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The Impact of ASEAN-China Free Trade Area Agreement on ASEAN's Manufacturing Industry

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Abstract

In November 2002 at the ministerial meeting, ASEAN and China signed an agreement to form a free trade area (FTA) by the year 2010. There was an estimation that both regions would gain from FTA deals. However, the rapid growth of China since the early 1990s does not warrant the estimation and positive expectation of the FTA deal. Prior to November 2002, substantial amount of trade and investment in the region had diverted to China. China's relatively lower cost of production compared to ASEAN members has decreased the export competitiveness of ASEAN. The strong competition between the regions in the international commodity market and productive foreign capital has produced great stress to ASEAN economies. The main reason for the economic stress is largely attributed to the structure of production and exports of ASEAN and China. Both regions engage in similar sectors of commodities production and exports. There is the factor of homogeneity in production and exports in the regions. In a group of countries or regions which have a similar structure of production of commodity and exports, theoretically only countries which have the lowest cost of production will gain in trading. The diversion of trade and investment of ASEAN to China is real. These diversions have explicitly affected the terms-of-trade of ASEAN's economies, and have eventually reduced exports income. This paper believes that the ASEAN-China FTA does not promise a total gain to members of ASEAN. This paper does not deny that there are members of ASEAN which may receive a positive economic impact from the FTA but the question is how much will they gain. This paper will explore the impact of the ASEAN-China FTA on ASEAN's trade and will provide some ideas as to how competitive members of ASEAN are relative to China.

Keywords: *economic integration, intra-industry trade, comparative advantage, China, ASEAN*

JEL classification: *F10, F13, F14, F19, O59*

1. ASEAN-CHINA FTA: A Brief Review

The idea to establish a free trade area between ASEAN and China was mooted with the consensus of developing ASEAN+3 at Manila in 1998. Zhu Rongji, the Prime Minister of the People's Republic of China (henceforth China), had raised again the idea of an ASEAN-China Free Trade Area (ACFTA) during the ASEAN+3 meeting in Singapore in November 2000, and at the ASEAN-China Economic Cooperation Meeting in August 2001 (Buszynski, 2001). The proposal was promoted by Singapore although the other ASEAN members were quite reluctant: they favoured a bigger FTA called the East Asian FTA (EAFTA) that would include China, Japan and South Korea. However, at that point, Japan and South Korea were not ready for this (the formation of the EAFTA). ASEAN and China in principle agreed to form a solid economic cooperation in the form of such an agreement. On 4th November 2002, 10 members of ASEAN and China reached an agreement to build the ACFTA (ASEAN-China Free Trade Area) in Phnom Penh, Cambodia. Both regions signed the Framework Agreement on Comprehensive Economic Co-operation. The formal agreement was based on a decision made by ASEAN members and China in 2001 at the Annual ASEAN Summit held in Bandar Seri Bagawan, Brunei. The agreement set the elements and basis for negotiations towards the realization of an ASEAN-China Free Trade Area by 2010 for the 6 main ASEAN members (Indonesia, Malaysia, Thailand, Singapore, the Philippines, and Brunei) and by 2015 for the 4 new ASEAN members (Cambodia, Laos, Myanmar, Vietnam).

Under the Agreement Framework on Comprehensive Economic Co-operation (CEC), tariff reduction or elimination or liberalizing trade in goods falls under Article 3 of Trade in Goods. The reduction or elimination of tariffs on listed products was to be gradually implemented. Tariff reduction under the FTA agreement was based on applied MFN rates as of 1st July 2003. In the case of ASEAN members which were not members of WTO, tariff reduction was based on MFN rates applied by China. Also, the Agreement categorized products for tariff reduction into 2 tracks, namely, normal and sensitive. Products listed in the normal track by a member of ACFTA had to reduce or eliminate tariff rates gradually from 1st January 2005 to 2010. This applies to ASEAN-6 (i.e., ASEAN-5 plus Brunei) and China. In the case of the newer ASEAN member states, namely, Cambodia, Laos PDR, Myanmar and Viet Nam (CLMV), the period of tariff liberalization is from 1 January 2005 to 2015. For these countries, the starting tariff rates are higher and they have a different period for tariff liberalization.

To accelerate the first phase of the FTA, members of the ACFTA agreed to implement the Early Harvest Programme (EHP). This EHP is an integral part of the ASEAN-China FTA (or CEC). Under the EHP, ASEAN and China

had to implement tariff reduction or elimination no later than 1st January 2004. The tariff reduction was between 0 to 10 per cent. By 1st January 2006, trade between ASEAN and China should have been under zero tariffs. In other words, goods traded between the regions were free to move across borders.

One issue related to trade is the tariff on imported goods in ASEAN and China before the ASEAN-China FTA was signed. The average tariff rate in China was 2.3 per cent in 2000 which was much lower than ASEAN which was at 9.4 per cent. On the other hand, the non-tariff barriers (NTB) rate in ASEAN was 69.1 per cent which was very much higher as compared to China which was 9.2 per cent. ASEAN's economies were more protective in contrast to China. Plans for tariff liberalization and NTB tariffication under the ASEAN-China FTA Framework will definitely result in significant injuries to domestic-oriented and export-oriented industries in ASEAN. However, to reduce the industry injury, under the ASEAN-China FTA (ACFTA) framework, ASEAN members have been allowed to take a longer time frame in cutting trade barriers. This longer time frame is believed to allow members of ASEAN to take the necessary measures to counter or resolve any deterioration either in production or the export sectors. If there is a possibility of intense competition from China under the ACFTA how will members of ASEAN ensure that their industries remain competitive? This is another big issue to entertain. Recently, the Indonesian government had asked the ACFTA secretariat to renegotiate tariff liberalization. Indonesian business associations realized that they were facing tough competition from Chinese products and this FTA agreement had been detrimental to certain major domestic-oriented industries.

2. Is China's Economy a Threat to ASEAN's Trade Growth?

China's economy has grown rapidly since the 1990s. The country's real GDP growth during the last decade has averaged about 10 per cent, the fastest rate of real GDP growth in the world. The total trade of China in the world economy has increased from 1 per cent in 1980 to 1.70 per cent in 1990 and in 2009 the ratio had been recorded at 4.2 per cent. In the 1990s, both China and ASEAN achieved high growth rates in foreign trade. From 1991 to 2009, China's foreign trade grew at an average annual rate of 18 per cent. China's exports have grown threefold from US$62.1 billion in 1990 to US$969.1 billion in 2009, making China the third largest exporter in the world. On the other hand, foreign trade in ASEAN grew at an average annual rate of 10.2 per cent from 1991 to 2009. In the case of ASEAN-China trade relations, ASEAN-China trade has grown at an average of 15 per cent annually since 1991 to 2009. In the year 2009 total trade was US$233.4 billion in contrast to US$7.9 billion in 1991. China's exports to ASEAN grew from US$4.1 billion

in 1991 to US$175 billion in 2009 while its imports from ASEAN grew from US$3.8 billion in 1991 to US$165 billion in 2009. Foreign trade is an important driving force for the economic development of China and ASEAN. But ASEAN countries rely more on the exports sector for economic growth as compared to China and ASEAN seems to be on the losing side. China seems to have more advantage in trading with ASEAN. This paper believes that there will be stiff competition between ASEAN and China, and the competition will be in two aspects: (1) international market penetration, and (2) competition in terms of products.

China's economy is moving up the ladder, expanding at a rapid speed and is in a position to become a major economic house in the world. The rise of China's extreme economic power raises great concern to members of ASEAN. The quotations below that were excerpted from Cui (2006) and Kalish (2005) provide some answers to the threat of China's rapid economic development to ASEAN.

- "Shunde in the Pearl River Delta, microwave-oven capital of the world, with 40% of global production in a single giant factory."
- "Shenzhen makes 70% of the world's photocopiers."
- "Dongguan has 80,000 people working in a single factory making running shoes."
- "Zhongshan is the 'home of the world's electric lighting industry'."
- "In Guangdong, in 2003, solely foreign-invested processing exports accounted for 72.3% of its total processing exports, being 85.4 billion US$; barter terms of trade deteriorated from 1 in 1998 to 0.65 in 2003; value-added in processing exports has been kept at 18%."
- "In Suzhou, in 2004, foreign-invested processing exports accounted for 97% of its total processing exports, being 40.3 billion US$; high-tech industry and machinery and electronic industry accounted for 98% and 96%, respectively; value-added in processing exports has dropped from 63.5 in 1998 to 14% in 2004."
- "China's share of the US electronics market increased from 9.5 per cent in 1992 to 21.8 per cent in 1999. At the same time, Singapore's share dropped from 21.8 per cent to 13.4 per cent."
- "China's output of personal computers went from 4 per cent of world production in 1996 to 21 per cent in 2000. The ASEAN share dropped from 17 per cent to 6 per cent."
- "China's share of hard disk production went from 1 per cent in 1996 to 6 per cent in 2000, while ASEAN's share fell from 83 per cent to 77 per cent."
- "China's share of keyboard production increased from 18 per cent in 1996 to 38 per cent in 2000 while ASEAN's share fell from 57 per cent to 42 per cent."

Both Kalish's (2005) and Cui's (2006) statements certainly indicate that China's economy is developing very fast. Not only does the country concentrate on low-technology products but it is also moving very fast in high-technology industries or products. Since there are similarities between China's and ASEAN's production in the manufacturing sector and exports, the impressive expansion of China's manufacturing sector seems to adversely affect industries in ASEAN.

Therefore, it was right that politicians-cum-policy-makers of ASEAN have voiced their concerns of the impact of China's rapid economic growth on their economies. Former Prime Minister of Singapore and mentor Minister Mr Lee Kuan Yew issued a statement that the overwhelming economic growth of China would somehow determine the future economic growth of ASEAN. Former Prime Minister of Singapore, Mr Goh Chok Tong, stated that "Our biggest challenge is … to secure a niche for ourselves as China swamps the world with her high-quality but cheaper products" (Panitchpakdi and Clifford, 2002: 103). He also warned in a national day speech in August 2001, that the "China economy is potentially 10 times the size of Japan's. Just ask yourselves, how does Singapore compete against 10 post-war Japans all industrializing and exporting at the same time?" (Panitchpakdi and Clifford, 2002: 103).[1] Other countries in Asia shared this sentiment, "What if China is the world's lowest-cost producer of everything" (Panitchpakdi and Clifford, 2002: 103). Even Ross Perot, US Presidential candidate, during his election campaign in 1992, labeled China as a "giant sucking sound" (Lo, 2003: 59).[2]

The accession of China to the WTO will integrate China even further into the world economy. As mentioned earlier, the benefit that China will gain by joining the WTO is extraordinary. As estimated by the World Bank, China's entry into WTO will increase its exports share in the world's total exports by about 10 per cent by 2020, second after US, and above Japan. In terms of GDP expansion, China will contribute 8 per cent of global output by 2020, right after US which will contribute about 19 per cent (Panitchpakdi and Clifford, 2002). China is poised to be the world's second largest economy by 2020. Political and Economic Risk Consultancy (PERC) based in Hong Kong surveyed business communities in Asia, and found that 61 per cent of the respondents in the Philippines stated that China's entry into WTO would hurt their business; in Malaysia, 45 per cent felt the negative effect and 83 per cent of the respondents in Viet Nam recorded that the accession of China into WTO was a bad thing for their country (Panitchpakdi and Clifford, 2002). The accession to the WTO and rising competition will very possibly strengthen China's competitive power and restrain other Asian countries' price competitiveness further (Lo, 2003). In a nutshell, it is no wonder that the rising of China's economic power has caused "a big worry" to ASEAN.

Rapid industrial development, including trade expansion in China, particularly in export-oriented industries (EOIs) (Greenaway, Mahabir and Milner, 2008), will in some way affect their growth and further expansion, particularly in ASEAN. Countries such as Malaysia and Singapore rely heavily on the EOI sector rather than domestic-oriented industries (DOIs) for economic growth and development. Therefore, the impressive development and expansion of EOIs in China have raised a huge concern for ASEAN's future in EOIs or manufacturing sector development and competitiveness. Whatever is produced and exported by ASEAN is also produced and exported by China. In other words, any countries having a structure of manufacturing activities and exports that is similar to China may lose their international market to China and the growth of these particular countries may eventually slow down (Lardy, 2002). Some argue that exports of China and ASEAN are competitive rather than complementary (Wong and Chan, 2003; Ravenhill, 2006). A study by Lall and Albaladejo (2004) examined China's competitive threat to its East Asian neighbours in the 1990s, and found that the market share losses were mainly in low-technology products. However, the threat from China also exists in high-technology product segments that rely on low-end functions.

The majority of the products which are EOI-based are mainly E&E goods. Most of these goods belong to high and semi-technology industries which are capital intensive. E&E industries are no longer regarded as being labour-intensive, even though the number of workers employed in the industries are high compared to other types of industries such as textiles and consumer non-durable goods. For the expansion of EOIs, ASEAN needs and depends on FDI. The electrical and electronics (E&E) goods and transport equipment contributed to a large share of the total exports of China. The share of the industries in total exports increased tremendously from 18.1 per cent in 1994 to 49 per cent in 2008. The E&E products comprised more than 35 per cent of total exports in 2008. This sector is regarded as a high-tech sector and some E&E industries have been selected as key industries by several national programmes to promote technological upgrading (Yao, 2008). The E&E sector is related to processing goods which are largely dominated by foreign firms (Zhao, 2007). The contribution of products under apparel and clothing, footwear and travel goods decreased from 41.3 per cent in 1994 to 24 per cent in 2008.

Other groups of products which seem to have contributed quite significantly to exports is basic manufactures. If we look at the classification of exports based on technological level, as shown in Table 1, exports of China before 2000 were largely related to low technology products. In 1992, the share of the total exports was 43.4 per cent but this declined drastically to 23.5 per cent in 2005. On the other hand, high technology products increased

Table 1 China: Exports by Technological Level

Classification	Exports (US$ million)		Export Share (%)		Growth Rate (%)
	1992	2005	1992	2005	1992-2005
High Tech	5,972	230,889	7.0	30.3	32
Med-high Tech	14,053	178,568	16.5	23.4	22
Med-low Tech	16,455	144,807	19.4	19.0	18
Low Tech	36,902	178,909	43.4	23.5	13
Non-manufacturing	11,558	28,827	13.6	3.8	7
Total	84,940	761,999	100	100	18

Source: Assche, Hong and Slootmaeker (2008).

dramatically from 7.0 per cent in 1992 to 30.3 per cent in 2005, surpassing the contribution of middle high technology and low technology products. The growth of exports of the group soared about 32 per cent from 1992 to 2005, followed by middle high technology (about 22 per cent) and middle low technology (about 18 per cent).

As mentioned earlier, there were similarities in the production of goods and exports in ASEAN and China. For instance, excluding Japan, ASEAN and China are major producers of electrical and electronic (E&E) products in East Asia; a high proportion of exports from both regions are from this sector. For example, the total production of E&E goods in China in 1996 was about US$35 billion; this figure increased to US$50 billion in 1999. Meanwhile, in South Korea, production of these goods in 1996 was about US$44 billion, but the value decreased slightly to US$43 billion in 1999. Singapore's total production of these goods also reflected Korea's statistics for both the years. In Malaysia, the total production of E&E goods was much less, with US$ 30 billion in 1996; this increased marginally in 1999 to US$34 billion (Atsuo, 2002). Finally, in Thailand, the total production of the sector was very much lower with US$14 billion and US$15 billion in 1996 and 1999, respectively (Atsuo, 2002). So, although in the case of Malaysia and Thailand the production of E&E goods had increased, the increment was lower than in the case of China, who is now one of the world's top producers of mobile phones (12.9 per cent of the world total); DVD players (38.8 per cent of the world total), VTRs (23.2 per cent of the world total), colour TVs (24.6 per cent of the world total), air-conditioners (38.7 per cent of the world total) and hard-disk drives (6.9 per cent of the world total) (Atsuo, 2002).

Table 2 East Asia and ASEAN: Direction of Exports (% of total)

	Asia		PR China		Japan		United States		European Union		Other	
	2000	2009	2000	2009	2000	2009	2000	2009	2000	2009	2000	2009
East Asia	**25.9**	**28.1**	**11.7**	**14.3**	**11.4**	**6.9**	**21.8**	**15.0**	**15.2**	**16.1**	**13.9**	**19.6**
PR China	32.9	33.5	–	–	16.3	8.0	20.4	18.0	16.1	19.3	14.3	21.2
H. Kong	10.2	10.6	34.1	51.0	5.5	4.4	23.0	11.5	15.5	12.4	11.8	10.1
Taiwan	38.2	34.9	2.9	26.6	11.2	7.1	23.6	11.6	15.2	10.4	8.8	9.4
S. Korea	23.8	21.7	10.2	22.6	11.3	5.7	20.9	9.9	13.7	12.2	20.2	28.0
ASEAN	**37.4**	**41.9**	**3.7**	**9.9**	**12.6**	**9.4**	**18.2**	**9.9**	**14.4**	**11.2**	**13.7**	**17.7**
Indonesia	33.1	460.6	4.2	9.4	22.1	15.3	13.0	8.9	13.7	11.2	13.7	14.5
Malaysia	40.3	41.6	2.9	11.8	12.3	9.6	19.5	10.7	13.3	10.6	11.7	15.8
Philippines	30.5	31.8	1.6	7.3	13.4	15.5	27.3	16.8	16.5	19.5	10.7	9.0
Singapore	44.1	52.1	3.8	9.6	7.3	4.3	16.7	6.4	13.5	9.4	14.7	18.0
Thailand	30.8	34.1	3.9	10.4	14.2	10.1	20.5	10.8	15.7	11.6	15.0	23.1

Source: Asian Development Bank (2011).

The trade destinations of China's goods have changed into a new pattern. (Trade destination is crucial when discussing the impact of China on ASEAN because the major trade destinations of both regions are similar). The main markets for Chinese goods are the US, EU, Japan and Asia (East Asia and ASEAN) (see Table 2). According to Greenaway, Mahabir and Milner (2008), China's exports to these countries quadrupled after 1990. China's exports to US decreased from 20.4 per cent in 2000 to 18 per cent in 2010 (Table 2). Although the percentage of exports dropped, the US market remains the single most important export destination for China's products. The share of exports to Japan and EU has decreased and has been offset by the increment in exports to East Asia and ASEAN. Hong Kong is the major destination of China's exports followed by Taiwan and Korea. In aggregate terms, ASEAN exports to China has more than doubled from 3.7 per cent of total exports in 2000 to 9.9 per cent in 2010.[3] Table 2 somehow shows that China and ASEAN have a similar trade destination. In other words it means that ASEAN and China are competing in similar markets. According to Kwan (2002), ASEAN countries have to compete more than China (and Japan) for the US market. Also the degree of competition for the US market has increased since the 1990s. ASEAN and other East Asian countries appear to have to put in more effort to compete with China for the international goods market.

3. ASEAN-China Trade Relations

Trade between China and ASEAN has grown at a rapid pace. From 1995 to 2010, trade between the two regions had grown more than 20 per cent on average. ASEAN's total trade to China has increased from 2.2 per cent in 1995 to 12.3 per cent in 2010 (Table 3). China has become one of the major trade partners not only to ASEAN as a group but also to individual members of ASEAN. For instance, China is the fourth largest trade partner for Malaysia and Singapore and the third for Thailand. Based on Table 3, it is anticipated that the ACFTA would make China the biggest market for ASEAN. However in trading ASEAN loses to China as bilateral trade favours China.

Tables 4 and 5 show 10 main commodities of exports and imports under ASEAN-China's trade relationship. The total exports of these commodities amounted to about US$16.7 billion or 78.6 per cent of the total exports of ASEAN-China in 2001 (Table 4). The amount rose to US$113.6 billion or 85.3 per cent of total trade in 2010. The main exports of ASEAN to China for the years 2001 through 2010 were HS85, HS84 and HS27. HS85 consists of electric machinery, equipment and parts; sound equipment and television equipment. The share of this commodity (HS85) was about 19.2 per cent of the total exports of ASEAN-China in 2001. It rose slightly to 32.5 per cent in 2006 before dipping to 25.9 per cent in 2010. HS84 comprises of nuclear

Table 3 ASEAN International Trade in the World and with China (US$ million)

	1995	2000	2005	2006	2007	2008	2009	2010
ASEAN - World								
Export	296.7	410.2	648.2	750.7	862.1	985.1	810.7	1046.9
Import	318.6	349.0	576.8	654.1	754.0	940.6	733.4	957.1
Total Trade	615.3	759.1	1,224.9	1,404.8	1,616.1	1623.7	1544.1	2004.0
ASEAN - China								
Export	6.2	14.2	52.3	65.0	77.9	88.7	82.7	113.6
Import	7.1	18.1	61.1	75.0	93.3	112.9	97.4	132.7
Total Trade	13.3	32.3	113.4	140.0	171.2	201.6	180.1	246.3
Share of China (%)								
Export	2.1	3.5	8.1	8.7	9.0	9.0	10.2	10.8
Import	2.2	5.2	10.6	11.5	12.4	12.0	13.3	13.9
Total Trade	2.2	4.3	9.3	10.0	10.6	12.4	11.7	12.3
Growth (%)								
Export	16.9	47.8	26.4	24.4	19.9	13.9	-6.6	37.4
Import	23.8	47.1	28.1	22.6	24.5	21.0	-13.7	36.2
Total Trade	20.5	47.4	27.3	23.4	22.3	17.8	-10.7	36.8

Source: COMTRADE.

Table 4 ASEAN Exports to China: Top Ten Commodities (%)

HS	2001	2005	2006	2007	2008	2009	2010
85	19.2	29.1	32.5	31.8	29.7	27.4	25.9
84	20.7	18.9	16.0	16.9	17.0	15.6	16.8
27	14.8	14.3	12.0	11.5	14.3	14.6	15.1
40	3.2	5.0	7.1	6.6	7.1	6.8	7.6
15	3.1	3.5	4.0	5.6	6.9	5.9	5.1
39	6.0	5.4	4.9	4.5	4.4	4.8	5.4
29	4.5	5.0	4.8	4.6	3.1	4.2	5.0
44	3.9	2.2	1.8	1.5	1.3	1.4	1.7
90	1.8	1.7	1.6	1.3	1.3	1.5	1.6
38	1.4	0.9	1.0	1.1	1.0	1.2	1.2
Total 10 Exports (%)	78.6	86.2	85.6	85.3	85.9	83.4	85.3
Total Exports to China (US$ million)	16,731	52,737	66,632	79,074	88,863	82,699	113,554

Note: HS90 = Optical, photo, technical, medical, etc apparatus; HS84 = Nuclear reactors, boilers, machinery; HS85 = Electrical, electronic equipment; HS44 = Wood and articles of wood, wood charcoal; HS40 = Rubber and articles thereof; HS39 = Plastics and articles thereof; HS38 = Miscellaneous chemical products; HS29 = Organic chemicals; HS27 = Mineral fuels, oils, distillation products, etc.; HS15 = Animal, vegetable fats and oils, cleavage products, etc.

Source: COMTRADE.

Table 5 ASEAN Imports from China: Top Ten Commodities (%)

HS	2001	2005	2006	2007	2008	2009	2010
85	27.0	31.3	33.0	30.3	28.9	29.7	21.8
84	20.9	22.9	22.0	21.5	22.5	23.8	27.3
27	6.2	6.7	4.6	4.3	3.2	5.8	5.4
73	1.9	2.3	2.5	2.9	3.6	3.4	3.1
72	1.5	5.6	5.7	7.7	7.1	2.5	3.9
29	1.7	1.4	1.4	1.7	1.9	2.0	2.1
39	1.6	1.6	1.8	1.9	2.0	2.0	2.3
90	1.7	1.9	1.9	1.8	1.9	1.9	1.9
87	3.0	1.1	1.1	1.3	1.6	1.6	1.9
28	2.4	1.5	1.4	1.4	1.8	1.4	1.3
Total 10 Imports (%)	67.9	76.5	75.5	74.9	74.7	74.1	71.0
Total Imports from China (US$ million)	19,969	61,393	76,815	96,105	112,949	97,362	132,735

Note: HS90 = Optical, photo, technical, medical, etc. apparatus; HS87 = Vehicles other than railway, tramway; HS84 = Nuclear reactors, boilers, machinery; HS83 = Electrical, electronic equipment; HS72 = Iron and steel; HS73 = Articles of iron or steel; HS39 = Plastics and articles thereof; HS29 = Organic chemicals; HS28 = Inorganic chemicals, precious metal compound; HS27 = Mineral fuels, oils, distillation products, etc.

Source: COMTRADE.

reactors, boilers, machinery and mechanical appliances, and parts thereof. The share of this commodity was about 20.7 per cent of ASEAN-China's total exports in 2001, but it dropped by about 4 per cent to 16.0 per cent in 2006. However in 2010 the exports increased marginally to 16.8 per cent. HS27 consists of mineral fuels, mineral oils & products of their distillation; bitumin substances and mineral wax. The share of this commodity dropped from about 14.8 per cent of ASEAN-China's total exports in 2001 to 11.5 per cent in 2007 before being recorded at 15.1 per cent in 2010. It is obvious that the rapid expansion of the Chinese economy had increased the demand for energy products. Other important products under ASEAN-China exports were HS39 (plastics), HS40 (rubber), HS29 (organic chemicals) and HS15 (vegetables, fruits and nuts).

The total imports of the 10 main commodities in 2001 were about US$20 billion or 67.9 per cent of the total imports of ASEAN-China. In 2005, the amount was US$61.4 billion or 76.5 per cent of the total imports, and in 2010 the amount increased to US$132.7 billion, which was about 71 per cent (Table 5). In terms of percentages, the imports fell from 76.5 per cent in 2005 to 71 per cent in 2010. The main imports of ASEAN from China in the period 2001-2010 were also from the same three categories as in exports, namely HS85, HS84 and HS27. HS72 became an additional category. HS85 comprised about 27 per cent of the total ASEAN-China imports in 2001. This figure rose to 33 per cent in 2006 before dipping to 21.8 per cent in 2010. HS84 made up about 20.9 per cent of the total imports in 2001. This increased slightly to 22.9 per cent in 2005 and fell again to 22.5 per cent in 2008 before it rose to 27.3 per cent in 2010. HS27's share of the commodity was about 6.2 per cent in 2001. This too dropped to 3.2 per cent in 2008 before it increased to 5.4 per cent in 2010. Finally, HS72, which is comprised of iron and steel, contributed to 5.6 per cent of the share of the total imports in 2005. The figure rose slightly to 5.7 per cent in 2006, and much higher to 7.7 per cent in 2007 but the imports fell to 3.9 per cent in 2010.

As shown above, major trade (exports and imports) between ASEAN and China were E&E products and machinery. Exports by ASEAN to China in the manufacturing industry, as depicted in Table 6, show that the exports of E&E accounted for about 22.8 per cent in 2001 but increase to 28.6 per cent in 2010. Exports of machinery, also in term of percentages, showed a decrease from 24.1 per cent in 2001 to 18.7 per cent in 2010. Other major exports were mineral products, plastics, rubbers, chemicals & allied industries and vegetable products. Major imports of ASEAN from China are comprised of E&E products as well as machinery (Table 7). Imports of the former in 2001 were about 31.8 per cent but increased marginally to 32.3 per cent in 2010. Imports of the latter (machinery) comprised 22.8 per cent of total import in 2001 and increased marginally to 24.7 per cent in 2010. Other

Table 6 ASEAN Exports to the World and China (%)

Manufacturing Industry	Exports to World			Exports to China		
	2001	2005	2010	2001	2005	2010
Food	4.45	4.78	7.45	5.47	4.96	7.38
Beverages	0.20	0.22	0.35	0.12	0.20	0.23
Tobacco products	0.37	0.21	0.22	0.16	0.01	0.02
Textiles	1.91	1.47	1.18	2.10	1.18	0.80
Wearing apparel except fur apparel	4.85	3.04	2.15	0.17	0.17	0.22
Footwear, leather, luggage, and related products	0.54	0.26	0.21	0.33	0.15	0.11
Wood, cork, straw and plaiting materials	2.35	1.70	1.35	5.85	2.77	1.90
Paper and paper products	1.03	0.77	0.88	1.96	0.64	0.30
Printing and service activities related to printing	0.25	0.22	0.41	0.04	0.03	0.08
Petroleum products	9.99	13.20	16.26	11.81	11.98	14.88
Basic chemicals and other products	3.36	4.70	4.56	6.73	6.55	6.55
Medical and pharmaceutical products	0.21	0.48	0.69	0.24	0.12	0.03
Rubber products	1.75	2.47	3.75	3.37	4.42	8.08
Plastic products	2.48	3.17	3.29	6.96	6.06	6.10
Glass products and non-metallic mineral products	1.99	2.07	3.20	0.69	0.51	0.34
Basic iron and steel	1.24	1.80	1.90	1.30	1.54	0.74
Non-ferrous metals	1.28	1.67	2.03	1.97	1.71	1.46
Metal products	0.34	0.39	0.44	0.33	0.30	0.41
General purpose machinery	21.54	18.26	14.92	24.11	21.05	18.66
Electrical and electronics	33.38	31.73	26.45	22.84	32.44	28.62
Scientific equipment	2.56	2.40	2.65	2.29	2.04	1.80
Transport equipment	2.11	3.52	4.56	0.97	0.99	1.13
Furniture	1.27	1.04	0.74	0.16	0.11	0.10
Other industries	0.54	0.40	0.37	0.07	0.07	0.06
Total (US$ billion)	341.84	577.58	895.73	14.28	47.20	98.86

Table 7 ASEAN Imports from the World and China (%)

Manufacturing Industry	Imports from World			Imports from China		
	2001	2005	2010	2001	2005	2010
Food	3.04	2.69	3.77	3.44	1.37	1.59
Beverages	0.24	0.27	0.34	0.08	0.04	0.08
Tobacco products	0.43	0.22	0.20	0.88	0.37	0.31
Textiles	2.23	1.23	1.27	4.49	2.37	2.78
Wearing apparel except fur apparel	1.25	0.90	0.85	4.27	2.71	2.68
Footwear, leather, luggage, and related products	0.40	0.28	0.31	0.75	0.47	0.61
Wood, cork, straw and plaiting materials	0.79	0.63	0.58	0.37	0.36	0.43
Paper and paper products	0.98	0.81	0.80	0.59	0.55	0.82
Printing and service activities related to printing	0.20	0.16	0.16	0.06	0.07	0.07
Petroleum products	11.57	17.30	20.47	5.80	5.93	5.21
Basic chemicals and other products	5.33	5.18	5.31	6.14	4.38	5.85
Medical and pharmaceutical products	0.51	0.56	0.69	0.22	0.12	0.18
Rubber products	0.73	0.71	1.03	0.65	0.49	0.67
Plastic products	2.84	2.68	3.04	1.74	1.63	2.49
Glass products and non-metallic mineral products	2.22	2.53	3.46	1.54	1.66	2.06
Basic iron and steel	3.99	5.48	5.25	3.18	7.35	6.53
Non-ferrous metals	2.05	2.19	2.62	3.55	1.89	2.17
Metal products	0.64	0.62	0.67	0.95	0.76	1.08
General purpose machinery	18.27	16.31	14.80	22.84	25.42	24.71
Electrical and electronics	33.04	30.75	24.94	31.88	36.27	32.33
Scientific equipment	3.02	3.02	2.97	2.70	2.47	2.44
Transport equipment	4.61	4.17	4.28	1.60	1.59	2.78
Furniture	1.23	1.00	1.88	0.69	0.68	0.99
Other industries	0.41	0.30	0.31	1.59	1.05	1.18
Total (US$ billion)	303.04	519.09	813.99	16.71	51.89	99.47

important imports were chemical products. However, its import decreased from 6.1 per cent in 2001 to 5.9 per cent in 2010. Other important industries that contribute to ASEAN imports from China are the manufacture of basic iron and steel, manufacture of basic chemicals and other products, and manufacture of petroleum products. The structure of exports and imports shows that E&E products and machinery dominate the intra-trade between ASEAN-China.

Another way of looking at the structure of trade is by looking at exports and imports of products according to industrial products classification, i.e., whether the products are labour intensive or capital intensive as shown in Table 8 and Table 9. By industrial product classification, ASEAN exports are concentrated in labour-intensive intermediate products (LIIP), non-durable consumer products (NDCP), durable consumer products (DCP) and labour intensive products (LIP). The structure of ASEAN's imports from China by this classification shows a similar pattern. As shown in Table 8, the major exports of ASEAN-China under the industrial product classification are NDCP, DCP, LIIP and LIP. Exports of products of non-durable consumer classification in 2001 was 29 per cent of the total exports to China and the ratio increased slightly to 30.6 per cent in 2010. For durable consumer products (DCP), the exports had increased marginally from 21.07 per cent in 2001 to 21.8 per cent in 2005 before it declined to 20.08 per cent in 2010 The labour-intensive intermediate products (LIIP) had also increased marginally from 20.07 per cent to 21.45 per cent in 2001 and 2005, respectively but later dropped to 20.85 per cent in 2010. The structure of imports of ASEAN-China based on the industrial product classification seems to be similar with the exports (Table 9). Imports of products of non-durable consumer in 2001 was 25.6 per cent of the total imports from China and the ratio increased to 26.1 per cent in 2005 but dropped a bit to 26.06 per cent in 2010. For durable consumer products, the exports had increased marginally from 21.5 per cent in 2001 to 22.2 per cent in 2005 however the imports dropped to 21.7 per cent in 2010. The labour-intensive intermediate products had also increased marginally from 20.07 per cent to 21.08 per cent in 2001 and 2005 respectively but in 2010 the imports decreased to 20.32 per cent.

Table 10 shows to what extent ASEAN may face tough competition from China in the international commodity market. The table indicates that ASEAN may face high competition with China in LIIP, NDCP, DCP and LIP industrial product groups. China's exports of NDCP to the world have increased from 20.7 per cent in 2001 to 23.7 per cent in 2010. While in the case of DCP groups, the exports have increased from 17.9 per cent in 2001 to 20.3 per cent in 2010. China's exports of products of LIIP groups in 2001 were about 14.7 per cent and the exports increased to 18 per cent in 2010. The pattern of

Table 8 ASEAN-5: Exports to the World and China (%)

Industrial Product Classification	World			China		
	2001	2005	2010	2001	2005	2010
Labour Intensive Products	17.86	17.31	16.65	13.81	15.17	14.08
Capital/Technology-Intensive Products	3.18	2.92	3.44	3.70	2.22	1.81
Non-durable Consumer Products	25.75	26.79	27.08	29.02	29.24	30.61
Durable Consumer Products	22.41	21.44	20.24	21.07	21.80	21.08
Capital Goods	4.67	4.35	5.09	2.56	1.70	1.29
Labour-intensive Intermediate Products	21.01	20.56	19.13	20.07	21.45	20.85
Capital-intensive Intermediate Products	5.12	6.64	8.37	9.78	8.42	10.28

Table 9 ASEAN-5: Imports from the World and China (%)

Industrial Product Classification	World			China		
	2001	2005	2010	2001	2005	2010
Labour Intensive Products	16.93	16.99	16.43	16.78	17.03	16.51
Capital/Technology-Intensive Products	3.37	3.20	3.94	4.31	3.16	4.00
Non-durable Consumer Products	26.83	26.85	26.83	25.60	26.10	26.06
Durable Consumer Products	20.93	20.50	19.55	21.52	22.18	21.67
Capital Goods	4.64	4.80	5.50	5.26	4.50	4.54
Labour-intensive Intermediate Products	20.38	20.00	18.77	20.07	21.08	20.32
Capital-intensive Intermediate Products	6.92	7.67	8.98	6.45	5.96	6.91

Table 10 China: Exports to and Imports from the World (%)

Industrial Product Classification	Exports			Imports		
	2001	2005	2010	2001	2005	2010
Labour Intensive Product	21.68	19.40	19.15	16.58	15.96	15.71
Capital/Technology-Intensive Products	6.50	5.38	4.84	5.23	3.78	4.01
Non-durable Consumer Products	20.66	22.70	23.66	26.59	27.42	27.43
Durable Consumer Products	17.92	20.00	20.26	18.45	20.16	19.97
Capital Goods	12.63	9.40	8.46	5.86	4.22	3.92
Labour-intensive Intermediate Products	14.72	17.61	18.02	17.77	19.83	20.27
Capital-intensive Intermediate Products	5.89	5.51	5.62	9.52	8.64	8.70

China's imports from the world was almost the same as the country's exports to the world. China's major imports were from NDCP, DCP, LIIP and LIP industrial product groups (Table 10).

Based on the above descriptions there are three arguments regarding ASEAN-China trade matters. Firstly, since the structure of trade for ASEAN and China is similar, China and ASEAN are competing in the same category of goods. Although China's rapid economic growth and expansion is welcomed by most members of ASEAN, the growing Chinese economy (power) has produced a negative impact on ASEAN. China produces most of the manufactured goods that are exported by members of ASEAN, from electronics, furniture, automobiles and motorcycles to fruits and vegetables (Shen, 2003). In Thailand, farmers are despairing as they cannot sell their own produce anymore because of the low-priced Chinese vegetables that invade the markets in rural towns and cities in the country. Malaysian and Indonesian workers are also complaining about jobs being lost to Chinese workers due to closures of enterprises that are losing orders to China. Increased Chinese textile exports since 2005 to Cambodia and Vietnam have started to displace local producers in the two countries. The strong interest by the ASEAN elite (politicians) to deepen economic ties with China is not shared by farmers and small businesses that fear the competitive advantage of China in churning out low-priced goods.

Secondly, China has been trading with ASEAN for more than three decades; however, since 1995 the trade between these regions has grown by leaps and bounds. China's imports from ASEAN have increased significantly and ASEAN has become one of the major sources of imports to China (Table 3). ASEAN has also benefited by expanding exports of agricultural and agro-processing goods to China (Greenaway, Mahabir and Milner, 2008). China has increasingly been a central player in production networks, including electronics and machinery, and has sourced its supply of capital goods and components from these countries. Although China provides benefits to ASEAN, the loss of trade suffered by ASEAN due to diversion is not fully compensated (Greenaway, Mahabir and Milner, 2008).

Finally, we can state that the structure of ASEAN and China's exports and imports are basically similar. Both concentrate in similar groups of products. ASEAN and China have intra-trade in the sector of electrical and electronics products as well as machinery and petroleum products. Based on the industrial product classification it seems that both countries have intra-trade in groups of products under non-durable consumer products, durable consumer products, labour-intensive intermediate products and labour-intensive products. Most of them are electricals and electronics (hereafter E&E) and belong to those groups.

4. ASEAN-China Trade Performance Indices

This section will provide an analysis of the impact of ACFTA on ASEAN's manufacturing industries. However, in order to facilitate a better understanding, this paper purposely simplified the analysis by only taking into account five major members of ASEAN, namely, Indonesia, Malaysia, the Philippines, Singapore and Thailand (hereafter called the ASEAN-5). The method used to analyze the impact of ACFTA on ASEAN is by utilizing two measurements of trade specialization indices which are intra-industry trade (IIT) index and revealed comparative advantage (RCA)3.

4.1. ASEAN-World Intra-Industry Trade (IIT) Index

ASEAN-World IIT index based on manufacturing industries reflect what has been mentioned above (Table 11). The industries that show high values of IIT are the manufacture of beverages; manufacture of tobacco products; manufacture of textiles; manufacture of footwear, leather, luggage, and related products; manufacture of paper and paper products; printing and service activities related to printing; manufacture of petroleum products; manufacture of basic chemicals and other products; manufacture of plastic products; manufacture of glass products and non-metallic mineral products; manufacture of non-ferrous metals; manufacture of general purpose machinery; manufacture of electrical and electronics; and manufacture of scientific equipment. As expected by this study, calculations of IIT are high and close to unity for electrical and electronics (E&E) and scientific equipment. The petroleum and chemical industries have recorded high values of IIT. Contribution of petroleum and chemical are high in Indonesia and Malaysia and this is the main reason as to why the values of IIT are high for those industries. Also as expected, IIT values for textiles and clothing are low. The IIT value for textiles is also decreasing. The ASEAN IIT by industrial product classification is given in Table 12. In general, all calculated IIT index of industrial products are close to unity. However, there are a few groups of industrial products in which the IIT indices have slided very marginally from 2001 to 2010 such as capital/technology intensive products and NDCP. Durable consumer products and labour-intensive intermediate products are the two industrial products which have recorded very high values of IIT. This reflects the fact that most of the goods which ASEAN exports to the world economy consists of durable consumer and intermediate products. In the case of E&E which is included in these categories there is basically intra-firm trade and the main contributors of E&E growth in the region are multinational firms or investments. In general, E&E products contain high components or parts. So it may be true that the trade between ASEAN and the world in the E&E sector are either in the form of components or final products.

Table 11 ASEAN-World Intra-Industry Trade Index by Manufacturing Industry

Manufacturing Industry	2001	2005	2007	2008	2009	2010
Food	0.754	0.672	0.625	0.611	0.625	0.630
Beverages	0.966	0.961	0.973	0.974	0.933	0.936
Tobacco products	0.982	0.977	0.925	0.972	0.924	0.916
Textiles	0.983	0.857	0.846	0.991	0.944	0.989
Wearing apparel except fur apparel	0.372	0.421	0.477	0.517	0.496	0.528
Footwear, leather, luggage, and related products	0.794	0.994	1.000	0.915	0.912	0.845
Wood, cork, straw and plaiting materials	0.457	0.500	0.504	0.557	0.508	0.565
Paper and paper products	0.911	0.969	0.891	0.915	0.882	0.905
Printing and service activities related to printing	0.840	0.799	0.685	0.645	0.588	0.525
Petroleum products	0.987	0.918	0.916	0.900	0.935	0.933
Basic chemicals and other products	0.831	0.995	0.998	0.872	0.985	0.973
Medical and pharmaceutical products	0.639	0.980	0.793	0.962	0.971	0.956
Rubber products	0.541	0.410	0.375	0.397	0.445	0.400
Plastic products	0.993	0.862	0.854	0.900	0.887	0.913
Glass products & non-metallic mineral products	0.993	0.953	0.956	0.961	0.899	0.990
Basic iron and steel	0.519	0.536	0.636	0.562	0.647	0.569
Non-ferrous metals	0.828	0.918	0.983	0.920	0.914	0.922
Metal products	0.757	0.822	0.862	0.882	0.867	0.833
General purpose machinery	0.858	0.890	0.879	0.934	0.936	0.948
Electrical and electronics	0.935	0.931	0.928	0.945	0.919	0.923
Scientific equipment	0.978	0.939	0.961	0.939	0.998	0.991
Transport equipment	0.682	0.968	0.976	0.992	0.978	0.921
Furniture	0.926	0.928	0.991	0.716	0.654	0.604
Other industries	0.800	0.808	0.846	0.880	0.903	0.867
Total trade	0.864	0.876	0.872	0.870	0.878	0.878

Table 12 ASEAN-World IIT Index by Industrial Product Classification

Classification	2001	2005	2007	2008	2009	2010
Labour Intensive	0.929	0.949	0.936	0.984	0.936	0.961
Capital/Technology-Intensive	0.984	0.996	0.969	0.938	0.986	0.965
Non-durable Consumer	0.976	0.960	0.941	0.990	0.959	0.962
Durable Consumer	0.922	0.936	0.924	0.963	0.938	0.950
Capital Goods	0.952	0.993	0.964	0.960	0.956	0.993
Labour-intensive Intermediate	0.941	0.945	0.930	0.966	0.948	0.958
Capital-intensive Intermediate	0.894	0.969	0.984	0.941	0.992	0.998
Total	0.943	0.953	0.940	0.971	0.952	0.964

4.2. China-World Intra-Industry Trade (IIT) Index

The IIT values by manufacturing industries in China show quite interesting results with some contradictions to the above two classifications. Industries that recorded high values, i.e., near to unity are the manufacture of electrical and electronics, scientific equipment, machinery, non-ferrous metal, basic chemical and printing (Table 13). China's IIT in the world economy for the clothing/apparel industry shows a very low value which means that competitiveness of the sector in the international textile and clothing markets has decreased. Table 14 shows China's IIT by industrial product classification. The table shows that on average IIT values for all categories of the product are close to unity. Capital-intensive intermediate products and capital intensity products display very high values of IIT.

In the case of IIT of ASEAN-5, it has recorded high values mostly in the manufacturing sectors and also by industrial product classification. This means that ASEAN depends more on the external market for trade, growth and employment than China. However, in the case of China only a few industries exhibit high values of IIT such as E&E, machinery, chemicals and printing. By industrial product classification most of the cluster offer IIT values close to unity. This goes against our expectation and it is quite difficult to interpret the results.

Table 13 China-World Intra-Industry Trade Index by Manufacturing Industry

Manufacturing Industry	2001	2005	2007	2008	2009	2010
Food	0.849	0.465	0.408	0.312	0.322	0.356
Beverages	0.912	0.384	0.430	0.431	0.400	0.502
Tobacco products	0.266	0.058	0.050	0.124	0.157	0.134
Textiles	0.572	0.624	0.535	0.383	0.454	0.445
Wearing apparel except fur apparel	0.064	0.111	0.121	0.159	0.156	0.153
Footwear, leather, luggage, and related products	0.540	0.446	0.632	0.515	0.377	0.312
Wood, cork, straw and plaiting materials	0.138	0.250	0.371	0.357	0.370	0.369
Paper and paper products	0.521	0.971	0.748	0.689	0.606	0.533
Printing and service activities related to printing	0.716	0.566	0.772	0.862	0.705	0.959
Petroleum products	0.730	0.705	0.585	0.371	0.537	0.521
Basic chemicals and other products	0.967	0.847	0.953	0.752	0.994	0.947
Medical and pharmaceutical products	0.952	0.973	0.664	0.185	0.223	0.259
Rubber products	0.367	0.219	0.178	0.166	0.160	0.153
Plastic products	0.452	0.457	0.600	0.659	0.572	0.581
Glass products & non-metallic mineral products	0.551	0.434	0.389	0.290	0.259	0.283
Basic iron and steel	0.518	0.320	0.175	0.164	0.268	0.203
Non-ferrous metals	0.644	0.903	0.893	0.798	0.804	0.804
Metal products	0.453	0.528	0.525	0.501	0.587	0.546
General purpose machinery	0.949	0.859	0.836	0.804	0.784	0.857
Electrical and electronics	0.760	0.897	0.959	0.933	0.937	0.936
Scientific equipment	0.842	0.858	0.757	0.698	0.817	0.848
Transport equipment	0.685	0.726	0.837	0.689	0.817	0.574
Furniture	0.325	0.251	0.242	0.183	0.166	0.175
Other industries	0.069	0.113	0.110	0.090	0.099	0.098
Total trade	0.731	0.749	0.747	0.677	0.716	0.711

Table 14 China-World IIT Index by Industrial Product Classification

Classification	2001	2005	2007	2008	2009	2010
Labour Intensive	0.823	0.787	0.709	0.669	0.729	0.737
Capital/Technology-Intensive	0.848	0.713	0.695	0.648	0.710	0.741
Non-durable Consumer	0.919	0.976	0.890	0.844	0.904	0.904
Durable Consumer	0.969	0.886	0.825	0.784	0.810	0.824
Capital Goods	0.596	0.522	0.418	0.404	0.483	0.495
Labour-intensive Intermediate	0.951	0.941	0.872	0.833	0.871	0.889
Capital-intensive Intermediate	0.807	0.894	0.976	0.912	0.915	0.952
Total	0.872	0.867	0.806	0.764	0.812	0.825

4.3 ASEAN-China Intra-Industry Trade (IIT) Index

The figures in Table 15 and Table 16 are consistent with the IIT index calculated by manufacturing industries for ASEAN and China against the world as depicted in Tables 11 and 13. The manufacture of general purpose machinery, electrical and electronics, scientific equipment, transport equipment, non-ferrous metal, basic chemicals and manufacture of paper and paper products recorded IIT index close to unity. ASEAN concentrates in these industries as well as China. The ASEAN-China IIT index by industrial product classification, the cluster of industrial products of LIP, LIIP, NDCP and capital-intensive products (CIP) recorded high values of IIT. The E&E industries are labour intensive. Beverages, tobacco, textile and clothing, as well as paper are non-durable consumer products. This study had expected that there would be a high IIT index produced under capital goods. However the values recorded are below 0.500.

4.4. ASEAN-China Revealed Comparative Advantage (RCA) Index

Another index that could describe specialization in international trade is the revealed comparative advantage (RCA) index. Since the IIT index may not show if a country will gain competitive advantage in trading, this study employs or utilizes an alternative index to display competition in trading between ASEAN and China.

Table 15 ASEAN-China Intra-Industry Trade by Manufacturing Industry

Manufacturing Industry	2001	2005	2007	2008	2009	2010
Food	0.849	0.465	0.408	0.312	0.322	0.356
Beverages	0.912	0.384	0.430	0.431	0.400	0.502
Tobacco products	0.266	0.058	0.050	0.124	0.157	0.134
Textiles	0.572	0.624	0.535	0.383	0.454	0.445
Wearing apparel except fur apparel	0.064	0.111	0.121	0.159	0.156	0.153
Footwear, leather, luggage, and related products	0.540	0.446	0.632	0.515	0.377	0.312
Wood, cork, straw and plaiting materials	0.138	0.250	0.371	0.357	0.370	0.369
Paper and paper products	0.521	0.971	0.748	0.689	0.606	0.533
Printing and service activities related to printing	0.716	0.566	0.772	0.862	0.705	0.959
Petroleum products	0.730	0.705	0.585	0.371	0.537	0.521
Basic chemicals and other products	0.967	0.847	0.953	0.752	0.994	0.947
Medical and pharmaceutical products	0.952	0.973	0.664	0.185	0.223	0.259
Rubber products	0.367	0.219	0.178	0.166	0.160	0.153
Plastic products	0.452	0.457	0.600	0.659	0.572	0.581
Glass products & non-metallic mineral products	0.551	0.434	0.389	0.290	0.259	0.283
Basic iron and steel	0.518	0.320	0.175	0.164	0.268	0.203
Non-ferrous metals	0.644	0.903	0.893	0.798	0.804	0.804
Metal products	0.453	0.528	0.525	0.501	0.587	0.546
General purpose machinery	0.949	0.859	0.836	0.804	0.784	0.857
Electrical and electronics	0.760	0.897	0.959	0.933	0.937	0.936
Scientific equipment	0.842	0.858	0.757	0.698	0.817	0.848
Transport equipment	0.685	0.726	0.837	0.689	0.817	0.574
Furniture	0.325	0.251	0.242	0.183	0.166	0.175
Other industries	0.069	0.113	0.110	0.090	0.099	0.098
Total trade	0.731	0.749	0.747	0.677	0.716	0.711

Table 16 ASEAN-China IIT by Industrial Product Classification

Classification	2001	2005	2007	2008	2009	2010
Labour Intensive	0.739	0.802	0.813	0.754	0.810	0.779
Capital/Technology-Intensive	0.759	0.692	0.622	0.454	0.554	0.506
Non-durable Consumer	0.894	0.914	0.910	0.852	0.916	0.936
Durable Consumer	0.822	0.850	0.865	0.817	0.826	0.842
Capital Goods	0.515	0.441	0.332	0.307	0.402	0.351
Labour-intensive Intermediate	0.832	0.867	0.887	0.839	0.851	0.869
Capital-intensive Intermediate	0.962	0.970	0.934	0.823	0.947	0.947
Total	0.826	0.854	0.854	0.793	0.843	0.847

Based on the manufacturing classification as exhibited in Table 17, ASEAN has the competitive advantage in the manufacture of food, manufacture of products of wood, cork, straw and plaiting materials, manufacture of rubber products, manufacture of general purpose machinery and manufacture of electrical and electronics. Manufacturing firms of E&E recorded a high value of RCA compared to other industries. It seems that members of ASEAN, especially ASEAN-5, specialize and depend on the E&E industry. By industrial product classification, as depicted in Table 18, ASEAN has a high value of RCA index in durable consumer products which include E&E products. In the world economy, ASEAN gains a competitive advantage in durable consumer products. The value for the cluster ranges from 0.556 to 1.326. Other clusters which recorded RCA index above unity are LIIP and NDCP. For other industrial products group, the IIT values of the groups calculated were below 0.5 on average. This means that those products seem to be less competitive in the world economy.

In the case of China, its competitive advantage position in the world economy is given in Table 19 and Table 20. China's RCA index by manufacturing industries as shown in Table 19 indicates that the country gains a competitive advantage in the manufacture of textiles, wearing apparel except fur apparel; footwear, leather, luggage, and related products; metal products; electrical and electronics as well as manufacture of furniture. Based on industrial product classification, high values of RCA are recorded in the

Table 17 ASEAN RCA Index by Manufacturing Industry

Manufacturing Industry	2001	2005	2007	2008	2009	2010
Food	1.238	1.438	1.679	1.907	1.713	1.771
Beverages	0.300	0.361	0.450	0.495	0.509	0.546
Tobacco products	0.979	0.790	0.798	0.812	0.816	0.852
Textiles	0.756	0.754	0.736	0.731	0.767	0.752
Wearing apparel except fur apparel	0.992	0.729	0.652	0.636	0.578	0.555
Footwear, leather, luggage, and related products	0.581	0.351	0.384	0.389	0.367	0.341
Wood, cork, straw and plaiting materials	1.537	1.238	1.198	1.263	1.241	1.156
Paper and paper products	0.580	0.540	0.647	0.695	0.703	0.697
Printing and service activities related to printing	0.538	0.575	0.830	1.035	1.080	1.312
Petroleum products	0.940	0.902	0.909	0.934	0.981	0.996
Basic chemicals and other products	0.619	0.850	0.829	0.734	0.802	0.789
Medical and pharmaceutical products	0.103	0.186	0.298	0.213	0.209	0.206
Rubber products	1.793	2.344	2.762	3.021	2.643	2.993
Plastic products	0.737	0.894	0.895	0.928	0.888	0.934
Glass products & non-metallic mineral products	0.620	0.656	0.662	0.743	0.870	0.880
Basic iron and steel	0.343	0.378	0.453	0.432	0.501	0.409
Non-ferrous metals	0.619	0.739	0.827	0.862	0.817	0.758
Metal products	0.350	0.418	0.458	0.546	0.531	0.498
General purpose machinery	1.356	1.253	1.233	1.213	1.212	1.131
Electrical and electronics	2.114	2.138	2.030	1.937	1.830	1.909
Scientific equipment	0.666	0.646	0.690	0.695	0.685	0.706
Transport equipment	0.163	0.294	0.338	0.404	0.426	0.406
Furniture	0.922	0.800	0.694	0.677	0.640	0.586
Other industries	0.531	0.474	0.452	0.433	0.403	0.484
Average	0.807	0.823	0.871	0.906	0.884	0.903

Table 18 ASEAN RCA Index by Industrial Product Classification

Classification	2001	2005	2007	2008	2009	2010
Labour Intensive	1.040	0.619	0.458	0.417	0.538	0.457
Capital/Technology-Intensive	0.692	0.393	0.312	0.300	0.411	0.332
Non-durable Consumer	0.997	0.622	0.470	0.427	0.537	0.459
Durable Consumer	1.326	0.789	0.581	0.524	0.651	0.556
Capital Goods	0.487	0.281	0.225	0.226	0.304	0.257
Labour-intensive Intermediate	1.211	0.730	0.542	0.495	0.625	0.525
Capital-intensive Intermediate	0.598	0.425	0.347	0.319	0.409	0.358

cluster of durable consumer products (Table 20). The index ranges from 0.503 to 1.06. Other clusters which have recorded high values of RCA index are labour-intensive products and capital/technology intensive products.

The evaluation of RCA for ASEAN and China in the world economy suggests that ASEAN will face competition from China in the sectors of E&E, food, as well as textiles and clothing. Based on the industrial products cluster, ASEAN may face tough competition from China under durable consumer products. This to some extent confirms studies done by Sanjay Lall, *et al*. (2004) and Greenaway, *et al*. (2008) .

5. Conclusion and Policy Implications

The free trade agreement between ASEAN and China (ACFTA) which was inked in November 2002 has been said to be a bold move in integrating ASEAN's and China's economies. The ACFTA has since then been believed to be a momentum for further integration in the region, being assumed to be the initial stage for the ASEAN+3 FTA, i.e., an FTA between ASEAN and China, Korea and Japan.

Although the ACFTA was hailed by many groups at the international level, including ASEAN and China, the agreement has caused some uneasiness among members of ASEAN. The concern over China's rapid economic development and the strength of its economic muscles even before the FTA agreement has raised great concern among members of ASEAN due to the impact on their future economic growth. Since China's economy

Table 19 China RCA Index by Manufacturing Industry

Manufacturing Industry	2001	2005	2007	2008	2009	2010
Food	0.775	0.543	0.470	0.381	0.344	0.333
Beverages	0.342	0.156	0.109	0.100	0.102	0.100
Tobacco products	0.402	0.276	0.228	0.230	0.248	0.261
Textiles	1.914	1.916	1.886	2.084	2.062	2.075
Wearing apparel except fur apparel	3.981	3.316	3.377	3.386	3.210	3.245
Footwear, leather, luggage, and related products	3.535	2.879	2.135	2.237	2.313	2.465
Wood, cork, straw and plaiting materials	0.745	0.748	0.740	0.739	0.715	0.631
Paper and paper products	0.326	0.370	0.457	0.457	0.480	0.495
Printing and service activities related to printing	0.421	0.409	0.485	0.546	0.543	0.558
Petroleum products	0.310	0.162	0.114	0.118	0.111	0.106
Basic chemicals and other products	0.745	0.628	0.656	0.746	0.660	0.672
Medical and pharmaceutical products	0.139	0.071	0.064	0.076	0.079	0.088
Rubber products	0.652	0.703	0.774	0.777	0.830	0.773
Plastic products	0.780	0.675	0.636	0.655	0.630	0.641
Glass products & non-metallic mineral products	0.804	0.760	0.666	0.652	0.620	0.710
Basic iron and steel	0.895	0.967	1.203	1.296	0.912	0.954
Non-ferrous metals	0.624	0.630	0.550	0.597	0.536	0.515
Metal products	1.805	1.806	1.735	1.714	1.574	1.590
General purpose machinery	0.827	1.385	1.367	1.452	1.513	1.526
Electrical and electronics	1.283	1.575	1.763	1.864	1.802	1.829
Scientific equipment	0.862	1.030	1.004	1.040	0.958	0.980
Transport equipment	0.283	0.320	0.388	0.456	0.473	0.515
Furniture	2.151	2.326	2.371	2.543	2.582	2.605
Other industries	4.143	3.661	3.294	3.437	3.067	3.243
Average	1.198	1.138	1.103	1.149	1.098	1.121

Table 20 China RCA Index by Industrial Product Classification

Classification	2001	2005	2007	2008	2009	2010
Labour Intensive	1.263	0.694	0.531	0.482	0.625	0.525
Capital/Technology-Intensive	1.413	0.726	0.476	0.435	0.547	0.467
Non-durable Consumer	0.800	0.528	0.402	0.371	0.466	0.401
Durable Consumer	1.060	0.736	0.550	0.503	0.651	0.556
Capital Goods	1.316	0.608	0.448	0.400	0.509	0.427
Labour-intensive Intermediate	0.849	0.625	0.480	0.444	0.590	0.494
Capital-intensive Intermediate	0.688	0.352	0.271	0.254	0.268	0.240

has grown at a rapid pace, the country has been labelled as a new economic dragon in the world economy; this is actually scary news for ASEAN.

The huge market, ample low cost labour including other types of cost of productions, a reliable stock of human capital and attractive investment incentives and benefits offered by the Chinese government has attracted a huge pool of investments from foreign firms to major industrial zones across China. The threat is even greater since most of the products produced and exported by China are also produced and exported by ASEAN. This has resulted in a huge competition since the two regions' production and exportable goods, namely E&E products as well as textile and clothing, are substitutes and complementary goods. Therefore, both regions have to compete with each other in the world market in general, and in East Asia specifically. Then the question arises as to what the rationale is for ASEAN signing an FTA agreement with China if the country may cause economic 'damage' to them (ASEAN). Thus the purpose of this paper is to investigate whether ASEAN would stand to suffer losses by being part of ACFTA.

China's economy has grown rapidly since the 1990s. The main reasons for the very impressive economic progress were its open-economic policy which has been implemented since 1978 which implanted the economic liberalization policies, the role of FDI inflow in the development of manufacturing industries in labour-intensive and high-technology industries, and the devaluation of the Yuan against the US dollar. The involvement of foreign enterprises in China's industrialization has developed key economic progress, largely in the E&E industries. Foreign firms have been involved in

(re)structuring industrial activities, mainly by focusing on the E&E sector in China. More than 55 per cent of the export growth is related to the activities of foreign firms. One of the major contributions of foreign firms to China's economic development is that the country has been proclaimed as the world's centre for producing various types of E&E appliances and devices.

ASEAN's main manufacturing sectors are E&E as well as the textile and clothing industries. A considerable amount of economic resources in ASEAN have been devoted to the former, particularly in the case of Malaysia and Singapore. Since China has also concentrated in the same manufacturing sectors, there has been an overlap in industrial sectors. It appears that since the 1980s, China has been producing and exporting whatever ASEAN has produced and exported. In a nutshell, the structure of production and exports in the E&E sector seems to be similar between ASEAN and China. This has actually caused stiff competition between the two regions in the international commodity market and in terms of foreign capital.

Some have argued that the rapid economic development of China, particularly in manufacturing activities, has benefitted ASEAN rather than providing tough competition. According to the ADB's Annual Report (2007), trade between ASEAN and China in the E&E sector has been in the form of network production, in which members of ASEAN produce intermediate products and China acts as a base for assembling the final product of the sector. The network of production-trade incidences only exist in a group of countries or in a region where there is a similar structure of production and exports. The main agents of such activities or linkages between production and trade are foreign firms. Relationships between production and trade that are contributed largely by foreign capital are famously known as the "flying geese model". Since China appeared on the world economic radar in the early 1980s, the country has become the main location of foreign or multinational (MNC) firms. ASEAN, because of certain circumstances, such as cost of production and political stability or governance, is no longer a potential location of MNC firms.

Trade between ASEAN and China has increased since 1995; however, the trade has favoured China rather than ASEAN. Based on the exports and imports structures between the two regions, it can be seen that both regions trade mostly in the same categories of products. Based on the HS 2 digit classification, the main items in the ASEAN-China trade are HS85 and HS84. Although there is a network type of trading between the nations, as mentioned earlier, the question now is who gains in that type of trade.

Based on the trade performance indices, namely, the IIT and RCA indices, it can generally be assumed that China may gain or receive the most benefits from the ACFTA deal. The main reason as indicated by all the trade

performance indices, is that most of the goods produced and exported by ASEAN are mainly manufactured goods that are similar to China's production and export of manufactured goods. Based on the trend of trade performance indices, there has been trade interdependence between ASEAN and China in certain products, particularly in E&E products. This was demonstrated by the IIT values calculated for ASEAN members against China. The IIT value for the ASEAN-China trade for certain products, namely E&E, has been quite high. This indicates that there has been intra-trade industry or intra-firm trade between ASEAN members and China in the E&E sector.Related to the above points, the main question that arises is whether the current growth model that has contributed and accelerated significant economic performance in ASEAN needs to be considered. The export-led growth (ELG) model based on FDI in the E&E industries and in low-cost labour industries, be it labour-intensive or capital-intensive, should be reviewed thoroughly. In general, all developing countries are pursuing the ELG model for economic growth and development. There will be a huge congestion in terms of production of similar goods, and this could, subsequently, kill the competitiveness of the older or existing industries. The newcomers, such as the African countries and Central Asia, will increase competition further in the world economy by reducing export prices, mainly in terms of US dollars.

If there is an international crisis such as the falling demand for EOI goods, most countries relying on the sector will be affected and subsequently the inflow of future FDI will drop. Foreign firms may reconsider either expanding operations, increasing investments or closing down factories and moving to locations which offer cheaper costs. In terms of production costs, Singapore and Malaysia no longer seem to be in the radar of foreign firms. According to JETRO, which studies Japanese firms in East Asia including China, Malaysia and Singapore are attractive locations but not reliable since the cost of production is (getting) high. Most Japanese firms now favour China for locating factories. However, since late 2009, China has also begun facing escalating production costs, mainly with regard to rentals and wages; this has driven many foreign firms to move from the coastal to central regions which offer a lower cost of production.

ASEAN has to look at a different direction or draft new strategies for the strengthening of the manufacturing industry and to outline future economic development policies for future economic growth. The world economy is getting increasingly complex, and traditional economic measures are incapable of dealing with crises emerging from these new kinds of complexities. Countries, particularly developing economies, should be focused and specific rather than broad-based in promoting or re-structuring the manufacturing industries. Therefore, for Malaysia, the economic development policy should

promote industries that can produce a competitive or comparative (trade) gain to the country. Also, the policy should address how to counter or reduce threats of price competitiveness from Chinese goods in the world market. Since China's economic performance and the international production linkages formed by foreign firms' activities in the region have affected economic performance for the region, new development strategies are badly needed. The new strategies, in terms of focusing on niche industries or sectors, are what the country can offer, i.e., to be the best in the international market by looking at other types of industries in which local resources can be utilized efficiently and optimally, improving economic facilities such as transportation, logistics, and communication in order to lower costs of production and enhance human capital skills. For ASEAN, member states need to enhance and be committed to economic cooperation such as quickly establishing the ASEAN Economic Community to counter the China factor in the future and for the benefit of their people.

The establishment of ACFTA is most welcomed by East Asian communities. The FTA sounds very impressive, but its exact cost to the members which are uncompetitive is unknown. Definitely, there are members of the pact who will gain and members who will lose. If the cost is too high for some members, the FTA committee should construct a mechanism which can compensate the losses to the losing member. This is vital to ensure stability and harmonization of the group. The ACFTA could become a large free trade arrangement in the world, but if some members of the pact experience too many losses it will dent the significance and attractiveness of the pact.This study has indicated that there would be competition between ASEAN and China. By signing the ASEAN-China FTA, ASEAN expects to hedge trade losses with China. Maybe this is ASEAN's strategy in dealing with China's economic threat towards them. However, we are not sure whether the plan is workable or not. This is a "big" question to answer. There will be many answers: yes, no and uncertain.

In general, all members of ACFTA are developing countries. Meanwhile an FTA which integrates industrialized and developing countries such as NAFTA and EU are different. The pattern of trade, investment, employment or income distribution of both FTAs will be different. Usually, developing countries compete among themselves in trading and they struggle to get a bigger bite of the international market besides attracting foreign capital. Foreign capital and the international goods market are the major sources of economic growth for a developing country.

APPENDIX

Industrial Product Classification – Based on HS 2 Digit Code

Labour-Intensive Product	25, 41, 42, 43, 44, 45, 48, 49, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 68, 69, 70, 71, 73, 74, 76, 81, 82, 83, 85, 87, 92, 93, 94, 96, 97
Labour-Intensive Intermediate Product	25, 41, 42, 43, 44, 45, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 63, 68, 69, 70, 71, 73, 74, 76, 81, 82, 83
Capital/Technology Intensive Products	11, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 38, 39, 40, 48, 49, 68, 69, 70, 71, 72, 73, 74, 75, 76, 78, 79, 80, 81, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 95
Durable Consumer Product	25, 48, 49, 68, 69, 70, 71, 73, 74, 76, 81, 82, 83, 84, 85, 90, 91, 92, 93, 94, 95, 96, 97
Non-Durable Consumer Products	33, 34, 39, 42, 43, 48, 49, 51, 52, 53, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 71, 72, 83, 87, 91, 93, 95, 96, 97
Capital Goods	73, 74, 76, 81, 82, 83, 84, 85, 87, 90, 91
Capital-Intensive Intermediate Products	11, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 38, 39, 40, 48, 68, 69, 70, 71, 72, 73, 74, 75, 76, 76, 78, 79, 80, 81, 91

Note. (1) In MITI (1986), the code is in SITC 2 digit. Based on the code, this study re-organized the clusters by matching with the HS 2 digit.

Source: Ministry of International Trade and Industry, Government of Japan, *White Paper on International Trade 1986*, pp. 405-406.

Notes

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1. This statement also appeared in Lloyd-Smith (2001).
2. The statement was delivered since he felt nervous over China's economic performance that will decelerate NAFTA's performance.
3. The IIT index was proposed by Grubel and Lloyd in 1975. Their work has been used in numerous studies for calculating trade or industrial competitiveness. The formula of the IIT index for a product category is given by the following equation:

   $$IIT = 1 - \{(X+M) - (|X - M|) / (X+M)\}$$

   Where (X + M) is the value of gross trade and |X – M| is the absolute value of inter-industry trade, while the numerator of the equation measures intra-industry trade as the net value of total trade remaining after net exports, or net imports are subtracted. The net value of total trade is given in the form of a proportion of the value of total trade.

   This paper uses Balassa's version of the RCA formula. The formula reads as follows:

   $$RCA = (X_{ij} / X_i) / (X_{nt} / X_n)$$

   where X is exports, subscript *i* is a country, *j* is a commodity or industry, *t* is a set of commodities (or industries) and *n* is a set of countries. RCA estimates a country's exports of a commodity (or industry) relative to its total exports and to the corresponding exports of a set of countries. The RCA index takes a value between 0 and $+\infty$. A country is said to have a revealed comparative advantage if the value exceeds unity. If RCA is less than unity, the country is said to have a comparative disadvantage in the commodity or product or industry.

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