THE LIKELY IMPACT OF THE ASEAN PLUS CHINA ON INTRA-ASEAN TRADE[1]

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BACKGROUND

The ASEAN Free Trade Area (AFTA) has now been virtually established. ASEAN Member Countries have made significant progress in the lowering of intra-regional tariffs through the Common Effective Preferential Tariff (CEPT) Scheme for AFTA. More than 99% of the products in the CEPT Inclusion List (IL) of ASEAN-6, comprising Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand, have been brought down to the 0-5% tariff range. ASEAN's exports had regained its upward trend in the two years following the financial crisis of 1997-1998 reaching its peak in 2000 when total exports was valued US$ 408 billion. After the United States, the European Union and Japan, recent data show that China tends to become the ASEAN's largest trading partner, in export as well as import.

As often discussed in the literature, the challenges posed by Chinese accession to WTO will, at least in the short run, be greater to China (the PRC) than for its trading partners. This notion may also apply to Chinese accession to ASEAN market via the establishment of China-ASEAN free trade zone. Recent data indicate that export growth on average per year from China to ASEAN market has been higher than the other way around (i.e. ASEAN export to China). Following this trend, the ASEAN-China free trade zone may generate higher trade volume between China and ASEAN (with China exports more than ASEAN member countries do) at the cost of ASEAN intra-trade. Especially since historical data shows that since the establishment of ASEAN, the growth of its inter-trade has always been higher than the growth of its intra-trade.

With this background, this paper aims to assess the implication of "ASEAN plus China" for ASEAN inter-and intra-trade, and likely challenges and opportunities that ASEAN will face?

ASEAN TOTAL TRADE

Total exports and imports on goods from ASEAN-6 (Thailand, Singapore, Indonesia, Malaysia, the Philippines and Brunei Darussalam) had regained its upward trend in the two years following the financial crisis of 1997-1998 reaching its peak in 2000 when total exports and imports were valued US$ 408 billion and almost US$ 350 billion, respectively. After declining to US$ 366.8 billion in 2001, as results of the economic slowdown in the United States (US) and Europe and the recession in Japan, ASEAN-6 exports recovered in

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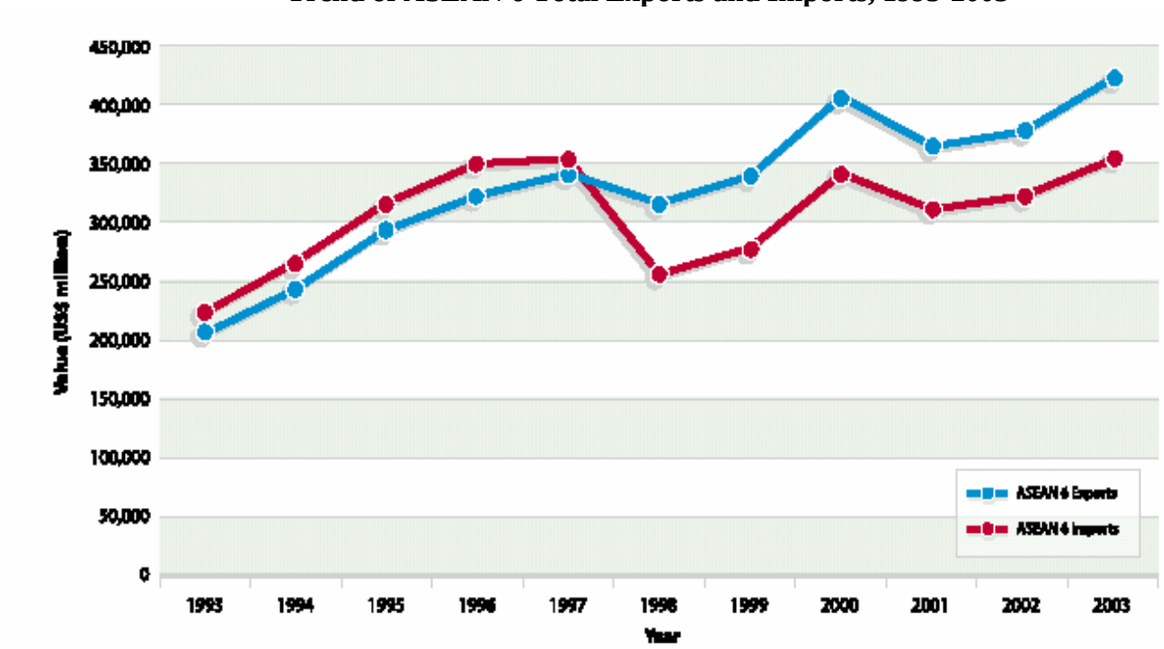
2002 when it was valued at US$ 380.2 billion and continued to increase in 2003. Total imports of ASEAN 6 also show an upward trend since 2001 (Graphic 1).

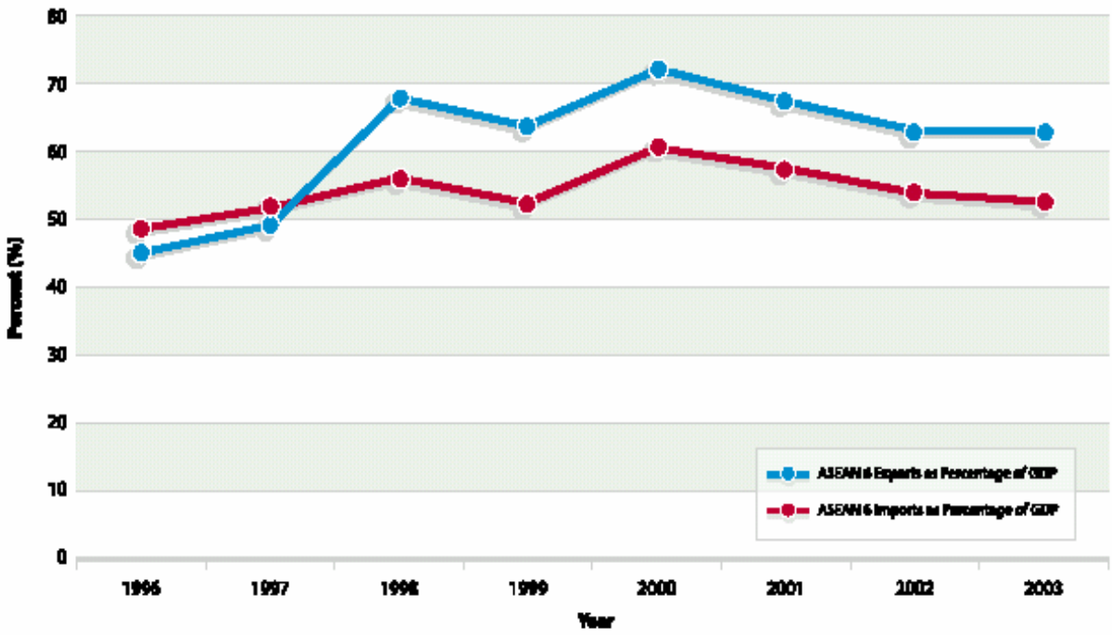
Exports as a percentage of GDP are often used as an indicator of the importance of exports to an economy and also as an indicator of the economy‘s international competitiveness, and imports as a percentage of GDP are often used as an indicator of the import dependency of an economy. Whereas, the share of total trade to GDP i.e. the percentage share of exports plus imports to GDP, is often used as an indicator of the ”openness” of an economy. As shown in Graphic 2, the development of ASEAN-6 total exports as a percentage of total GDP of the region during the same period shows an upward trend after 1999 and reached its peak in 2000 and started to decline again since then. The ratio of total imports to GDP also shows a similar trend.

Graphic 1
Trend of ASEAN 6 Total Exports and Imports, 1993-2003



Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

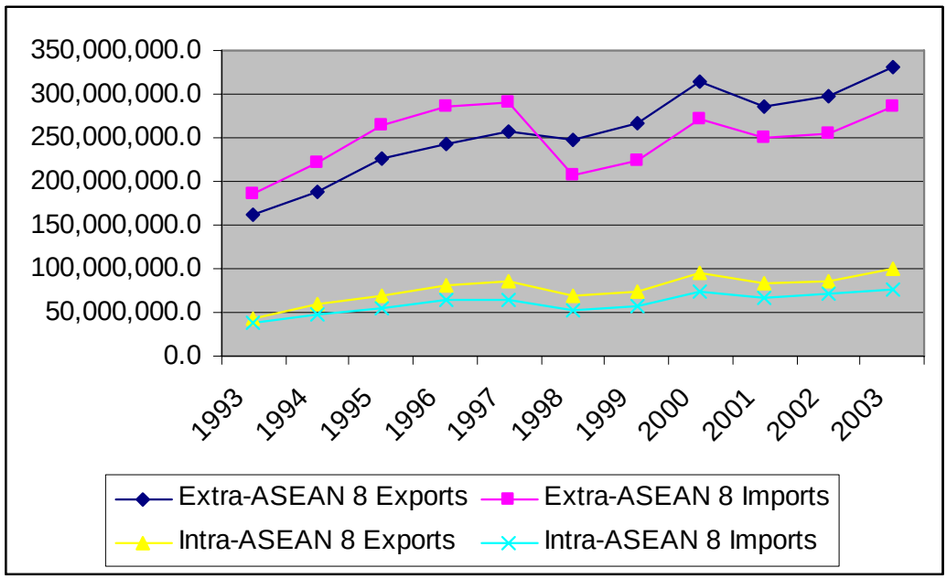
Graphic 2
Trend of ASEAN 6 Exports and Imports as a Percentage of GDP, 1996-2003



Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

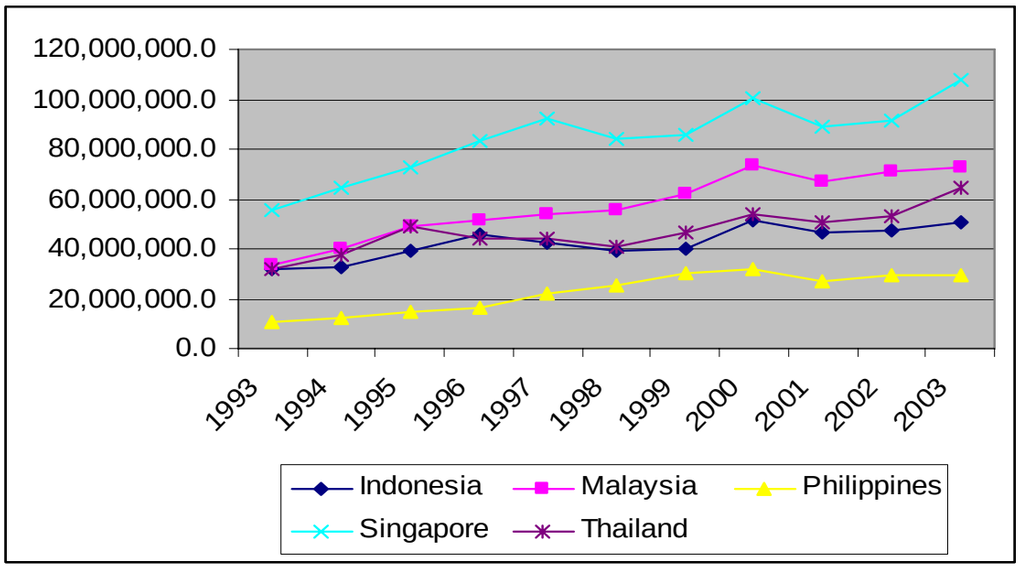
To answer the question as the title of this paper, the importance of ASEAN as an economic integration in trade (in other areas such as investment and finance is not the focus of this study) for individual member countries must be assessed first. For trade in goods, indicators often used for this purpose are intra-ASEAN exports, imports and trade (exports plus imports). The following graphics show these indicators for ASEAN-8 (ASEAN-6 plus Myanmar and Cambodia). First, Graphic 3 shows that extra-ASEAN trade (exports and imports) is much higher than intra-ASEAN trade, indicating that despite integration, regions outside ASEAN are still the most important markets for individual ASEAN member countries, for both export and import. After Singapore, Malaysia is the member country with the largest extra-ASEAN export, followed by Indonesia (Graphic 4). With respect to extra-ASEAN import, Thailand and Malaysia are the two member countries after Singapore, which imported a lot from non-ASEAN markets (Graphic 5).

Graphic 3
Trend of Extra-ASEAN Exports and Imports and Intra-ASEAN Exports and Imports of ASEAN 8, 1993-2003 (000 US$)



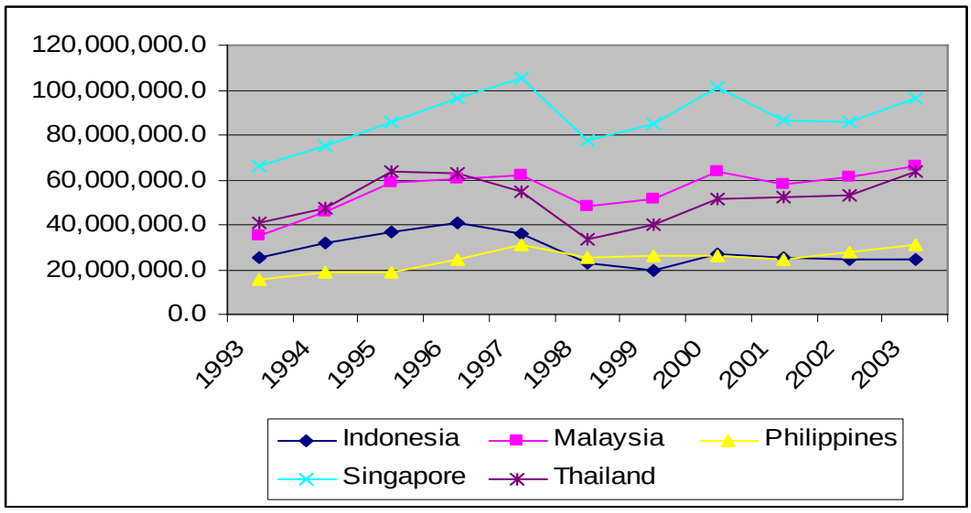
Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

Graphic 4
Trend of Extra-ASEAN Exports by selected member country, 1993-2003 (000 US$)



Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

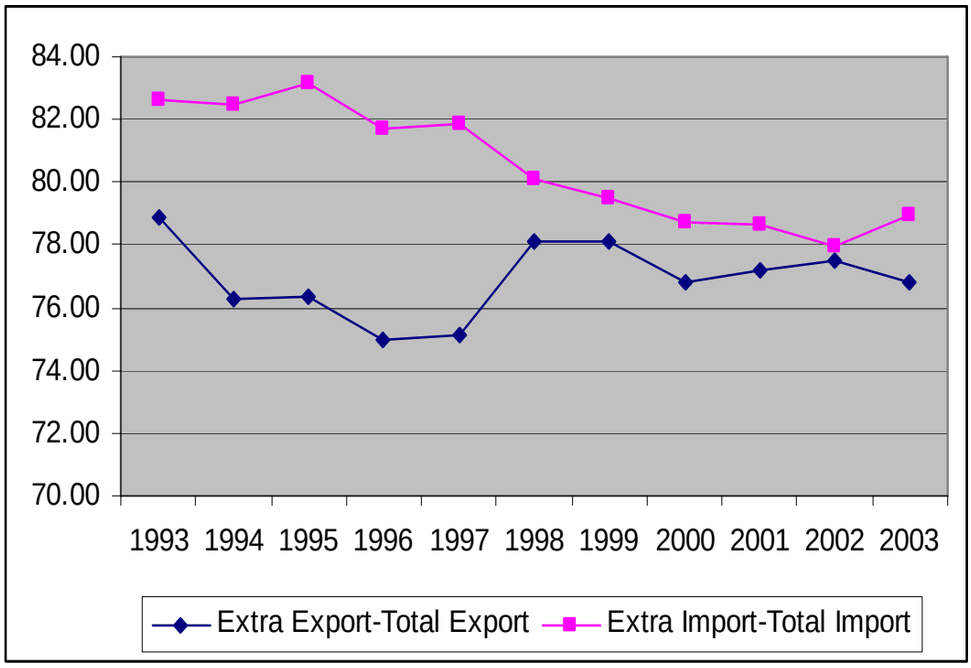
Graphic 5
Trend of Extra-ASEAN Imports by selected member country, 1993-2003 (000 US$)



Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

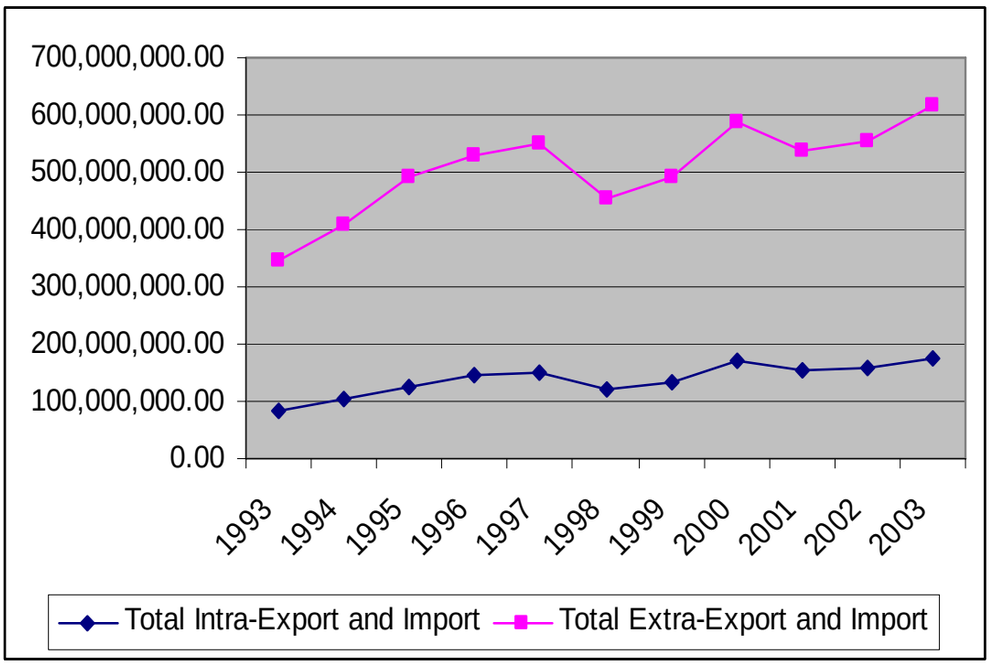
Second, and probably this is the most important integration indicator, Graphic 6 shows trend of development of extra-ASEAN export and import as a percentage of respectively total ASEAN exports and imports. This indicator measures the relative importance of internal market within an economic integration. As can be seen, although both trends decline during the period reviewed, the ratios are still high. Third, trends of development of extra and intra trade (export + import), as illustrated in Graphic 7. Although both trends increase, the gap is obvious. In 2003, total value of extra-ASEAN trade of ASEAN-8 reached more than 600 billion US dollars, while that of intra-ASEAN trade is less than 200 billion US dollars. Graphics 8 and 9 show the importance of extra-and intra-ASEAN trade for selected member countries.

Graphic 6
Trend of Extra-ASEAN Exports and Imports by selected member country, 1993-2003
(% of total ASEAN Exports and Imports)



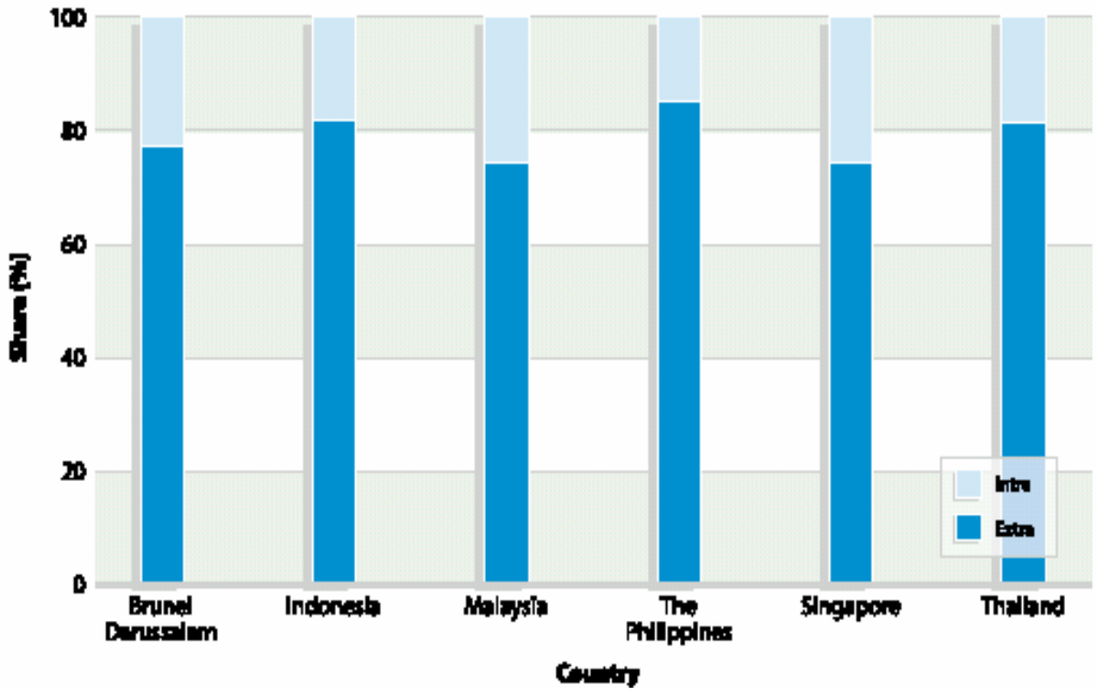
Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

Graphic 7
Trends of Extra-and Intra-ASEAN Trade (ASEAN 8), 1993-2003
(000 US$))



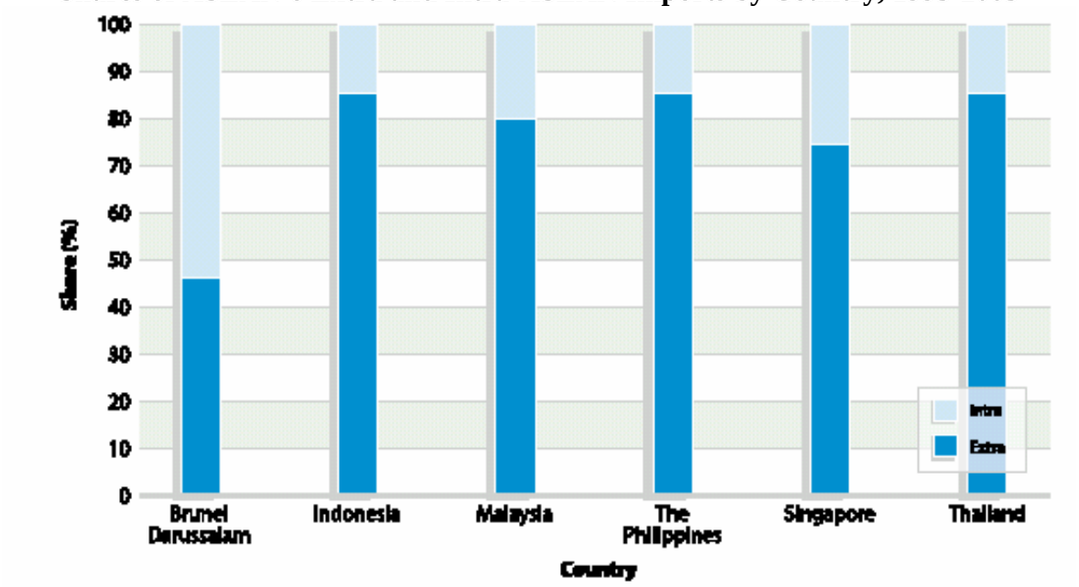
Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

Graphic 8
Shares of ASEAN 6 Extra and Intra-ASEAN Exports by Country, 1993-2003



Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

Graphic 9
Shares of ASEAN 6 Extra and Intra-ASEAN Imports by Country, 1993-2003



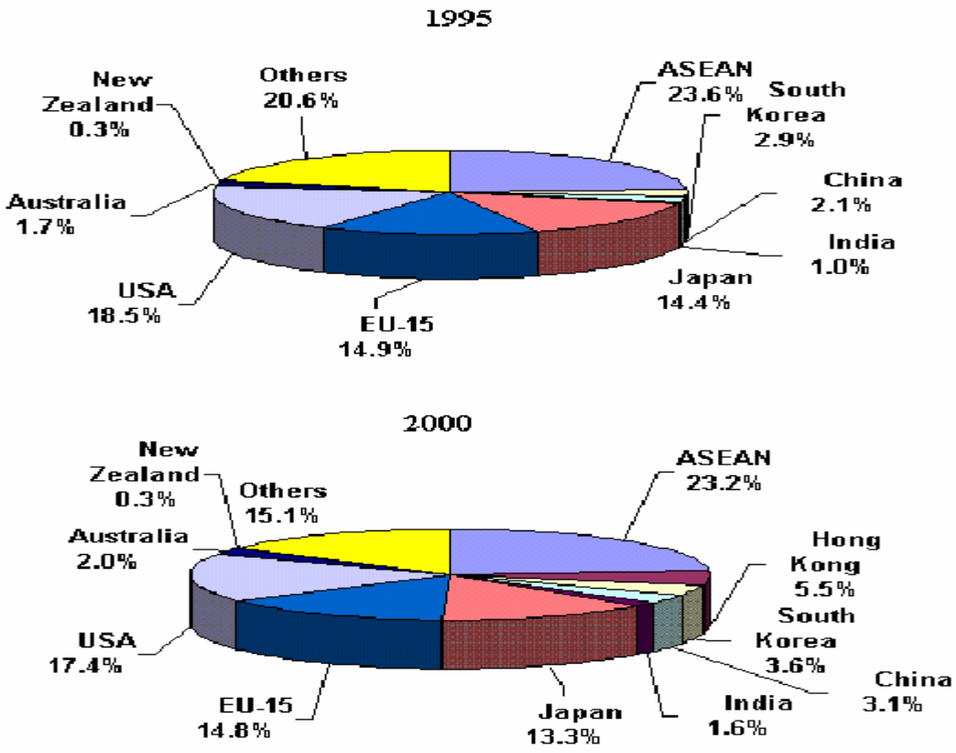
Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

ASEAN TRADING PARTNERS

From ASEAN export-side, Graphic 10 reveals the geographical distribution of ASEAN's exports to its major trading partners in 1995 and 2000. In 2000, China was ASEAN's sixth largest export market, accounting for 3.1% of the latter's global exports, behind other ASEAN countries (23.2%), the US (17.4%), the EU (14.8%), Japan (13.3%) and South Korea (3.6%). Two important points warrant noting. One, China plus Hong Kong has constituted 8.6% of ASEAN's global exports. Two, the share of China in ASEAN's total export basket has risen by a full percentage point in the last five years. Further, based on recent data from the ASEAN Secretariat, Graphic 11 shows the geographical distribution of ASEAN's export to its major trading partners for 2002 and 2003. It reveals that the share of intra-trade (export) of ASEAN declined while that for instance with China increased during the period reviewed.

From ASEAN import-side, Graphic 12 reveals the geographical distribution of ASEAN's imports from its major trading partners in 1995 and 2000. By 2000, China constituted 4.8% of the overall imports of ASEAN-5, up from 2.9% in 1995. Hong Kong plus China together constituted 7.9% of ASEAN's imports in 2000, only behind other ASEAN members (21.4%), Japan (19%), USA (14.3%) and the EU (11.4%). China constitutes a much larger share of trade with Indonesia (5.7%) and Singapore (5.3%) among ASEAN-5, and was of least significance in the Philippines (about 1.5%). In addition, based on recent data from the ASEAN Secretariat, Graphic 13 shows the geographical distribution of ASEAN's imports from its major trading partners for 2002 and 2003.

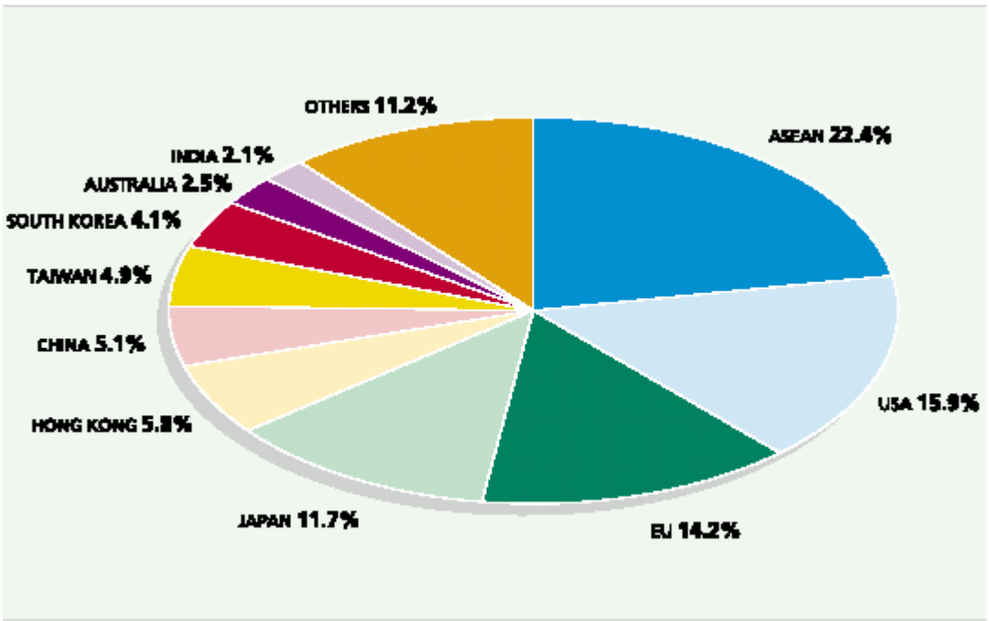
Graphic 10
Share of ASEAN's exports to major trading partners: 1995 and 2000



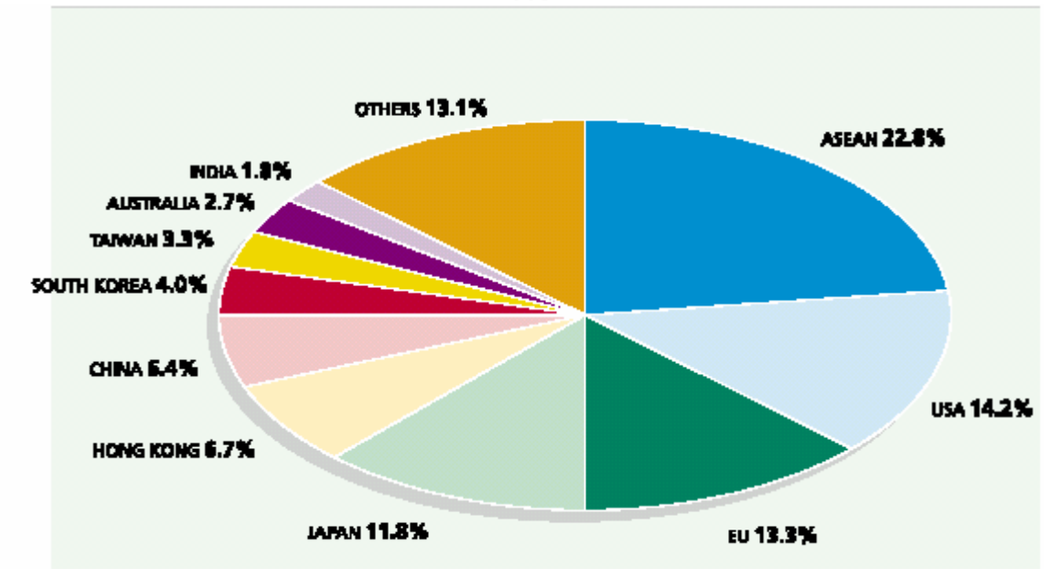
Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

Graphic 11
Share of ASEAN's exports to major trading partners: 2002 and 2003

2002

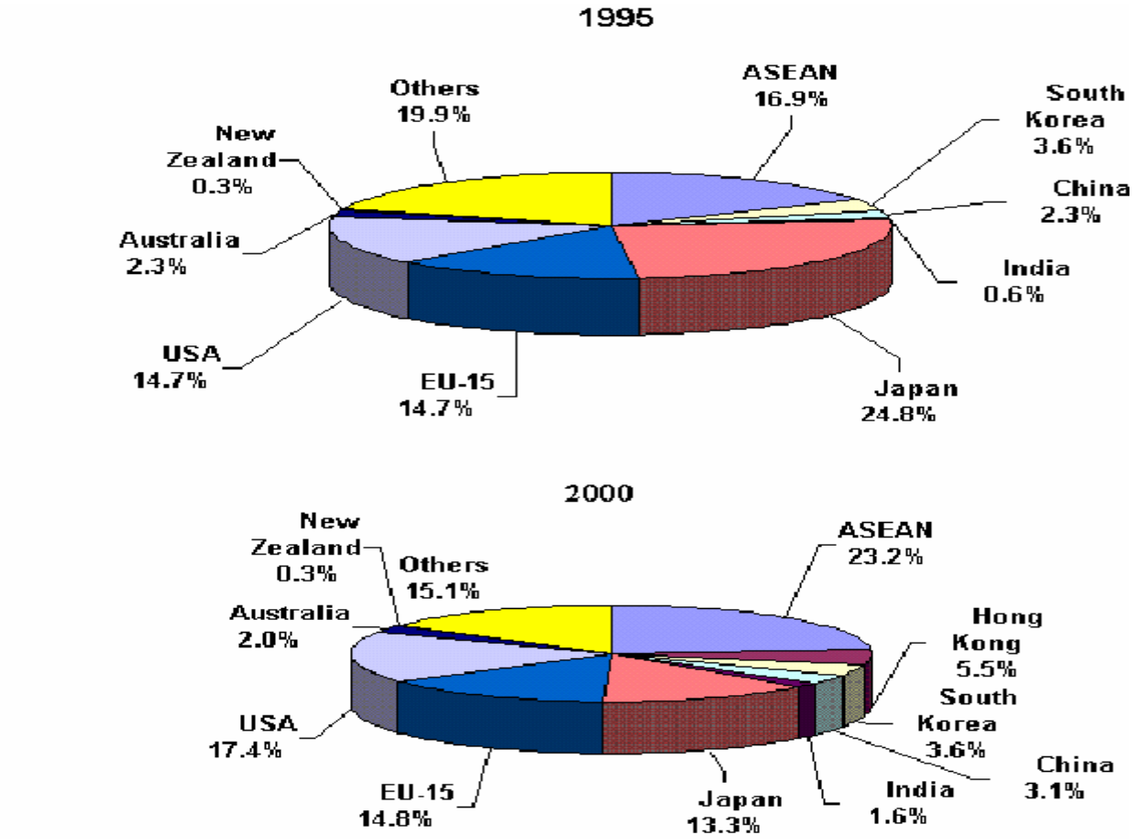


2003



Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

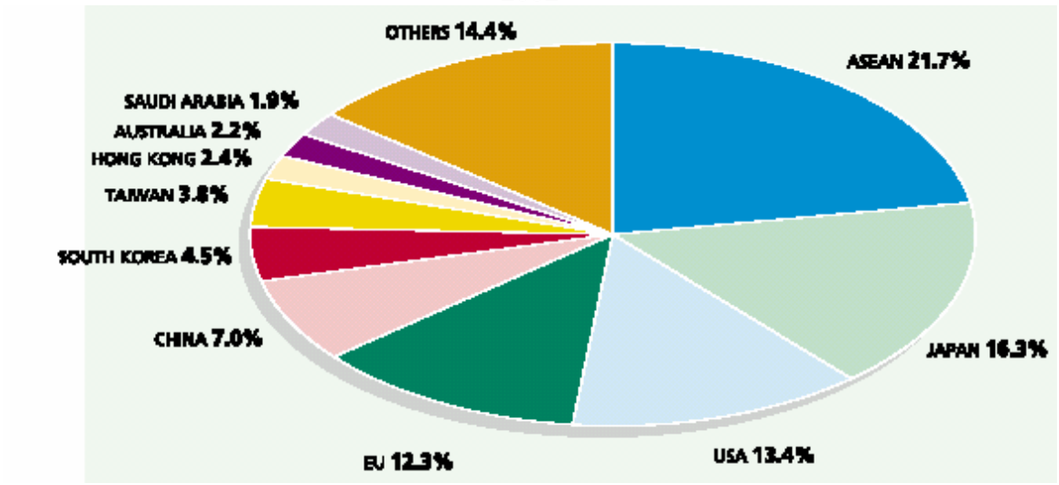
Graphic 12
Share of ASEAN's imports from major trading partners: 1995 and 2000



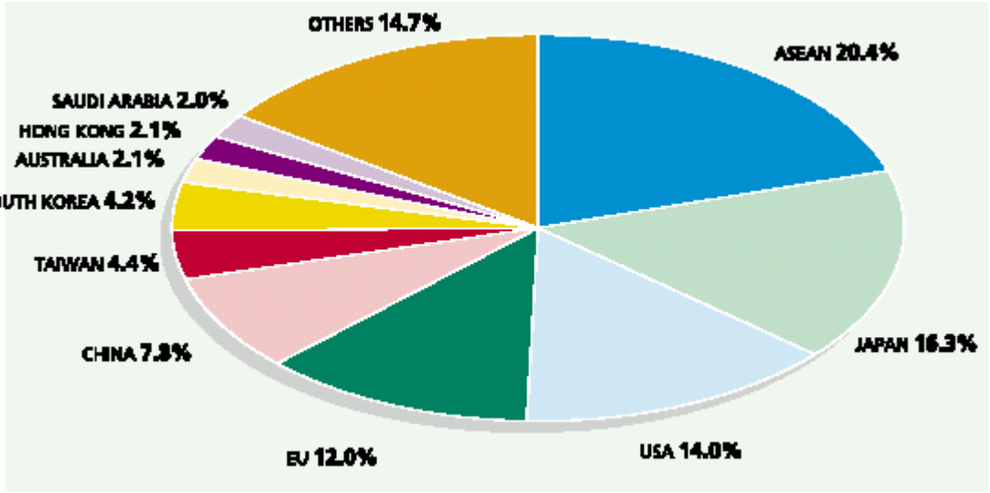
Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

Graphic 13
Share of ASEAN's imports from major trading partners

2002



2003



Source: ASEAN Trade Statistics Database, ASEAN Secretariat Office

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ASEAN-CHINA

Although ASEAN has not yet been in the first rank of the most important trading partners of China, trade between China and this region continued to increase. Data from various sources show that in 1998 exports from China to ASEAN (Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore and Thailand) was about 11.21 billions US$ and its import from ASEAN in the same period was 9.20 billions US$. As a comparison, in the same period, China exported to and imported from the US about 71.17 and 14.24 billions US$, respectively; exported to and imported from EU amounted to 36.73 and 15.24 billions, respectively; and with Japan 29.66 and 28.27 billions respectively. In 2000, ASEAN imported from and exported to China 24.99 and 34 billions US$ respectively.

Not only because of China entered WTO, but also in the era of "ASEAN Plus China", members of ASEAN are expected to face particularly intense competitive pressure from China in view of the overlap in relative factor endowments. Some studies warn that the "China threat" to ASEAN may be immediate and severe in labour-intensive products in which China has a strong comparative advantage, but could move on to impact the broader technological spectrum.[2].However, such negatives from stiffened competition could be outweighed by the potential for mutually beneficial and complementary relationships that may accrue to its trading partners from China's economic growth and trade expansion. It is thus important to understand the relative performances of China and ASEAN countries over time, as well as the intensity and changing dynamics of their intra-regional economic interactions.

[2] See, e.g. Lall (2003) and Lall and Albaladejo (2001).

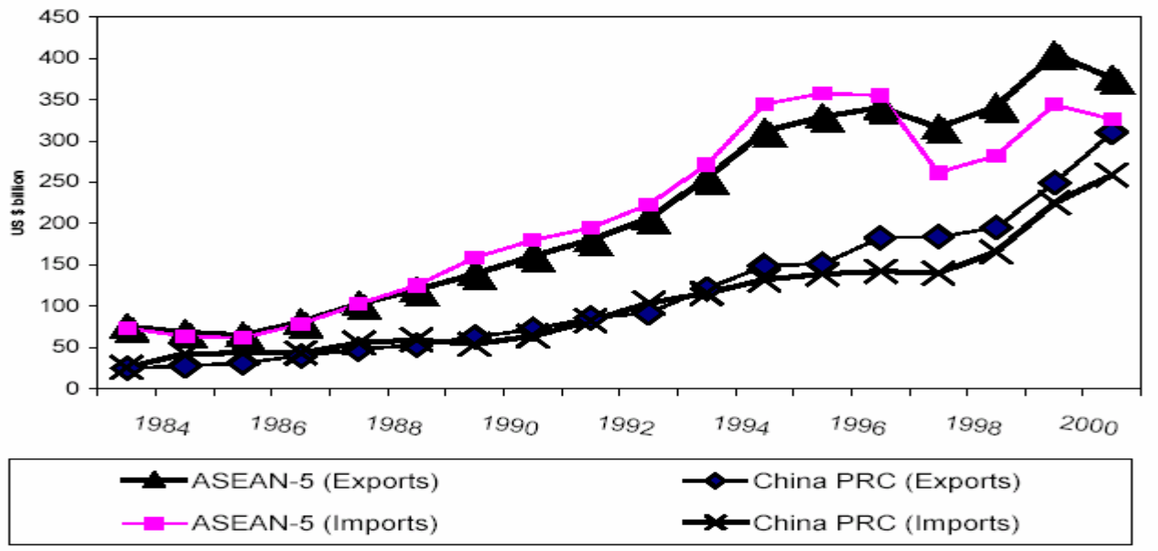
In the last few years, many studies have been done on the implications of emergence of China as a strong economy on many other countries or the world. For instance, Srivastava and Rajan (2003) study the implications of the growing China's economy and external trade on ASEAN and India. They examine trends in merchandise trade, trade in commercial services, and global foreign direct investment (FDI) flows at an aggregate level for China, ASEAN and India, and the dynamics of economic interactions among these economies since the mid 1980s. They also attempt to analyze the impact of China's emergence on the more advanced ASEAN members, especially Indonesia, Malaysia, the Philippines, Singapore and Thailand (called the ASEAN-5), with regard to export competitiveness in manufacturing and the services sector at a disaggregated product level. Their study shows that the global share of China's merchandise trade increased from 1.5% in 1980 to 2.7% in 2000, while that of ASEAN-5 rose from 4% to about 6.5%. During 1996-2000, the highest share in world exports and trade among the ASEAN-5 members was that of Singapore (2.2%), followed by Malaysia (1.5%), and Thailand (about 1.1%). This finding may suggest that due to the fact that the economic strong or trade performance of ASEAN varies among member countries, so the implication of ASEAN Plus China would also vary among member countries.

Data from ADB show that trade between China and ASEAN-4, i.e. Indonesia, Malaysia, Philippines and Singapore more than doubled between 1993 and 2000 reaching US$36 billion. China ran a trade deficit of US$5.9 billion with these countries in 2000. The principal imports into China include iron-ore sand, chromium ore, and leather and textile materials. For some years, China has been importing more from ASEAN countries as a whole than it has been exporting to them. Exports from these countries to China also moved up the value-added ladder. Electronic products and machinery have penetrated Chinese market. With the lowering of tariff rates and the removal of NTB, trade from these countries should be further enhanced. However, as noted before, ASEAN is still relatively small in trade with China. Even in Asia, more than half of China's imports are from newly industrialized economies (NIEs) and Japan. Low production costs have attracted the relocation of less dynamic industries from NIEs as well as Japan to China. The largest trade deficit of China has been with Taiwan Province of China, i.e. more than US$15 billion in 2000. If products sold by Taiwan Province of China enterprises in the mainland were to be included, the figure would be much larger. Japan is China's largest trading partner in Asia. Trade with the Republic of Korea grew fast from very low level in the early 1990s to over US$30 billion in 2000.

In addition to some graphics already shown in the previous section on distribution of ASEAN external trade by important countries of destination (including China), Graphic 14 reveals specifically trends in merchandise trade of China and ASEAN over the period 1984 and 2001. While ASEAN's exports were nearly triple those of China in 1984, exports of China by 2001 closely matched that of the ASEAN-5 countries. Of course, the convergence between China and ASEAN's exports largely took place between 1996

and 2000, the period of general downturn in much of Southeast Asia following the regional financial crisis of 1997/98. A broadly similar trend is observed for imports, though China's export growth has outpaced its growth in imports since the early 1990s, leaving China with aggregate merchandise trade surplus vis-à-vis the rest of the world. In contrast, ASEAN-5, which had registered continuing and increasing trade deficits up to the crisis in 1997, ran trade surpluses thereafter.

Graphic 14
Trends in Merchandise Trade of China and ASEAN : 1984-2001



Source: ADB (2002)

Although the previous section already presented some information on the trade relationship between China and ASEAN, the next table may provide more information particularly on trade between China and individual member countries, by showing some indicators measuring the importance of China in ASEAN member countries' trade. As can be seen, the performance of these indicators varies by member country. With respect to Indonesia, the export share of China in total export of Indonesia was 0.5% in 1985 and increased to 5% in 2001, and in Indonesian import from 2.4% in 1985 to 6.8% in 2001.

Using data from ADB, Shafaeddin's (2002) study shows that a structural transformation has been taken place in trade between China and ASEAN between 1993 and 2000. In 1993, ASEAN's exports to China were dominated more by primary products like wood & wood articles and mineral fuels, and the product composition shifted markedly by 2000 to manufactured products, particularly electrical and electronic and nuclear boiler products. This is evident in the increasing share of these products in ASEAN's exports to China over that period. These products, along with that of nuclear boilers and parts, accounted for about 50% of ASEAN's imports from China by 2000. There is, therefore, increasing evidence of intra-industry trade in these products between ASEAN-5 and China. As explained in his study, China is rapidly improving its

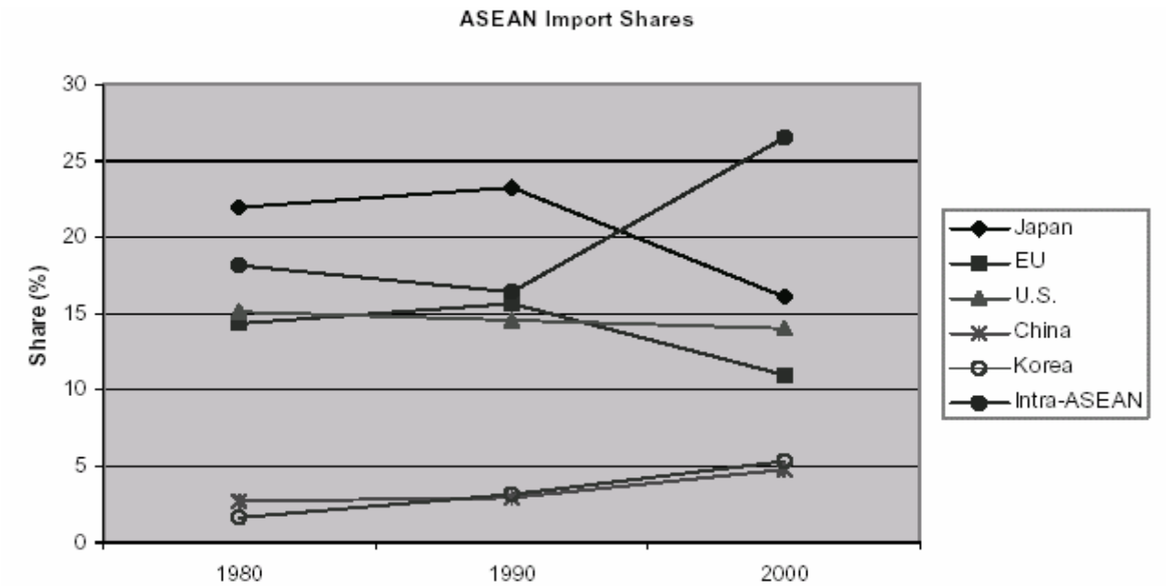
production and export capacity in light manufactured products as well as in the assembly of parts and components of a limited number of capital goods. Its exports of light manufactured goods compete mainly with South Asian countries and a few Latin American and African countries in the third markets, while it competes head-on with some lower and middle income ASEAN countries in the production and assembly of some capital goods. However, insofar as the intermediate goods used in the manufacture of China's exports of capital goods are largely imported from ASEAN and other East Asia countries, trade is as much complementary as it is competitive

Using the "revealed competitive advantage (RCA) indices"[3]for exports and imports, Shafaeddin analyses the vulnerability of selected developing countries, including ASEAN if China's competitive position is improved due to its entry to WTO. In contrast to the existing literature which concentrates on labour-intensive products as a group, his study considers products at a disaggregate level since products in the same group are not often homogeneous. The study shows that in labour-intensive manufactured goods, China competes mainly with South Asian countries and a few Latin American and African countries. In the final market for capital goods, China competes with NIEs and ASEAN countries, and in a limited number of goods with Mexico and Costa Rica. With respect to ASEAN, some important findings are the followings: (i) China's export structure is similar to that of Malaysia in the final market for a number of "finished" capital goods. By contrast, Thailand is vulnerable in clothing, miscellaneous household equipment and electric machinery; (ii) Indonesia has little to worry except for furniture; (iii) Viet Nam has similar export structure with China in some clothing items, but overall Viet Nam has been aggressive in exportation of these products; and (iii) China's attempt in increasing domestic value added in exports could lead to improvement in its competitiveness in technology/skill intensive products of interest to ASEAN.

Another interesting evidence is provided by Sakakibara and Yamakawa (2002). They examined the shift overtime of external trading pattern of ASEAN. A review of this shift can indicate the regional/global trends in external trade of this regional economic integration. The following four graphics reveal how the trade share of the region with some of its major trading partners has changed between 1980 and 2000, and particularly how the importance of China for ASEAN trade has shifted overtime (Graphics 15-18).

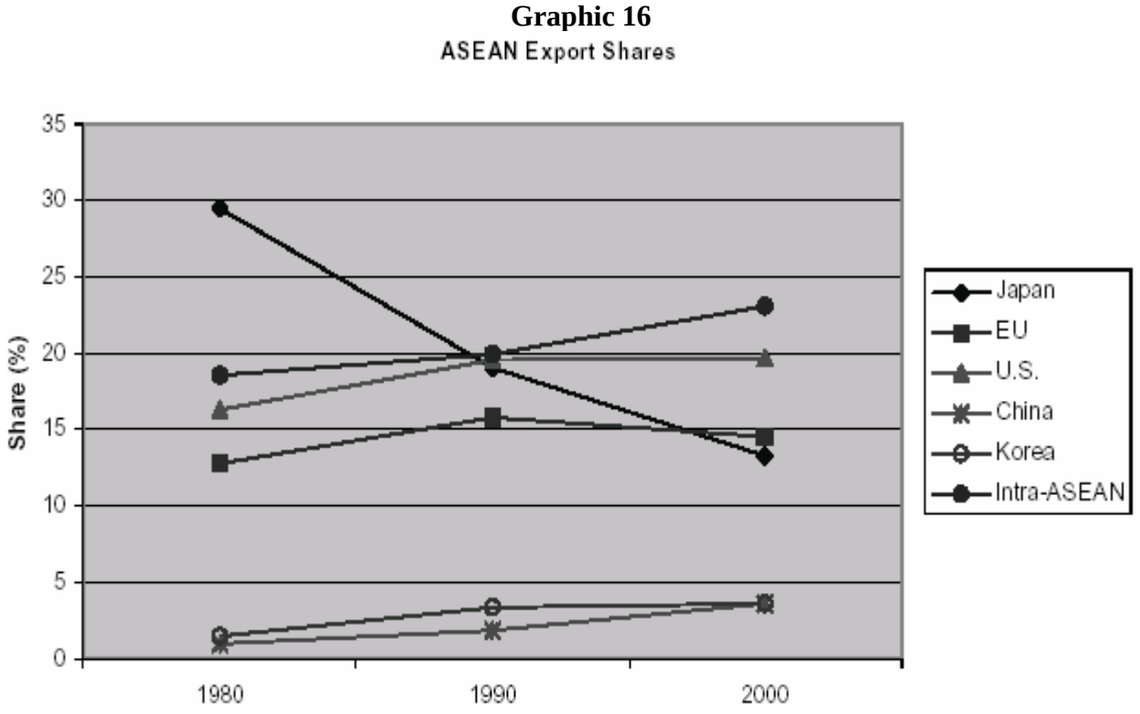
Graphic 15

[3] The index is calculated as follows:
$RCA_{ij} = (X_{ij} / ÓX_{ij}) / (X_{iw} / ÓX_{iw})$, where X_{ij} is the export value of product group i of country j , $ÓX_{ij}$ is the total export value of country j , X_{iw} is the world export value of product group i , and $ÓX_{iw}$ is the total world export value. RCA_{ij} exceeding 1 indicates that country j has a comparative advantage in the production of product i in the global economy. RCA_{ij} less than 1 indicates the opposite.



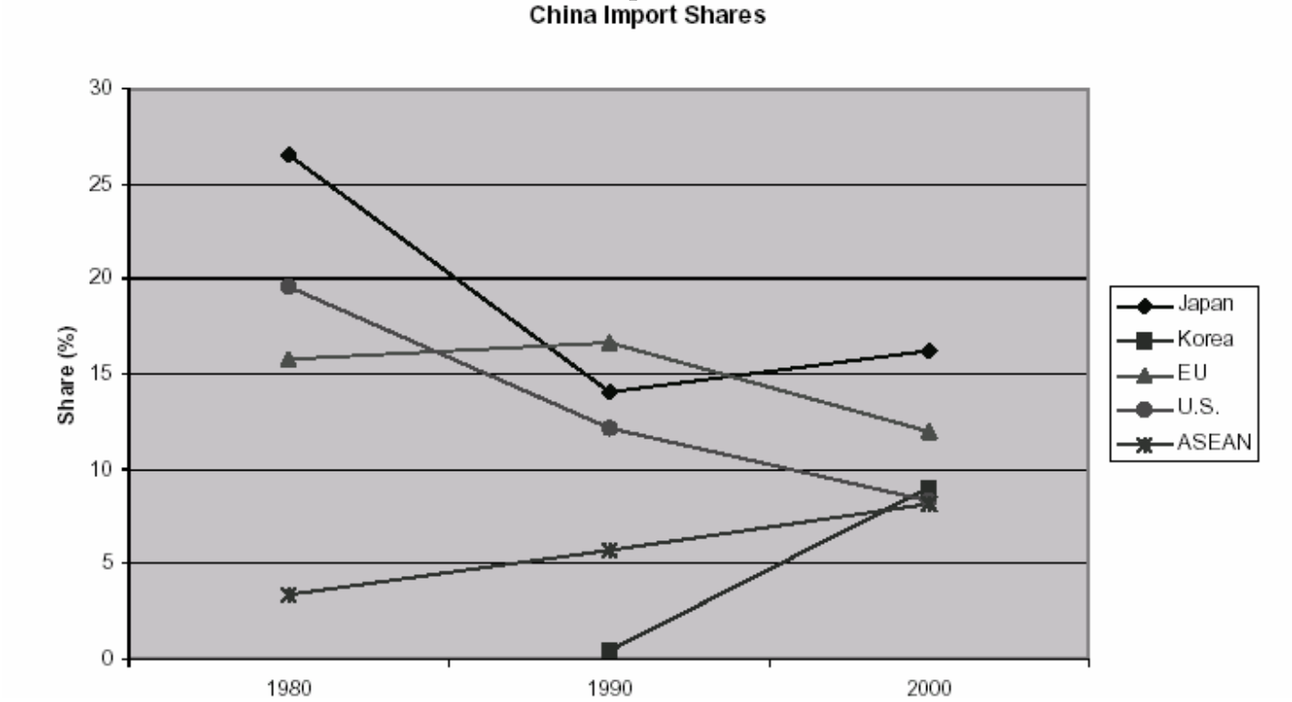
Source: Sakakibara and Yamakawa (2002),

Graphic 16



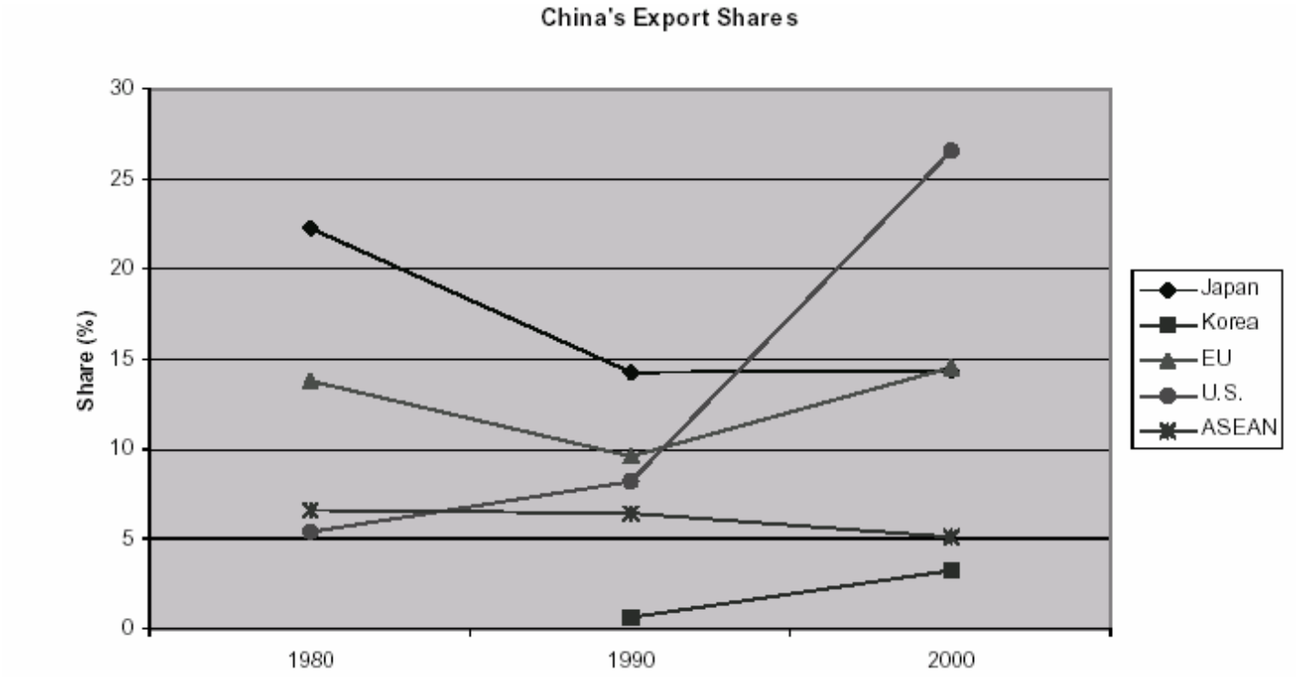
Source: see Graphic 15.

Graphic 17



Source: see Graphic 15

Graphic 18



Source: see Graphic 15.

POSSIBLE TRADE DIVERSION: SOME ANALYTICAL APPROACHES

Theory

Theoretically, there are two possibilities that can emerge when ASEAN forms a Free Trade Agreement (FTA) with China, namely trade creation (TC) and trade diversion (TD). In the literature on economic integration, it is stated that in the case of TD, higher cost imports from a bloc member replace lower cost foreign supplies and the economic integration (or FTA) is said to be "trade diverting" from the most efficient supplier. As a further effect, world trade is reduced and at least one country is made worse off if the external tariff is greater than the cost difference between the FTA and non-member sources. In this paper, however, the meaning of TD is rather different than what has been generally thought. In this case, it is higher cost imports from a member country within ASEAN are replaced by lower cost supplies from a non-member, China. In other words, the ASEAN integration with China is said to be "trade diverting" from the least efficient suppliers. Thus, if it is the case that trade diversion takes place since China's products are cheaper than those produced within ASEAN, then it is good for the ASEAN economy. However, from the point of view of ASEAN aiming to create trade among member countries, the TD is a negative effect. TC, on the other hand, is a positive effect, meaning that trade volume of individual member countries or ASEAN as a group increases when China freely enters the ASEAN market without reducing intra-ASEAN trade.

As an example, suppose Indonesia exports good X to Malaysia (or Malaysia imports X from Indonesia) with no tariff barrier. The price of this X is higher than that of the same product made in China (industry X in Indonesia is less efficient than that in China). But, because of external tariffs imposed on all imported goods from outside ASEAN, including China, good X from Indonesia is artificially cheaper than that from China. Now, with the ASEAN integration with China, good X from Indonesia in Malaysian domestic market is replaced by the same good from China. In other words, the "ASEAN + China" creates trade between Malaysia and China at the cost of intra-ASEAN trade between Indonesia and Malaysia. In this case, Indonesia suffers TD.

Existing Studies

How serious Indonesia will suffer TD from granting a zero tariff or a tariff reduction to China depends on how similar the exports of Indonesia and China. As an indirect approach, by using Commodity Trade Statistics database from UN/DESA, Shafaeddin (2002) attempted to analyse similarities in export structure of China and its main trading partners by using rank correlation. The process of analysis is as follows. The export items (at the digit level) of China and it competitors are ranked in order of their RCA indicator for 1997-1998; the indicator for each product shows the ability of each country to gain market share in that product in the international market. Then the 50 fifty items14 are chosen for each country and the index of rank correlation between the related export items of China and each of the selected countries is calculated. The 50 items that were chosen for China account for nearly three quarters of the total exports of China. The coefficient correlation equal to unity implies a maximum degree of competition between China and the country concerned. The lower the coefficient, the lower the degree of rivalry between China and the country concerned in international market for the related products. The results are shown in Table 1.[4]

The table shows that for a number of countries the coefficients which were calculated are not statistically significant. Except for Hong Kong (China) and Macao (China), the Asian group, especially Sri Lanka Pakistan, Viet Nam, Indonesia, Bangladesh, Thailand and India (if judged by the similarities in their pattern of RCA and export structure) are the main competitors of China. These countries are basically exporters of labour-intensive products and compete with China for a certain number of products, i.e. 19 in the case India and 28 for Viet Nam, from the 50 main export items of China. As explained in the study, the high correlation

[4] As explained in the study, one problem with this methodology is that there might be certain products for which China has gained market share (RCA greater than unity), but do not figure among the chosen (50) export items of China. If these items happen to be among the first 50 export items of a competing country they are not captured by the calculation of the correlation coefficient. Such an exclusion takes importance only if RCA for the product (s) concerned for China is greater than the relevant RCA for its competitor (s), i.e. China's gain in market share is greater than that of its competitor(s). Nevertheless, as the product(s) is (are) not among the products in which China has gained the highest market shares, i.e. the most dynamic export products of China, the table provides useful information for the study's purpose.

coefficient between China and Hong Kong (China), and China and Macao (China) is partly due to similarities in their export structure, and partly due to the fact that a large number of exports from Hong Kong (China) and Macao (China) are re-exports originating from China. For other Asian countries, correlation coefficients are small and statistically insignificant (items 10 – 16). Some Asian countries, i.e. the Republic of Korea, Malaysia, Taiwan Province of China and Singapore, do have "complementarity" relations with China because, capital and intermediate goods are important in their export structure.

One important implication of this study's findings is that the implementation of ASEAN plus China will most likely to lead to TD at least to some member countries, such as Indonesia, Malaysia, Thailand and Viet Nam, as the study has shown that these countries have similarities with China in their pattern of RCA and export structure.

Table 1
Rank correlation coefficients between export items of China (at SITC 3-digit level) and its main competitors in developing countries

Countries	Correlation coefficient	No. of common products	Statistical significance (%)
Sri Lanka	0.75	24	1
Hong Kong (China)	0.59	29	1
Macao (China)	0.59	25	1
Pakistan	0.56	21	1
Viet Nam	0.55	28	1
Indonesia	0.53	25	1
Bangladesh	0.46	25	5
Thailand	0.42	31	5
India	0.39	19	10
Myanmar	0.20	18	…
Republic of Korea	0.08	20	…
Philippines	0.04	29	…
Malaysia	0.02	27	…
Taiwan (China)	0.01	26	…
Singapore	-0.03	23	…
Nepal	-0.06	19	….

Source: Shafaeddin (2002)

Yumiko (2005) also conducted a similar analysis by calculating the RCA indexes for each ASEAN member (Indonesia, Malaysia, Philippines, Singapore and Thailand) and China (including Hong Kong) at the two-digit level of SITC R1.[5]Then, the indexes are ranked for each country respectively and Spearman's rank correlation coefficients between the rankings of RCA indexes is calculated between ASEAN and China. If the coefficient is positive and statistically significant, their trade structure is very similar and competitive. This implies that there may not be much room for ASEAN and China to gain through inter-industry specialization. If the coefficient is negative and statistically significant, on the other hand, their trade structure is very different and complementary to each other. In the latter case, the formation of a FTA could bring about substantial gains through inter-industry specialization. The findings show that both Thailand and the

[5] India is also included in the study, which is not relevant to be discussed in this paper.

Philippines possess high Spearman's rank correlation coefficients with China, and in most of the years the coefficients are statistically significant. This means that both Thailand and the Philippines have a trade structure, which is quite similar to that of China (and India). These statistical results imply that the inter-industry specialization may not develop much between the Philippines and Thailand) and China (and India), even if the closer economic cooperation is promoted between the two. Spearman's rank correlation coefficients are, on the other hand, low or even negative between other three ASEAN countries (Indonesia, Malaysia and Singapore), and China (and India). Moreover, none of the coefficients are statistically significant. This implies that it is indeterminate whether both groups are more competitive or complementary to each other. In other words, in some respects their trade structures may be very similar and competitive, and in other respects they may be very dissimilar and complementary to each other between two countries.

She also uses an intra-industry trade (IIT) approach.[6]The basic theoretical thought of this approach is that the opening-up of the Chinese economies to the world or in this case the formation of ASEAN Plus China could serve as a tremendous opportunity for ASEAN if there are strong prospects for intra-industry trade brought about by rising income, product differentiation and economies of scale (Chirathvat and Mallikamas 2005. The analysis comes with three important findings (Table 2). First, the values of IIT index of product category ranging from 5 to 8 of SITC R1 are much higher than those of product category from 0 to 4 of SITC R1. This indicates that, as trade theory suggests, there is much more room to gain through intra-industry specialization between two countries in manufactured than in non-manufactured goods. Second, in general, ASEAN countries have relatively high IIT values vis-à-vis China (including Hong Kong). Third, the degree of development of intra-industry trade is different among individual ASEAN members. Malaysia (MYA), Singapore (SIN) and Thailand (THA) tend to show higher values of IIT index than Indonesia (IDN) and the Philippines (PHI) especially in such product categories as 6, 7 and 8 at the one digit level of SITC R1. This implies that a country such as Thailand tends to have much room to gain through intra-industry specialization with China, although there may not be much room to gain through inter-industry specialization. A country such as the Philippines may not, on the contrary, gain much through a China-ASEAN FTA, since not only the overall trade structure is very similar between the Philippines and China, but also the intra industry trade has not been developed substantially between the two countries thus far. Malaysia and Singapore may, on the other hand, gain a great deal through a China-ASEAN FTA. As she argued, this is partly because the overall trade structure of both countries is dissimilar to that of China, so that there is some room for them to gain

[6] The IIT index is calculated as follows:
IITijk = [1 – |Xijk – Mijk|/(Xijk + Mijk)], where Xijk is the value of product group *i* that country *j* exports to country *k*, and Mijk is the import value of the same product group *i* that country *j* imports from country *k*. The index takes a value between 0 and 1. The higher the index is, the more the two countries are engaged in intra-industry trade.

through inter-industry trade. Besides, they tend to show high values of IIT index in trade with China especially for machinery. This means that the closer economic cooperation between Malaysia, Singapore and China may generate significant gain both through inter- and intra-industry trade. Indonesia, on the other hand, shows a trade structure dissimilar to China, suggesting that a China-ASEAN FTA may generate some gain for Indonesia through the enhancement of inter-industry trade. There may not be much room to gain, though, through intra-industry trade in manufactured goods, since the IIT indexes in this category are still low between Indonesia and China.

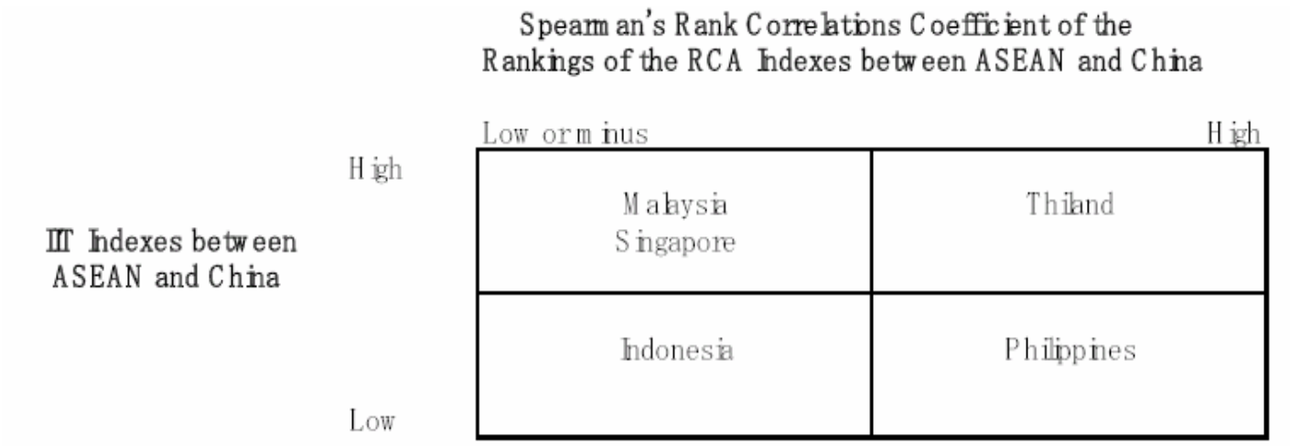
Table 2. IIT Indexes between A S EA N and C hina,

SITC	YEAR	IDN	MYA	PHI	SIN	THA
		China				
0	1990	3.1	0.3	0.1	2.3	3.7
0	1995	2.2	4.0	4.1	7.4	2.6
0	2000	3.0	2.9	3.4	18.4	8.5
0	2003	4.1	11.0	4.2	9.3	18.9
1	1990	0.0	4.9	0.0	2.7	0.0
1	1995	0.1	13.5	5.0	51.3	20.8
1	2000	0.8	7.9	0.0	17.2	49.8
1	2003	0.3	28.6	0.6	8.4	33.6
2	1990	0.0	0.1	1.4	2.4	0.6
2	1995	2.6	2.4	0.3	8.8	2.4
2	2000	6.0	2.9	2.4	9.3	3.4
2	2003	5.1	3.1	6.9	7.4	2.7
3	1990	2.7	0.0	0.0	10.6	0.1
3	1995	13.8	0.3	10.9	8.7	3.0
3	2000	31.2	2.4	19.4	4.2	25.1
3	2003	46.7	24.0	43.2	0.7	0.5
4	1990	0.8	0.1	0.0	0.5	0.4
4	1995	0.3	0.1	0.1	3.0	0.0
4	2000	0.1	1.3	0.0	15.9	1.0
4	2003	0.1	0.2	0.8	15.4	20.8
5	1990	3.0	10.8	5.4	28.5	13.7
5	1995	25.1	17.5	7.1	28.7	17.3
5	2000	14.8	17.9	18.3	30.1	17.6
5	2003	23.6	19.0	22.2	21.5	26.7
6	1990	1.0	5.8	0.6	8.7	2.9
6	1995	9.8	7.0	2.0	38.4	11.2
6	2000	15.0	23.3	6.6	24.2	21.7
6	2003	20.9	32.9	5.5	40.7	27.1
7	1990	0.0	24.4	2.2	51.8	8.5
7	1995	8.0	40.3	17.3	49.0	33.8
7	2000	24.9	59.2	36.1	62.2	63.5
7	2003	36.9	55.2	39.6	57.2	74.7
8	1990	0.2	12.0	12.2	20.7	15.1
8	1995	12.2	25.1	6.2	28.7	26.5
8	2000	30.5	31.3	20.6	23.2	29.4
8	2003	25.4	43.7	14.2	24.3	33.7

Notes: (a) SIT CR10: Food and live animals; SIT CR11:Beverages and tobacco; SIT CR12: Crude materials, inedible SIT CR13: Mineral fuels; SIT CR14: Animal and vegetable oils and fats; SIT CR15: Chemicals; SIT CR16: Basic manufacturers; SIT CR17: Machinery; S IT CR18: Miscellaneous manufactured goods; (b) IIT indexes were originally calculated, using UN COMTRADE, at the four-digit level of SIT CR1. The author aggregated them into the one-digit level IIT index using the trade share
Source: Yumiko (2005).

Graphic 19, which summarizes the trade relationship between ASEAN and China, clarifies the fact that trade relationship between an individual ASEAN member and China varies from country to country. Thus, the magnitude and the source of gain or loss through the closer economic relation may be quite different among ASEAN members. Thus, unlike the case of Europe, the flexibility is necessary in the implementation of the closer economic cooperation between ASEAN and China, or vise versa.

Graphic 19. Matrix of RCA Index and IIT Index



Source: from Figure 1 in Yumiko (2005).

Other studies such as Tongzon (2005) finds that China's export structure is similar to ASEAN countries' export structure in many respects. He finds that China's top export industries, which account for 84% of its total exports, are also ASEAN's major export industries. Tongzon also finds that China enjoys a lower unit labor cost, which takes into account both wages and labor productivity, relative to ASEAN in those industries. Therefore, ASEAN-China FTA (ACFTA) can be expected to increase the competitive pressures on ASEAN producers Laurenceson (2003) finds that there is already a high degree of integration between ASEAN and China in the goods and services, which implies that the impact of ACFTA may be quite limited. The empirical analysis of Voon and Yue (2003) indicates that China had a competitive advantage over ASEAN in manufacturing exports. Chirathivat (2002) finds that both ASEAN and China should experience net trade gains from ACFTA, with trade creation more than offsetting trade diversion. Under ACFTA, ASEAN may play a bigger role in satisfying China's growing appetite for imported raw materials and intermediate inputs. Wong and Chan (2002) point out that China poses a more competitive threat to the ASEAN economies as it

moves up the manufacturing value chain away from labor-intensive products toward capital- and technology-intensive products.

An Analysis

With respect to direct approach, there are some methods to identify TD. One of them that is commonly adopted method in the literature is to compare the export similarity index (ESI) between member and non-member countries to the union's market.[7]Assume there are two countries in ASEAN: Indonesia (I) and Malaysia (M) and one non-member country: China ©. Indonesia and China export to Malaysia, so let $ESI_{IC\rightarrow M}$ denote the ESI between Indonesia and China to the market in Malaysia, then the index is defined as below:

$$ESI_{IC\rightarrow M} \equiv \{\sum_I \min[X_{i;\, I\rightarrow M}\ ,\ X_{i;\, C\rightarrow M}]\}$$

where $X_{i;\, I\rightarrow M}$ is Indonesian export share of commodity *i* to Malaysia, and $X_{i;\, C\rightarrow M}$ is China's export share of the same commodity to Malaysia. Clearly, the index is between zero (0) and one (1). If the commodity distribution of exports to Malaysia from Indonesia and China are identical, the ESI = 1, and if they are totally different then the index is zero (0). The larger $ESI_{IC\rightarrow M}$ is, the more similar or overlapping of Indonesian and China's export structure to Malaysia, and indicates that Malaysia or Indonesia (and hence ASEAN) will more likely suffer TD from lifting bilateral tariffs between ASEAN (or Malaysia) and China.

Thus, how serious Indonesia (or other individual member countries) will suffer TD from granting a tariff reduction/lifting to China depends on how similar the exports of China and that of Malaysia are to Indonesia. Although the index has its virtues in less data dependency, by requiring only export data, which are available on a standardized basis for all countries, this approach has several shortcomings, which is summarized by Huang (1996) as follows: (i) he index tends to shift over time due to a trade structural change, and detracts from their usefulness in predicting TD; aggregation bias may affect the analysis and hence yields a result which may not reflect what is really happened; an overall similarity index may not be very meaningful to measure TD, because the degree of tariff reduction may vary by good (so this tool may not be useful to examine TD in this case of ASEAN plus China); the index may fail to reflect dynamic changes in the market; and the index may be incapable of identifying TD in the case of intra-industry trade.

Another easily observable shortcoming can be explained as follows: suppose there are three ASEAN countries: Indonesia (I), Thailand (T) and Malaysia (M), and one non-member, China ©; and Indonesia, Thailand and China export to Malaysia. Suppose, $ESI_{IC\rightarrow M} = ESI_{CT\rightarrow M} = ESI_{CT\rightarrow M} = 1$, because the export shares to Malaysia are identical among the three. This identical ESI may conclude that there is no difference

[7] This index was developed by Finger and Kreini (1979) and adopted in many studies such as by Kellman and Schroder (1983) and Huang (1996).

in the TD effect between Indonesia and Thailand. However, this conclusion may be wrong, because at the same time it can be that both Indonesia (or Thailand) and Malaysia have the same pattern of trade with China; whereas, on the contrary, the pattern of trade between China and Thailand (or Indonesia) is just the opposite. This means that Indonesia (or Thailand) and Malaysia they are similar for their comparative advantage. In this case, intuitively, the trade similarity of Indonesia (Thailand) and Malaysia for their trade pattern with China implies that Indonesia (or Thailand) will suffer more a TD effect from the implementation of ASEAN plus China than Thailand (or Indonesia) does.

Alternatively, Huang (1996) developed an index, called the trade similarity index (TSI). First, the trade specification index, $SI_{(k),\, i\to j}$ is defined as follows:

$$SI_{(k),\, i\to j} = [X_{(k),\, i\to j} - M_{(k),\, i\to j}]/ [X_{(k),\, i\to j} + M_{(k),\, i\to j}]$$

where $X_{(k),\, i\to j}$ is the export value of good *k* from country *i* to *j* and $M_{(k),\, i\to j}$ is the corresponding import value. The index is between -1 and 1: $SI_{(k),\, i\to j} \geq 0$ implies country *i* is a net exporter of good *k* to country *j*; $SI_{(k),\, i\to j} = 1$ indicates a one-way export of good *k* from country *i* to country *j* (country *i* exports good *k* to country *j* but country *j* (*i*) does not export (import) good *k* to (from) country *i* (*j*); $SI_{(k),\, i\to j} \leq 0$ means that country *i* is a net importer of good *k* from country *j*; and $SI_{(k),\, i\to j} = -1$ implies a one-way export of good *k* from country *j* to country *i*.

In the case of ASEAN plus China, then the TSI can be defined between Indonesia (I) and China © for domestic market in Malaysia (M), denoted by $TSI_{IC\to M}$, as follows:

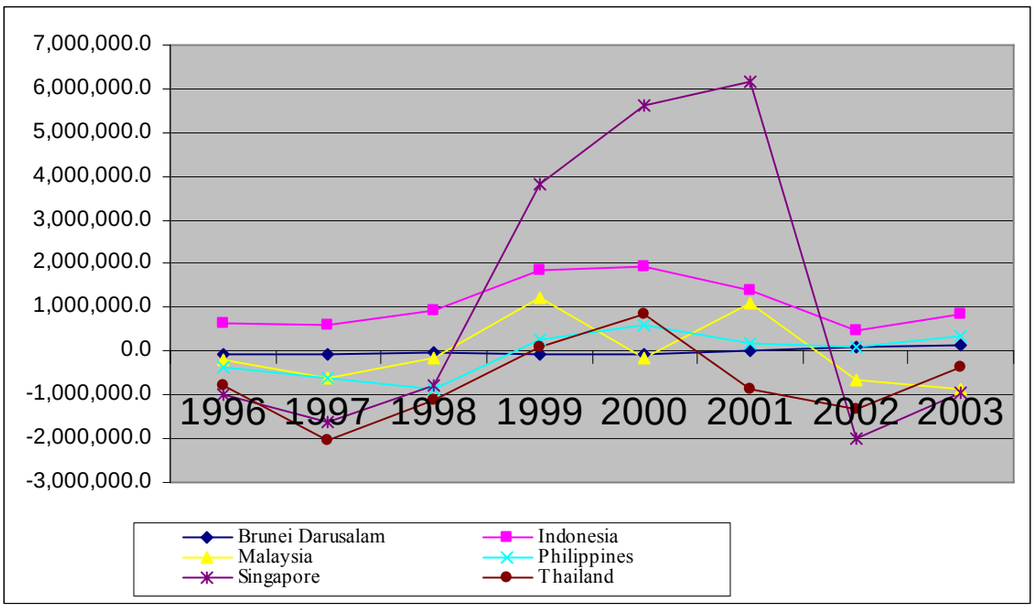
$$TSI_{IC\to M} \equiv \text{correlation } (SI_{I\to M},\, SI_{C\to M})$$

i.e., the correlation coefficient of $SI_{I\to M}$ and $SI_{C\to M}$.

Suppose there are three member countries of ASEAN, i.e. Indonesia (I), Malaysia (M) and Thailand (T). Thus, If $TSI_{IC\to M} > TSI_{IT\to M}$, it means that Indonesia's trade pattern with Malaysia is more similar with China's than with Thailand's. Thus, if ASEAN (or in this case, Malaysia) forms a FTA with China, then Indonesia will suffer more from TD than Thailand does.

Graphic 20 shows the values of net export (exports-imports) to China of six (6) member countries of ASEAN. During that whole period reviewed, only Indonesia, which has positive value of net exports to China, mainly because the main important component of Indonesian export to that country is oil and gas and some agricultural commodities including crude palm oil (CPO). However, in some years within that period, the value net exports of Singapore to China appears as the largest within the six countries.

Graphic 20
Values of Net Exports of Six ASEAN Countries to China



Source: ASEAN Secretariat (database).

Finally, Tables 3 and 4 present the calculated trade specification and trade similarity indeces, respectively, of four (4) ASEAN countries with China. This analysis is based on data on total trade with China; not by commodity. As can be seen, none of these four countries was a net exporter with China for the whole period. However, Indonesia appears to be much better than the other three countries, since only in 1994 that the country was a net importer. Table 4 shows that, with respect to Indonesia, $TSI_{IS\rightarrow C} > TSI_{IF\rightarrow C} > TSI_{IM\rightarrow C}$; as also indicated by the Spearman index of almost 0.58. This reflects that Indonesian trade pattern with China is more similar with Singapore than with Philippines and Malaysia. Thus, from the individual member country perspective, for instance, Indonesia, if China forms a FTA with ASEAN, then Singapore or Indonesia will suffer more from TD than Philippines and Malaysia do. From the Malaysian perspective, the ASEAN Plus China will make Malaysia or Singapore suffer more from TD than Philippines and Indonesia, and so on. Overall, with the ASEAN Plus China, Indonesia or Malaysia will suffer more from TD than other ASEAN member countries.

Table 3
Trade Specification Index of Four (4) Member Countries of ASEAN with China

	Indonesia	Malaysia	Philippine	Singapore
1993	0.1	0.2	0	-0.1
1994	-0.1	0.2	-0.3	-0.16
1995	0.1	0.1	-0.4	-0.19
1996	0.2	-0.1	0.3	-0.13
1997	0.2	-0.2	-0.6	-0.16
1998	0.3	0	-0.6	-0.09
1999	0.4	0.2	0.1	0.17
2000	0.3	0	0.1	0.21
2001	0.2	0.1	0	0.24

2002	0.1	-0.1	0	-0.13
2003	0.1	-0.1	0.1	-0.04

Source: calculated from ASEAN database (Asean Secretariat)

Table 4
Trade Similarity Index of Four (4) Member Countries of ASEAN with China

	TSI	Spearman's rho
Indonesia		
- Malaysia	-0.114	-0.084
- Philippines	0.132	0.195
- Singapore	0.598	0.579
Malaysia		
- Indonesia	-0.114	-0.084
- Philippines	0.082	-0.012
- Singapore	0.260	0.150
Philippines		
- Indonesia	0.132	0.195
- Malaysia	0.082	-0.012
- Singapore	0.456	0.492
Singapore		
- Indonesia	0.598	0.579
- Malaysia	0.260	0.150
- Philippines	0.456	0.492

Source: calculated from ASEAN database (Asean Secretariat)

ASEAN CHALLENGES AND OPPORTUNITIES

No doubt, ASEAN as a group or individual members will face challenges as well as opportunities from the implementation of ASEAN plus China. From the ASEAN export side, China with more than one billion people and increasing income per capita is certainly a huge market opportunity for ASEAN. As shown in this paper, although ASEAN has not yet been in the first rank of the most important trading partners of China, trade between China and this region continued to increase. From the ASEAN import side, the serious challenge facing individual member countries is the competition between domestic products with imported products from China. One thing for sure, individual members of ASEAN will face particularly intense competitive pressure from China in view of the overlap in relative factor endowments. The "China threat" to ASEAN may be immediate and severe in labour-intensive products in which China has a strong comparative advantage.

It is most likely that the ASEAN-China free trade zone may generate higher trade volume between China and ASEAN at the cost of ASEAN intra-trade. Especially since the establishment of ASEAN, the growth of its inter-trade has always been higher than the growth of its intra-trade, which might be caused by at least four (4) main factors: (1) most member countries produced or specialized in production of similar goods; (2) comparative advantages are not so different among member countries; (3) less trade incentive facilities such as export credits provided among member countries in ASEAN intra-trade; (4) and ASEAN market could not meet the demand of individual member countries for both consumer and producer goods, so each member

countries depend heavily on imported goods from countries outside ASEAN, including from China. Thus, this is the most challenge for ASEAN.

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