ASEAN, China, and India:

Are they more Competitive or Complementary to each other?

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Abstract

The rise of China and India as an industrial power is now regarded as an opportunity rather than as a threat for ASEAN. The paper shows that whether this view is consistent with the underlying economic force or not depends on the country in question.

With respect to a FTA between ASEAN and China, both Singapore and Malaysia seem to gain both through inter- and intra-industry specialization. Thailand appears to gain significantly as well through intra-industry specialization vis-à-vis China. Indonesia and the Philippines may not gain much through the formation of FTA unless substantial efforts are made in order to promote their industrial development.

The promotion of economic cooperation between ASEAN and India, on the other hand, may make sense in the long run, but its immediate impact on both sides still seems to be limited. First, the success of India continues to depend on the services sector. Second, there is still very little intra-industry specialization between ASEAN and India. The announcement of the formation of a FTA between ASEAN and India may make economic sense in the long run, but substantial benefits may not be expected at least in the short run yet.

1. Introduction

In early 1990s China accelerated its economic growth. It grew at the annual average rate of as high as 10 percent throughout the 1990s (Okamoto 2005a:48). The 1997-98 Asian Crisis, which disrupted many economies in East Asia, especially ASEAN members, did not affect China as severely. On the contrary, the Chinese economy continued to grow around 7 percent annually in the subsequent years.

Initially the rise of China as an industrial power was regarded as a threat to the ASEAN economies. Because of its almost inexhaustible supply of unskilled labor and its absorption of a huge amount of foreign direct investment (FDI),

China was considered to pose a great challenge to the ASEAN countries in their home and third-country markets (Wang 2005: 35).

Whereas China's rise in the 1990s caused a great deal of concern among the ASEAN countries, China's further rise during the first decade of the 21st Century seems to have instead generated confidence among them (Wang 2005: 17). The cornerstone of the shift is a framework agreement on comprehensive economic cooperation between ASEAN and China, including the establishment of an ASEAN-China FTA by 2010 for the original ASEAN members, and 2015 for the new members.[1] Expanding Chinese economy is now regarded more as an opportunity than as a threat.

ASEAN also concluded a framework agreement on comprehensive economic cooperation between ASEAN and India in Bali in October, 2003.[2] Ever since India unveiled the "look-east policy" in the early 1990s (Ambatkar 2001: 85), its economy has continued to grow steadily, although not as quite rapidly as China. In particular, the development of the IT-related industries, especially, related to software, has been remarkable in India. ASEAN also seems to regard India as an opportunity rather than a threat to the business of its members. An interesting question is to ask whether the swift shift in the policy stance of ASEAN vis-à-vis China and India is consistent with underlying economic forces.

According to Langhammer and Hiemenz (1990:59), regional integration among developing countries often fails to materialize expected benefits. This is partly because there is little scope either for inter-industry or intra-industry specialization among countries in the scheme, as they tend to possess comparative advantage in the same product (Langhammer and Hiemenz 1990: 68). Exactly for this reason, the swift shift in the policy stance of ASEAN presents an intellectual puzzle and a policy question (Wang 2005: 17).

The objective of this paper is, therefore, to compare trade structures among ASEAN, China and India, and to investigate whether ASEAN and China and ASEAN and India are more competitive or complementary to each other. If they are more or less complementary to each other, there may be room for them to gain through trade, either through inter-industry trade or intra-industry trade or both. If they are competitive each other, on the other hand, they may not be much room for gain through specialization and trade.

In section II, the paper first briefly compares the economic performance of ASEAN, China and India in the world economy. Section III, then, calculates the indexes of revealed comparative advantage (RCA) for ASEAN, China, and India, respectively, and observes whether there is room for gain through inter-industry specialization. In section IV, the author calculates the indexes of intra-industry

trade between ASEAN and China and between ASEAN and India respectively, and investigates whether there is room for ASEAN to gain through intra-industry specialization vis-à-vis China and India. Section V conducts market share analyses and observes whether ASEAN and China compete or complement each other in third markets such as the U.S. and Japan. Section VI summarizes the findings.

2. ASEAN, China, and India in the Global Economy

2.1. International trade and production

The word 'BRICs' is often heard in the center stage of international politics these days. It includes Brazil, Russia, India and China. The latter two countries are considered to be particularly promising and influential countries in the world, both economically and politically in the 21st Century. It is thus interesting to examine to what extent China and India are gaining an importance in the global economy relative to ASEAN.

ASEAN, China and India are compared in terms of production and trade (Table 1). The date in the table shows the remarkable rise of China as an economic power in all aspects. Because of the rapid growth in China over the past decade, the share of China including Hong Kong will soon reach 5 percent in global GDP at the current exchange rate vis-à-vis US dollar. If the Chinese currency is revalued, its share increases sharply.

Table 1 Shares of ASEAN, China, and India in the World Economy (%)

		1980	1995	2000	2008
GDP (current US$)	China	1.6	2.4	3.4	3.9
	(+ Hong Kong)	2.0	2.9	3.9	4.3
	India	1.5	1.2	1.4	1.6
	ASEAN	1.5	2.1	1.7	1.7
Merchandise exports (current US$)	China	1.8	2.9	3.8	5.8
	(+ Hong Kong)	4.1	6.2	6.9	8.8
	India	0.5	0.6	0.7	0.7
	ASEAN	4.0	6.0	6.3	5.6
Merchandise imports (current US$)	China	1.5	2.5	3.4	5.3
	(+ Hong Kong)	3.9	6.2	6.5	8.3
	India	0.7	0.7	0.8	0.9
	ASEAN	4.4	6.5	5.2	4.6
Commercial service exports (current US$)	China	0.9	1.6	2.0	2.7
	India	0.5	0.6	1.2	1.4
	ASEAN	3.8	6.0	4.4	3.9
Commercial service imports (current US$)	China	0.5	2.1	2.5	3.3
	India	0.8	0.9	1.3	1.3
	ASEAN	3.6	6.3	5.5	5.1

Source: Author's calculation using World Bank, *World Development Indicators Online*

The actual economic power of China may be better reflected in the trade data, since the real economic value of non-tradable goods which is included in GDP is difficult to measure. According to the data, the share of China including Hong Kong in merchandise trade will reach almost 9 percent in terms of exports and imports, an almost doubling of these shares from the past decade or so. The

share of China also increased rapidly in services trade. Although China continues to run trade deficits in services, its share pf global services export (including those from Hong Kong) increased from 1 to 4 percent.

The steady rise of India is also clear, although the rate of growth is much slower than that of China. What is most striking in India is the rapid growth of the services sector. Unlike China, services exports of India grew much more rapidly than its merchandise exports, increasing from 0.6 percent in 1990 to 1.4 percent in 2003. In contrast, merchandise exports increased from only 0.5 percent to 0.7 percent over the same period.

Contrary to China and India, the dynamism of ASEAN as a whole seems to have faltered following the 1997-98 Asian crisis. As shown in Table 1, the share of ASEAN in the global economy both in terms of production and trade declined during the first decade of the 21st. Century. The decline of ASEAN in terms of merchandise imports is particularly significant, as it indicates the fact that after the crisis, ASEAN was constrained by its capacity to borrow from abroad in order to purchase goods and services. Although the situation varies from country to country, ASEAN as a whole does not seem to have fully recovered from the crisis yet.

2.2. Inflow of FDI

The loss of dynamism of ASEAN is also observed in Table 2 which shows the flow of FDI in ASEAN, China, and India in absolute terms and as a share of total. Inflow of FDI continues to exhibit a rising trend in China and India. The combined share of FDI going to China and Hong Kong exceeds more than 10 percent of global FDI flow in 2003, while India has also been increasingly successful in attracting FDI especially after 2000. In fact, except for Singapore, total inflow of FDI into India is larger than any other ASEAN country in 2003.

Table 2 Inflow of Foreign Direct Investment in ASEAN, China and India, and their Shares in the World Total

(a) US$ Million	1992–1997 (Annual average)	2000	2003
China	32769	40715	53505
Hong Kong, China	7781	61939	13501
India	1676	2319	4269
ASEAN	21241	21150	15407
Indonesia	3518	−4550	−597
Malaysia	5816	3788	2474
Philippines	1343	1345	319
Singapore	8295	17217	11409
Thailand	2269	3350	1802
World	310879	1387953	559576

(b) %	1992–1997 (Annual average)	2000	2003
China	10.6	2.9	9.6
(+ Hong Kong)	13.1	7.4	12.0
India	0.5	0.2	0.8
ASEAN	6.8	1.5	2.8

Source: UNCTAD (2004), *World Investment Report 2004*.

In contrast, the absolute amount of FDI inflow has greatly declined in most of the ASEAN countries after the 1997-98 Asian crisis. This loss in dynamism is most clear in Indonesia, from which foreign firms seem to continue to withdraw. In 2003 the inflow of FDI in the Philippines dropped significantly as well, and although the situation is not as bad as Indonesia and the Philippines, since the crisis, neither Malaysia nor Thailand has regained its strength in attracting FDI after the crisis. Consequently, the share of ASEAN in the world FDI flow as a whole declined from around 7 to 2 percent after the crisis. Singapore is the only exception: the amount of FDI inflow in Singapore in the 2000s exceeds the level of the pre-crisis period.

These trends in FDI indicates that ASEAN, as a region, lost its economic attractiveness after the crisis, while China and India are viewed as an increasingly appealing global partner. Does the closer economic cooperation between ASEAN and these two future economic superpowers provide a way for ASEAN to revitalize their economies and to regain its pre-crisis economic strength vis-à-vis China and India? The answer to this question partly depends on the trade structure of these economies.

3. A Revealed Comparative Advantage (RCA) Approach

3.1. RCA index and Spearman's rank correlation coefficient

Balassa (1989) was the first to develop an empirical approach to investigating the changing pattern of comparative advantage in goods and services or what we refer to today as an index of revealed comparative advantage (RCA).[3] The index is calculated as follows:

$$RCA_{ij} = \left(X_{ij} / \sum_i X_{ij}\right) / \left(X_{iw} / \sum_i X_{iw}\right), \quad (1)$$

where X_{ij} is the export value of product group i of country j, ΣX_{ij} is the total export value of country j, X_{iw} is the world export value of product group i, and ΣX_{iw} is the total world export value. An RCA_{ij} exceeding 1 indicates that country j has a comparative advantage in the production of product i in the global economy. An RCA_{ij} less than 1 indicates the opposite. The RCA indexes are calculated for each ASEAN member (Indonesia, Malaysia, Philippines, Singapore and Thailand) as well as for China and India at the two-digit level of SITC R1.

The indexes are then ranked for each country and Spearman's rank correlation coefficients between the rankings of RCA indexes are calculated between ASEAN and China, and between ASEAN and India, respectively. If the coefficient is positive and statistically significant, the trade structures of the two country groups are very similar and they are competitive with one another. This implies that there may not be much room for ASEAN and China or ASEAN and India to gain through inter-indus-

try specialization. On the other hand, if the coefficient is negative and statistically significant, their trade structures are very different and complementary to one another. In the latter case, the formation of a FTA could bring about substantial gains through inter-industry specialization.

3.2. Findings

Table 3 shows the results of the exercise above. First, both Thailand and the Philippines possess high Spearman's rank correlation coefficients with both China and India and in most years, the coefficients are statistically significant. This means that both Thailand and the Philippines have trade structures which are quite similar to that of China and India. These statistical results imply that the inter-industry specialization may not develop between the former (the Philippines and Thailand) and the latter (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 these two Asian economics (China and India) and the other three ASEAN countries (Indonesia, Malaysia and Singapore). Moreover, none of the coefficients are statistically significant. This suggests that it is indeterminate as to 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 one another.

Table 3: Spearman's Rank Correlations Coefficients of the Rankings of the RCA Indexes between ASEAN and China, and between ASEAN and India

ASEAN	Year	China		India		ASEAN	Year	China		India	
Indonesia	1980	-0.11		0.19		Singapore	1980	0.02		0.05	
	1981	-0.15		0.16			1981	-0.02		0.06	
	1982	-0.06		0.22			1982	-0.01		0.05	
	1983	0.02		0.33	**		1983	0.00		0.04	
	1984	0.03		0.29	**		1984	0.03		0.05	
	1985	0.01		0.23	*		1985	0.04		0.06	
	1986	0.00		0.16			1986	0.11		0.05	
	1987	0.00		0.03			1987	0.12		0.10	
	1988	-0.09		0.08			1988	-0.06		0.04	
	1989	-0.07		0.07			1989	-0.11		0.07	
	2000	-0.02		0.09			2000	-0.08		0.06	
	2001	0.01		0.06			2001	-0.07		0.02	
	2002	-0.04		0.09			2002	-0.05		0.19	
	2003	-0.06		0.13			2003	-0.07		0.11	
Malaysia	1980	-0.11		-0.04		Thailand	1980	0.37	***	0.44	***
	1981	-0.19		-0.05			1981	0.41	***	0.47	***
	1982	-0.14		-0.03			1982	0.50	***	0.49	***
	1983	-0.09		0.06			1983	0.49	***	0.51	***
	1984	-0.12		-0.04			1984	0.41	***	0.40	***
	1985	-0.10		-0.05			1985	0.33	**	0.44	***
	1986	-0.03		-0.07			1986	0.37	***	0.37	***
	1987	0.04		-0.10			1987	0.30	***	0.33	**
	1988	0.03		-0.07			1988	0.34	**	0.34	**
	1989	-0.05		-0.12			1989	0.31	**	0.33	**
	2000	-0.06		-0.09			2000	0.29	**	0.32	**
	2001	-0.03		-0.09			2001	0.27	**	0.31	**
	2002	-0.05		-0.06			2002	NA		NA	
	2003	-0.07		-0.09			2003	0.21		0.39	***
Philippines	1980	0.15		0.26	*						
	1981	0.11		0.29	**						
	1982	0.14		0.21							
	1983	0.18		0.36	**						
	1984	0.24	*	0.28	**						
	1985	0.17		0.30	**						
	1986	0.26	*	0.26	*						
	1987	0.29	**	0.21							
	1988	0.30	**	0.23	*						
	1989	0.28	**	0.20							
	2000	0.28	**	0.19							
	2001	0.27	**	0.23	*						
	2002	0.25	*	0.18							
	2003	0.21		0.06							

Source: Author's calculation using UN COMTRADE.
Note: *** represents statistical significance at the 1 percent level.
** represents statistical significance at the 5 percent level.
* represents statistical significance at the 10 percent level.
China includes the trade value of Hong Kong.

4. An Intra-industry Trade (IIT) Approach

4.1. Importance of intra-industry trade in the modern world

The opening-up of the Chinese and Indian economies to the world 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 (Suthiphand and Sothitorn 2005: 102-103). This is true even if the overall trade structure is very similar between the two countries.

Helpman and Krugman (1985) are some of the pioneers to show that countries can gain through intra-industry specialization. The earlier models such as Helpman and Krugman (1985) tended to focus on the product differentiation and the horizontal division of labor in final products. More recent models show a gain through trade in intermediate inputs (Jones 2000). Okamoto (2005b) empirically showed the rise of intra-industry trade in intermediate inputs in the Asia-Pacific region during the 1990s and their potential impacts on industrial productivity growth of the countries in the region.

4.2. IIT index

The IIT index is calculated as follows:

$$IIT_{ijk} = \left[1 - \left(|X_{ijk} - M_{ijk}| / (X_{ijk} + M_{ijk})\right)\right], \qquad (2)$$

where X_{ijk} is the value of product group i that country j exports to country k, and M_{ijk} 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.

In this study, the IIT index is first calculated at the four-digit level of SITC R1. Then the IIT index is aggregated at the one-digit level using the value of trade (summing up the values of export and import at the four-digit level of SITC R1) between the two countries as a weight.

4.3. Findings

Table 4 shows the IIT indexes calculated between individual ASEAN countries (Indonesia, Malaysia, Philippines, Singapore, and Thailand) and China, and ASEAN and India, respectively. First, we find that the values of the IIT index in product categories 5 to 8 of SITC R1 are much higher than those of product category 0 to 4. This indicates that, as trade theory suggests, there is greater room for gain through intra-industry specialization between the two country groups in manufactured rather than in non-manufactured goods.

Second, the ASEAN countries tend to have higher IIT values vis-à-vis China

Table 4 IIT Indexes between ASEAN and China, and between ASEAN and India

SITC	YEAR	IDN	MYA	PHI	SIN	THA	IDN	MYA	PHI	SIN	THA
		China					India				
0	1980	3.1	0.3	0.1	2.3	3.7	0.4	0.6	0.0	30.6	0.1
0	1995	2.2	4.0	4.1	7.4	2.6	0.6	1.4	1.5	18.7	0.4
0	2000	3.0	2.9	3.4	18.4	8.5	5.6	4.6	2.9	35.5	3.0
0	2000	4.1	11.0	4.2	9.3	18.9	4.9	3.2	2.9	19.4	5.3
1	1980	0.0	4.9	0.0	2.7	0.0	0.0	0.5	0.0	0.0	0.0
1	1995	0.1	13.5	5.0	51.3	20.8	0.0	18.8	0.0	0.3	0.0
1	2000	0.6	7.9	0.0	17.2	49.6	0.0	5.3	5.9	2.3	1.6
1	2000	0.3	28.6	0.6	8.4	33.6	0.1	23.1	0.0	9.2	0.2
2	1980	0.0	0.1	1.4	2.4	0.6	5.9	0.1	0.3	2.8	0.8
2	1995	2.6	2.4	0.3	8.8	2.4	11.2	1.8	1.3	9.1	3.0
2	2000	6.0	2.9	2.4	9.3	3.4	8.8	1.5	1.1	9.7	3.2
2	2000	5.1	3.1	6.9	7.4	2.7	5.5	7.3	13.6	7.0	5.0
3	1980	2.7	0.0	0.0	10.6	0.1	0.0	0.5	0.0	1.8	0.0
3	1995	13.8	0.3	10.9	8.7	3.0	0.0	0.0	42.6	14.6	0.4
3	2000	31.2	2.4	18.4	4.2	35.1	0.3	0.1	1.0	29.2	27.7
3	2000	46.7	24.0	43.2	0.7	0.6	0.8	0.5	34.8	4.1	2.7
4	1980	0.8	0.1	0.0	0.5	0.4	0.0	0.0	0.0	0.6	0.0
4	1995	0.3	0.1	0.1	3.0	0.0	0.0	0.0	0.0	2.0	0.9
4	2000	0.1	1.3	0.0	15.9	1.0	0.1	0.3	0.0	12.2	2.1
4	2000	0.1	0.2	0.8	15.4	20.6	0.0	0.1	12.9	22.6	0.2
5	1980	3.0	10.8	5.4	28.5	13.7	2.5	18.3	14.4	22.6	6.4
5	1995	25.1	17.5	7.1	28.7	17.3	38.1	25.4	4.6	38.8	15.2
5	2000	14.8	17.9	18.3	30.1	17.6	44.0	38.1	12.5	36.0	30.3
5	2000	23.6	19.0	22.2	21.5	28.7	28.4	41.4	7.7	39.3	27.0
6	1980	1.0	5.8	0.6	8.7	2.9	1.8	3.8	0.8	24.0	3.7
6	1995	9.8	7.0	2.0	38.4	11.2	8.3	10.5	15.5	20.6	10.3
6	2000	15.0	23.3	6.6	24.2	21.7	10.8	12.8	4.1	21.8	16.7
6	2000	20.9	32.6	5.5	40.7	27.1	13.4	15.7	3.2	24.5	17.2
7	1980	0.0	24.4	2.2	51.8	8.5	0.1	21.3	1.4	35.1	11.3
7	1995	8.0	40.3	17.3	49.0	33.8	2.4	21.4	17.5	42.3	35.1
7	2000	24.9	59.2	39.1	62.2	63.5	18.4	60.2	22.7	39.7	17.5
7	2000	36.9	55.2	39.6	57.2	74.7	21.7	23.3	15.7	14.9	38.6
8	1980	0.2	12.0	12.2	20.7	15.1	1.2	4.1	1.4	11.8	21.8
8	1995	12.2	25.1	6.2	28.7	36.5	6.9	14.4	14.1	12.5	19.2
8	2000	30.5	36.3	20.6	23.2	29.4	17.5	27.0	22.2	22.6	38.2
8	2000	25.4	43.7	14.2	24.3	33.7	19.4	34.2	14.7	13.9	36.9

Source: The author's calculation using UN COMTRADE.
Note: (1) IDN — Indonesia, MYA — Malaysia, PHI — Philippines, SIN — Singapore, THA — Thailand.
(2) SITC R1 0 — Food and live animals
SITC R1 1 — Beverages and tobacco
SITC R1 2 — Crude materials, inedible
SITC R1 3 — Mineral fuels
SITC R1 4 — Animal and vegetable oils and fats
SITC R1 5 — Chemicals
SITC R1 6 — Basic manufactures
SITC R1 7 — Machinery
SITC R1 8 — Miscellaneous manufactured goods
(3) IIT indexes were originally calculated at the four-digit level of SITC R1. The author aggregated them into the one-digit level IIT index using the trade share as a weight.
(4) China includes the trade value of Hong Kong.

than India, except product category 5 of SITC R1. Two reasons can explain this. The first reason is that India's goods market is still highly protected, so that there is not much room for these two groups of countries to engage in intra-industry trade. According to the trade policy review of India, as summarized by the Secretariat of the World Trade Organization (WTO 2002), its applied Most Favored Nation (MFN) tariff rate is still relatively high around 32 percent. Although there are no comparable data, the average tariff rate of China seems to be at least much lower than that of India.[4] The second reason is that the MNCs have been active in direct investment activities both in China and ASEAN since the latter half of 1980s, so that the intra-firm activities have developed fast between China and ASEAN.

Third, the degree of development of intra-industry trade is different among the individual ASEAN members. Malaysia, Singapore and Thailand tend to show higher values of IIT index than Indonesia and the Philippines, especially in product categories 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 for gain through intra-industry specialization with China, although there may not be much room to gain through inter-industry specialization as observed in section III. 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 because

the intra-industry trade between these two countries has not been very developed thus far.

Malaysia and Singapore may, on the other hand, gain a great deal through a China-ASEAN FTA. 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 through inter-industry trade. Moreover, they tend to show high values of IIT index in trade with China, especially for machinery (product category 7 at the one-digit level of SITC R1). This means that closer economic cooperation between Malaysia, Singapore and China may lead to gain both through inter- and intra-industry trade.

Indonesia shows a trade structure that is dissimilar to that of 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, however, through intra-industry trade in manufactured goods, since the IIT indexes in this category are still low between Indonesia and China.

Figure 1, which summarizes the trade relationship between ASEAN and China, clarifies the fact that trade relationship between the individual ASEAN member and China varies from country to country. Thus, the magnitude and the source of gain or loss through closer economic relation may be quite different among the ASEAN members. Thus, unlike the case of Europe, the flexibility will be necessary when it comes to the implementation of the closer economic cooperation between ASEAN and China.

Figure 1 Matrix of RCA Index and IIT Index

Source: Author's construction

5. Market Share Analysis in the Major International Markets

5.1. ASEAN, China, and India in the major international markets

The formation of a FTA with China and India may also affect ASEAN through its impact on the flow of FDI. Without any doubt, FDI, especially, export-oriented FDI has played an important role in the economic development of China and ASEAN. [5] The FTA may affect ASEAN greatly if ASEAN and China or

ASEAN and India compete in the same type of products in third markets such as the U.S. and Japan. In this case, the formation of a FTA between ASEAN and these two countries may give MNCs an incentive to consolidate those export-oriented production sites that currently exist in different countries. ASEAN may gain or lose through the formation of a FTA depending on whether the FTA enhances the cost advantage of ASEAN more than China, India or vise versa.

If ASEAN and China or India do not, however, compete in the same category of products in the international major markets in the first place, both may gain through the formation of a FTA or both parties may not be affected by it at all.

5.2. Market share analysis

The overall competitiveness of ASEAN, China, and India is initially examined in the major international markets. Table 5 shows the market shares of ASEAN, China, and India, respectively, between 1993 and 2003 in three major international markets: Japan, the U.S. and EU. First, India's share is growing, but its relative position in the international goods market is still considerably low. Second, the market shares of ASEAN, China, and India are all small in Europe, although that of China seems to be expanding rapidly even at the low level of penetration. Third, there seems to be severe competition between ASEAN and China in the U.S. market, since the share of China in it has expanded to reach from 7.3 percent in 1993 to 13.2 percent in 2003. On the other hand, that of ASEAN declined from 7.3 to 6.6 percent during the same period, and as a result, ASEAN seems to be losing its competitiveness in the U.S. vis-à-vis China.

Interestingly, while the share of China increased dramatically in the Japanese

Table 5 Series of ASEAN, China and India in the Major International Markets (%)

	Japan			US			EU		
	ASEAN	China	India	ASEAN	China	India	ASEAN	China	India
1993	14.7	9.4	1.0	7.3	7.3	0.8	2.5	2.5	0.5
1994	14.4	10.9	1.0	7.9	7.5	0.8	2.5	2.5	0.6
1995	14.5	11.6	0.9	8.4	7.7	0.8	2.5	2.5	0.6
1996	15.1	12.4	0.9	8.4	7.9	0.9	2.8	2.6	0.6
1997	14.6	13.1	0.8	8.2	8.5	0.9	3.0	2.8	0.6
1998	14.2	13.9	0.8	8.1	9.1	0.9	2.9	3.0	0.6
1999	14.9	14.4	0.7	7.7	9.4	0.9	2.9	3.2	0.5
2000	15.7	15.0	0.7	7.3	9.8	0.9	3.0	3.6	0.6
2001	15.6	17.0	0.6	6.8	10.1	0.9	2.8	3.8	0.6
2002	15.3	19.8	0.6	6.9	11.9	1.0	2.7	4.1	0.6
2003	15.3	20.1	0.6	6.6	13.2	1.1	2.8	4.8	0.6

Source: Table 3.

Note: (1) EU includes the following European countries: Belgium, France, Germany, Italy, Luxembourg, Holland, Denmark, Ireland, Britain, Greek, Portugal, and Spain.

(2) China includes the trade value of Hong Kong.

market (from 9.4 to 20.1 percent between 1993 and 2003), that of ASEAN also increased slightly from 14.7 to 15.3 percent during the same period. The rapid penetration of Chinese products in the Japanese market is clear and without question, but the competitiveness of ASEAN has not been eroded in Japan in spite of it.

5.3. Spearman's rank correlation coefficients of the rankings of the market shares between ASEAN and China

The above difference between the Japanese and the U.S. markets seems to be confirmed by Tables 6 and 7. Table 6 shows Spearman's rank correlation coefficients of the rankings of the market shares in the U.S. market between China and each ASEAN member. Their market shares are, first, calculated at the four-digit level of SITC R1. Then, Spearman's rank correlation coefficients are calculated for each of the broader product categories.[6] High rank correlation coefficients imply that the kind of product China and each ASEAN member exports to the U.S. is quite similar. In other words, ASEAN and China highly compete with one another in exports to the U.S. markets. Low or negative rank correlation coefficients mean that they export more or less different types of product to the U.S. Table 7 shows the results in the Japanese market.

Table 6 Spearman's Rank Correlation Coefficients of the Ranking of Market Shares in the U.S. between ASEAN and China

SITC	YEAR	IDN	MYA	PHI	SIN	THA	IDN	MYA	PHI	SIN	THA
		Rank Correlation Coefficients					Statistical Significance				
0	1990	0.37	0.25	0.06	0.21	0.22	***	*			*
0	1995	0.53	0.45	0.25	0.44	0.24	***	***	*	***	***
0	2000	0.43	0.50	0.21	0.30	0.43	***	***	*	**	***
0	2003	0.47	0.35	0.23	0.23	0.52	***	***	*	*	***
1	1990	-0.27	-0.31	0.03	-0.11	0.20					
1	1995	-0.30	-0.37	0.00	-0.08	0.13					
1	2000	0.37	-0.19	0.14	-0.19	0.32					
1	2003	0.15	0.67	-0.24	0.30	-0.24					
2	1990	-0.21	-0.33	-0.12	-0.09	-0.01		**			
2	1995	-0.13	-0.10	0.00	-0.05	-0.11					
2	2000	0.06	-0.02	0.10	-0.05	-0.11					
2	2003	0.06	-0.07	0.18	-0.02	-0.06					
3	1990	-0.54	-0.28	-0.65	-0.95	-0.34				***	
3	1995	-0.50	-0.51	na	-0.74	-0.69		*		***	**
3	2000	-0.19	-0.20	0.66	-0.44	-0.05			**		
3	2003	-0.33	-0.09	na	-0.48	-0.24					
4	1990	-0.69	-0.55	-0.78	-0.40	0.41	*		**		
4	1995	-0.78	-0.14	-0.87	-0.54	0.52	***		***		
4	2000	-0.29	-0.57	-0.38	0.03	0.29		**			
4	2003	-0.51	-0.21	-0.34	-0.04	-0.02	*				
5	1990	-0.01	-0.14	-0.01	-0.03	-0.10					
5	1995	0.20	-0.14	0.07	0.03	0.13					
5	2000	0.23	-0.05	0.11	0.17	0.09	*				
5	2003	0.11	0.12	0.11	-0.27	0.11				**	
6	1990	0.26	0.28	0.34	0.10	0.39	***	***	***		***
6	1995	0.34	0.23	0.43	0.19	0.46	***	***	***	***	***
6	2000	0.28	0.21	0.35	0.20	0.37	***	***	***	***	***
6	2003	0.39	0.27	0.44	0.14	0.42	***	***	***	*	***
7	1990	0.21	0.47	0.23	0.36	0.53		***	*	***	***
7	1995	0.55	0.54	0.45	0.41	0.59	***	***	***	***	***
7	2000	0.52	0.52	0.36	0.40	0.48	***	***	***	***	***
7	2003	0.54	0.54	0.40	0.31	0.55	***	***	***	***	***
8	1990	0.49	0.46	0.56	-0.07	0.59	***	***	***		***
8	1995	0.51	0.38	0.38	-0.15	0.47	***	***	***		***
8	2000	0.52	0.10	0.26	-0.17	0.45	***		*		***
8	2003	0.46	0.00	0.19	-0.32	0.37	***			**	***

Source: See Table 3.
Note: See Table 3.

Table 7 Spearman's Rank Correlation Coefficients of the Ranking of the Market Shares in Japan between ASEAN and China

SITC	YEAR	IDN	MYA	PHI	SIN	THA	IDN	MYA	PHI	SIN	THA
		Rank Correlation Coefficients					Statistical Significance				
0	1990	-0.03	-0.05	-0.08	-0.18	0.19					
0	1995	0.12	0.09	0.00	0.09	0.30					**
0	2000	0.16	-0.01	0.16	0.04	0.35					***
0	2003	0.13	0.03	0.04	0.07	0.29					**
1	1990	0.34	0.51	-0.31	-0.23	0.59					
1	1995	-0.41	0.25	-0.44	-0.18	0.29					
1	2000	-0.41	-0.46	0.03	0.14	0.04					
1	2003	-0.22	0.11	0.45	-0.06	0.36					
2	1990	-0.16	-0.30	-0.14	-0.24	-0.18		***		**	
2	1995	0.10	-0.05	0.01	0.03	0.07					
2	2000	-0.12	0.10	-0.03	0.01	0.07					
2	2003	-0.13	0.02	-0.07	0.00	-0.12					
3	1990	-0.17	-0.14	0.04	-0.37	-0.39					
3	1995	-0.48	-0.58	-0.51	-0.85	-0.63	*	**	**	***	**
3	2000	-0.78	-0.40	-0.45	-0.45	-0.70	***				***
3	2003	-0.66	-0.82	-0.68	-0.62	-0.42	**	***	**	*	
4	1990	-0.45	-0.67	-0.85	-0.50	-0.28		**	***		
4	1995	-0.25	-0.52	-0.60	0.13	0.24		*	**		
4	2000	-0.12	-0.49	-0.88	-0.14	0.09		*	*		
4	2003	0.03	-0.64	-0.51	-0.12	0.04		**			
5	1990	-0.02	-0.16	-0.02	-0.19	-0.06					
5	1995	-0.17	-0.14	-0.10	-0.29	-0.09				**	
5	2000	0.10	-0.10	-0.17	-0.26	0.12				**	
5	2003	0.10	0.03	-0.27	-0.36	0.11			**	***	
6	1990	0.11	0.09	0.16	-0.09	0.11			**		
6	1995	0.14	0.03	0.18	-0.02	0.04	*		**		
6	2000	0.07	0.02	0.13	0.00	0.09					
6	2003	0.03	0.02	0.15	-0.08	0.06			*		
7	1990	0.13	0.34	0.18	0.31	0.50		**		**	***
7	1995	0.39	0.54	0.51	0.41	0.41	***	***	***	***	***
7	2000	0.15	0.31	0.22	0.02	0.21		**	*		*
7	2003	0.25	0.44	0.38	0.19	0.29	**	***	***		**
8	1990	0.50	0.29	0.67	-0.06	0.54	***	**	***		***
8	1995	0.47	0.25	0.44	-0.18	0.37	***	*	***		***
8	2000	0.34	0.15	0.26	-0.32	0.36	**		*	**	***
8	2003	0.37	0.22	0.32	-0.22	0.35	***	*	**	*	***

Source: See Table 3.
Note: See Table 3.

According to Table 6, ASEAN and China show relatively high rank correlation coefficients which are also statistically significant especially in such product categories as food (0), basic manufacturers (6), machinery (7), and miscellaneous manufactured goods (8). This means that ASEAN may further lose its market share to China unless ASEAN makes an effort to sell differentiated and higher value added products in the U.S. market, given the fact that China has a cost advantage over many of the ASEAN countries due to the ample availability of low-cost labor.

Table 7 shows the results between ASEAN and China in Japan. The Spearman's rank correlation coefficients of the rankings of their market shares in the Japanese market are much lower than those of the U.S. Moreover, many of the coefficients are not statistically significant. This implies that ASEAN and China do not necessarily compete in the Japanese market. It could be possible that MNCs in ASEAN and China already differentiate the types of product exported to Japan.

6. Conclusion

The further rise of China as an industrial power, especially after its entry into WTO, is now regarded as an opportunity rather than as a threat for ASEAN. The above results show that whether this view is consistent with the underlying economic force or not depends on a country in question. Both Singapore and Malaysia seem to gain both through inter- and intra-industry specialization if a FTA is formed between ASEAN and China. Thailand appears to gain significantly as well through intra-industry specialization vis-à-vis China.

Indonesia and the Philippines, on the other hand, may not gain much. First, as yet there is not much intra-industry between China and these two ASEAN countries. Moreover, China and the Philippines have very similar overall trade structures. This implies that the Philippines may not gain much through closer economic cooperation with China or India.

Substantial efforts are necessary to be made to promote industrial development of Indonesia and the Philippines. Otherwise, the formation of a China-ASEAN FTA may end up speeding up the force of divergence that seems to have set in among ASEAN countries since the 1997-98 crisis.[7)]

The promotion of economic cooperation between ASEAN and India, on the other hand, may make sense in the long run, but its immediate impact on both sides seems to be very limited. First, the success of India still concentrates on the services sector. Second, there is still very little intra-industry specialization between ASEAN and India. The announcement of the formation of a FTA between India and ASEAN may make economic sense in the long run, but substantial benefits may not be expected at least in the short run.

Endnotes

1) The details of the framework agreement on comprehensive economic cooperation between ASEAN and China are found in WWW.ASEANSEC.ORG.

2) The details of the framework agreement on comprehensive economic cooperation between ASEAN and India are found in WWW.ASEANSEC.ORG.

3) See Balassa (1989) for details with respect to RCA index.

4) According to Suthiphand and Sothitorn (2005:84), the import-weighted average tariff rate of China is around 9.4 percent.

5) See Okamoto (1994), for instance, the role of FDI in economic development of Malaysia.

6) It ranges from 0 to 8 product category at the one-digit level of SITC R1.

7) See Okamoto (2005a: 50-52).

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