970216.52	136245409.5	21311824.04	641823846	866802635.9	1529938306
	NS	1411255.54	-107730076	-276079376	-382398196	-1210169900	-459491505	1025747663	-643913741
	SE	1197340.58	278592531	623800647.4	903590519.4	2145510325	1918732053	-276916978	3787325400
	ISE	-1192092.1	-264483528	-368126174	-633801794	3004161367	-740947174	-59301579.7	2203912613
SINGAPORE	CE	-6045228.9	-335803153	-364150013	-705998394	-2899368568	-1.601E+09	2118444380	-2381743196
	IE	6018729.86	318796782	214897421.9	539712933.3	-4059719938	618180280	453663401.6	-2987876256
	AC	-21250.545	-2897367.3	106421882.7	103503264.9	-1809416815	195146153	2235889223	621618561.7
	NS	-1218591.1	-281489899	-517378765	-800087255	-3954927139	-1.724E+09	2512806201	-3165706838
	SE	375011.529	87256218.4	195376686	283007916	671981824.4	600954025	-86731428.9	1186204421
	ISE	27077.9517	54174410.1	247140862.5	301342350.6	-642228366	-230054672	74659817.97	-797623220
INDONESIA	CE	1139870.59	-90577896	-152487863	-241925888	173500203.7	-1182608.1	1508288241	1680605836
	IE	82305.0986	-56236726	-192888838	-249043259	-165818104	452721.017	-1298358933	-1463724316
	AC	1624265.17	-5383993.7	97140847.81	93381119.31	37435557.46	370169466	197857696.7	605462720.1
	NS	1249253.64	-92640212	-98235838.2	-189626797	-634546267	-230784559	284589125.6	-580741700
	SE	569602.465	132532878	296756321.6	429858801.7	1020668630	912784988	-131735778	1801717839
	ISE	89052.7856	-49827163	208014815.7	158276705.9	-353065149	-552907397	-200985512	-1106958058
PHILIPPINES	CE	-1434201	-127708353	-293553483	-422696037	-656499975	-959715882	-60900966.4	-1677116823

	IE	-224225.85	48013330.6	-205769748	-157980644	227093548.9	581335163	-92914864.1	715513847.8
	AC	-999771.62	3010692.6	5447906.274	7458827.246	238197054.9	-18503128	-486537121	-266843194
	NS	-1569374.1	-129522185	-291308415	-422399974	-782471575	-931288115	-354801343	-2068561033

Source: Authors calculation