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Impact of Globalization on International Trade between ASEAN-5 and China: Opportunities and Challenges*

Yunhua Liu and Hang Luo

Abstract

This paper evaluates the impact of China's WTO entry and the establishment of a free-trade agreement between China and ASEAN on the ASEAN-5 (Indonesia, Malaysia, Philippines, Singapore and Thailand). We examine the trade competition between the two regions using a market-share model and assess the impact of China's WTO entry on the ASEAN-5 with an exchange rate-tariff model, based on two-digit SITC data. It is found that for the period 1987 to 2000 the competition in trade only occurred between China and Singapore in manufacturing goods, while the competition between China and other four nations was in primary goods. The trade-widening opportunity between the two regions appears much larger than the competitive challenges for ASEAN-5 after the WTO entry of China and the establishment of FTA between ASEAN and China, impacts on different industries are evaluated.

KEYWORDS: ASEAN, China, Globalization, Trade, WTO

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INTRODUCTION

During the last two decades, we have seen the acceleration of the process of globalization, the rise of regional trading arrangements, China's emergence as a global economic force and the growing interdependence between ASEAN (Association of Southeast Asian Nations) and China. Attributable to the fast growth of their economies, the liberalization of their trade regimes and the changes in their trade structure, ASEAN-China economic relations have grown dramatically. In the 1980s and 1990s, both China and ASEAN achieved high growth rates in international trade. During the decade from 1991 to 2000, China's international trade grew at an average annual rate of 15 percent. In 2000, China's exports amounted to US \$249.3 billion and its imports totaled US \$206.1 billion. During the period from 1993 to 2000, ASEAN's international trade grew at an average annual rate of 10.9 percent, although the rate was lowered after the 1997 Asian financial crisis. In 2000, ASEAN-5-China¹ trade totaled US \$38.2 billion, growing by an average of 55.3 percent annually since 1987 when overall trade amounted to only US \$ 4.4 billion. China's exports to ASEAN-5 grew from US \$ 2.3 billion in 1987 to US \$ 17.2 billion in 2000 while its imports from ASEAN-5 grew from US \$ 2.1 billion in 1987 to US \$ 21.0 in 2000 (see Table 1 and Table 2). China's entry into WTO and the Free Trade Area (FTA) between ASEAN and China in negotiation will provide further opportunities for ASEAN-China trade relations.

We take ASEAN-5 as the representative of the ten ASEAN nations to study the trade relation between ASEAN and China because these nations are main trading partners of China and significant trading nations among the ASEAN nations, the other 5 only account for less than 3 percent of the ASEAN's total exports in 2002. (<http://www.miti.gov.my/asean-matter1.html>). A brief review of trade records of China and ASEAN-5 should help us to have a clear picture of the current situation between China and ASEAN-5.

¹ ASEAN-5 consists of: Indonesia, Malaysia, Philippines, Singapore and Thailand.

Table 1 China's Imports from ASEAN-5 in Millions of US Dollars

	Indonesia	Malaysia	Philippines	Singapore	Thailand	ASEAN5
1987	591	302	140	618	405	2056
1988	681	570	135	1018	633	3037
1989	582	692	83	1499	756	3612
1990	849	852	90	849	386	3026
1991	1403	804	130	1063	422	3822
1992	1554	830	155	1238	424	4201
1993	1446	1084	213	2647	601	5991
1994	1589	1623	272	2481	864	6829
1995	2053	2065	276	3398	1611	9403
1996	2289	2246	372	3613	1890	10410
1997	2674	2485	327	4385	2005	11876
1998	2462	2675	517	4226	2423	12303
1999	3051	3606	908	4061	2780	14406
2000	4402	5480	1677	5060	4381	21000
Growth rate	645%	1715%	1098%	719%	982%	921%

Source: *Direction of Trade Statistics Yearbook*, International Monetary Fund, 1994-2001

Table 2 China's Exports to ASEAN-5 in Millions of US Dollars

	Indonesia	Malaysia	Philippine	Singapore	Thailand	ASEAN5
1987	188	255	245	1323	301	2312
1988	236	309	268	1494	512	2819
1989	223	352	239	1692	500	3006
1990	401	370	205	2016	854	3846
1991	481	528	253	2014	848	4124
1992	471	645	209	2031	894	4250
1993	693	704	281	2245	750	4673
1994	1052	1118	476	2563	864	6073
1995	1438	1281	1030	3500	1611	8860
1996	1428	1374	1015	3753	1890	9460
1997	1844	1921	1334	4321	2005	11425
1998	1172	1594	1499	3901	2423	10589
1999	1779	1674	1379	4502	2780	12114
2000	3062	2565	1464	5761	4381	17233
Growth Rate	1529%	906%	498%	335%	1356%	645%

Source: *Direction of Trade Statistics Yearbook*, International Monetary Fund, 1994-2001

Table 3 and 4 show the trade volume of China and ASEAN-5 from 1987 to 2000.

Table 3 ASEAN-5 and China's World Total Exports in Billions of US dollars

	Indonesia	Malaysia	Philippine	Singapore	Thailand	ASEAN5	China
1987	17.1	18.0	5.7	28.7	11.7	81.2	39.4
1988	19.2	21.1	7.0	39.3	16.0	102.6	47.5
1989	22.2	25.1	7.8	44.7	20.1	119.7	52.5
1990	25.7	29.5	8.1	52.7	23.1	139.1	62.1
1991	29.1	34.4	8.8	59.0	28.4	159.7	71.9
1992	34.0	40.8	9.8	63.5	32.5	180.4	84.9
1993	36.8	47.1	11.1	74.0	37.0	206.1	91.0
1994	40.1	58.8	13.3	96.8	45.3	254.3	121.1
1995	45.4	73.9	17.5	118.3	56.4	311.5	148.8
1996	49.8	78.3	20.4	125.0	55.7	329.3	151.2
1997	53.4	78.7	24.9	125.0	57.4	339.4	182.9
1998	48.9	73.3	29.4	109.9	54.5	315.9	183.6
1999	48.7	84.5	36.6	114.7	58.4	342.8	195.2
2000	62.1	98.1	39.8	137.8	69.1	406.9	249.3
Growth Rate	262%	446%	600%	380%	489%	401%	532%

Source: International Monetary Fund, *International Financial Statistics*, 2001.

Table 4 ASEAN-5 and China's World Total Imports in Billions of US Dollars

	Indonesia	Malaysia	Philippine	Singapore	Thailand	ASEAN5	China
1987	12.4	12.7	7.2	32.6	13.0	77.8	43.2
1988	13.3	16.5	8.7	43.9	20.3	102.6	55.3
1989	16.4	22.5	11.2	49.7	25.8	125.4	59.1
1990	21.8	29.3	13.0	60.8	33.1	158.0	53.4
1991	25.9	36.7	12.9	66.1	37.6	179.1	63.8
1992	27.3	39.9	15.5	72.2	40.7	195.5	80.6
1993	28.3	45.7	18.8	85.2	46.1	224.1	103.1
1994	32.0	59.6	22.6	102.7	54.5	271.4	115.7
1995	40.6	77.7	28.3	124.5	70.8	342.0	129.1
1996	42.9	78.4	34.1	131.3	72.3	359.2	138.9
1997	41.7	79.0	38.6	132.4	62.9	354.6	142.2
1998	27.3	58.3	31.5	104.7	43.0	264.9	140.3
1999	24.0	65.0	32.6	111.1	50.3	282.9	165.8
2000	33.5	82.2	33.8	134.6	61.9	346.0	206.1
Growth Rate	171%	548%	370%	313%	376%	345%	377%

Source: International Monetary Fund, *International Financial Statistics*, 2001.

During this period China's exports increased from \$39.4 billion to \$249 billion, with 532 percent total growth. The total growth of exports for ASEAN-5 at this

period was 401 percent, slower than China's export growth. Only Philippines got a faster export growth than that of China.

Referring to the GDP growth rates in Table 5, ASEAN-5 export-oriented economies achieved a strong performance before the 1997 Asian financial crisis, averaging 7.2 percent per annum between 1987-1997. Total exports grew rapidly, more than threefold from US \$ 81.2 billion in 1987 to US \$ 339.4 billion in 1997. Nevertheless, from 1987 to 2000, China's real GDP growth averaged 9.3 percent, the fastest rate of real GDP growth in the world. During the same period, China's exports grew fivefold from US \$ 39.4 billion in 1987 to US \$ 249.3 billion in 2000, making China the seventh largest exporter in the world. The fast growth of China's economy, its rise as a major exporter and as a magnet of FDI was in some sense similar to the experience of ASEAN-5, but it was occurring at a much faster pace and at a much larger scale.

Table 5 Real GDP Growth Rate of ASEAN-5 and China (%)

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

Source: Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries, 1999-2001*.

Nominally, China's exports accounted for 23 percent of its GDP in 2000. According to purchasing-power parity estimation, this ratio might be less. The ratio of exports to GDP of China and ASEAN-5 are shown in Table 6, which should give us an idea of the importance of exports to each economy. Most of the ASEAN-5's ratios are very high. Obviously, the small and export-oriented ASEAN economies are vulnerable to changes of the outside world.

Table 6 Ratio of Exports to GDP (%)

	Indonesia	Malaysia	Philippines	Singapore	Thailand	China
1987	21.9	55.8	17.1	140.6	23.2	12.5
1988	21.7	59.8	18.5	156.0	25.9	12.0
1989	21.8	64.5	18.3	149.7	27.8	12.0
1990	22.4	66.9	18.3	143.8	27.0	16.2
1991	22.7	69.9	19.4	137.8	28.9	18.0
1992	24.4	68.9	18.4	129.3	29.1	18.1
1993	23.3	70.5	20.5	128.4	29.5	15.2
1994	22.7	79.0	20.8	138.6	31.3	22.3
1995	22.5	83.2	23.6	141.8	33.5	21.2
1996	21.9	77.7	24.6	136.9	30.6	18.4
1997	24.8	78.6	30.2	132.1	38.0	20.2
1998	51.2	101.1	45.1	132.8	48.7	19.0
1999	34.4	107.1	48.0	136.8	47.9	19.7
2000	40.5	109.9	53.2	149.4	56.5	23.1

Source: International Monetary Fund, *International Financial Statistics*, 2001.

Besides the expanding trade relations between ASEAN and China, it is also critical to note the possible challenges to ASEAN and China in third country markets as an outcome of the WTO entry of China and the establishment of FTA between ASEAN and China. Current situation is that the bulk of ASEAN and China's exports are still largely focused on the major markets of the US, Europe and Japan. There is also considerable overlap in the composition of their major export items, particularly in textiles and apparel and other labor-intensive manufactures. As China's manufacturers climb the technology ladder, the overlap is spilling over into electrical and electronic products, where a number of ASEAN countries had initially established a lead.

Whether the WTO entry of China and the establishment of FTA between ASEAN and China will provide good opportunities for ASEAN-5 or impart serious competition in the world market between the two economies is a critical issue relevant to ASEAN-5. In this paper, we will examine the possible aspects of challenges and opportunities in trade between China and ASEAN-5 in detail. The next section reviews the previous literatures that study the competition and co-operation between ASEAN and China. The following section provides the methodology to analyze the competitions between two economies by using a market simple share regression (MSSR) model and the co-operation and impact of China's WTO entry by using a trade-exchange rate-tariff model based on SITC two digits historical data. Then, we analyze the empirical regression results and

provides some explanations to the challenges and opportunities to China and ASEAN-5 in the globalization. Conclusions are presented in a final section.

LITERATURE REVIEW

A number of studies have researched the issues of competition and cooperation between China and other developing countries in the aspects of international trade.

The emergence of China as an exporter of labor-intensive manufactures in the 1980s may present the ASEAN exporters with increasing competition. By using the Constant Market Share analysis, Tyers, Phillips and Findlay (1987) hypothesized that ASEAN may be crowded out of the labor-intensive manufactures (LIM) markets by China. When the Chinese exports are used as the standard, ASEAN LIM exports are shown to have been relatively uncompetitive after 1978. This is due to China's competitiveness, which had permitted it to enter world LIM markets with export growth not achievable in the smaller, more steadily expanding economies of the ASEAN. Therefore, they concluded that China and ASEAN did compete directly for shares of LIM exports.

Herschede (1991) investigated the degree of direct competition among ASEAN, China, and the NICs, in the labor-intensive manufactures (LIM) markets by using Japan as the common market. He used the Shift-share analysis to measure the magnitude of Asian economic rivalry. The results showed that China enjoyed a significant competitive advantage relative to ASEAN. Due to its large, unfavorable industry mix and competitive disadvantage, ASEAN suffered the most from China's entry into the Japanese import market of both primary and manufactured products. Using the same methodology, Voon (1997) analyzed the changing patterns of export competitiveness among China and ASEAN-4² in primary goods, labor-intensive and technology-intensive manufactures using U.S. market as the common market. Over the two time periods (1982-86 and 1990-94), it was found that China performed better than ASEAN-4 in the U.S. import market. This implies that ASEAN-4 experienced competitive pressure from China's exports. Comparing to other ASEAN-4 countries, Singapore experiences the most competitive pressure. However, despite the competition, ASEAN-4's total exports to U.S. had been increasing over the two time periods. It is expected that trade creation for China and ASEAN-4's combined exports to U.S. will be greater than trade diversion from ASEAN-4 to China in the long run.

Making use of the market share simple regression (MSSR) method and regression analysis based on two-digit historical data from SITC and using U.S. as the common market, Chew and Liu (1998) examined competition and

² Indonesia, Malaysia, Singapore and Thailand.

complementarity in trade between China and ASEAN-5 for the time period of 1987-1992. They assumed that if competition exists between China and ASEAN-5, then ASEAN-5's market share in U.S. would decrease when China's market share increases, and vice versa. The study revealed that competition between ASEAN and China in the U.S. market largely occurs in the competition for the U.S. market in crude materials. On the whole, the degree of competition between China and ASEAN was small. There exists a large potential for economic cooperation between the two parties and benefits would arise from the mutual trade relationships.

METHODOLOGICAL ISSUES

We follow the market share simple regression (MSSR) model that described by Chew and Liu (1998) to assess the competition between ASEAN-5 and China in trade from 1987 to 2000. The MSSR model is as follows:

$$MS_i = a_i + b_i MS_c + u_i \quad (1)$$

Where MS_i are Indonesia's, Malaysia's, Philippines', Singapore's, Thailand's and ASEAN-5's total market shares in the U.S. for a particular type of products respectively. MS_c is the China's market share in the U.S. for the same type of products. The first observation is that the sign of parameter b_i should be negative if competition happened between ASEAN-5 and China for that particular type of products. If a positive sign appears for the parameter b_i , the assumption of competition of China and ASEAN-5 should not hold in that product. Statistically, the MSSR method should also overcome the possible problems of heteroscedasticity when different products are pooled into one group. Second observation is that the sum of the market shares of the five ASEAN countries should be equal to the total market share of ASEAN-5. That can lead to the result that the sum of parameter b_i of individual ASEAN countries should equal to the parameter of ASEAN-5 as total. That means the magnitude of the parameter b_i of individual ASEAN countries could be a reflection of their volume of exports of a particular type of products, since the same independent variable is used for the regressions of ASEAN total and for each individual country. The market share data of 1-digit and 2-digit SITC export from ASEAN-5 countries and China to the

U.S. is obtained from World Trade Analyzer CDROM through the period 1987 to 2000.

After studying the competition through MSSR approach, we use the following trade-exchange rate-tariff model to analyze the trade co-operation between ASEAN-5 and China and the impact of China's WTO entry.

$$EX_i = a_{0i} + a_{1i}ER_i + a_{2i}TR + a_{3i}YEAR + u_i \quad (2)$$

where EX_i = country i exports to China (in terms of \$000)

ER_i = exchange rate between Chinese Yuan and the currency of country i ,

expressed as Yuan/currency of country i

TR = China's import tariff rate

i = one of the ASEAN-5 country

Tariff and exchange rate are two of the many factors that influence trade. This model allows us to analyze the effect of changes in the two variables on trade. According to economic theory, both tariff and exchange rate share an inverse relationship with trade value. Therefore the sign of parameters of both tariff and exchange rate should be negative. Another variable added to our model is the year variable. This variable helps to account for changes in trade value that is attributed to economic factors other than tariff and exchange rate.

To analyze the trade co-operation on the various sectors between ASEAN-5 and China, we have to introduce dummy variables to our basic model. Equation (3) is for the primary sector and equation (4) is for manufacturing sector.

$$EX_i = a_{0i} + a_{1i}ER_i + a_{2i}TR + a_{3i}YEAR + a_{4i}D_2 + a_{5i}D_3 + a_{6i}D_4 + a_{7i}D_5 + u_i \quad (3)$$

$$EX_i = a_{0i} + a_{1i}ER_i + a_{2i}TR + a_{3i}YEAR + a_{4i}D_2 + a_{5i}D_3 + a_{6i}D_4 + u_i \quad (4)$$

Within the primary sector, there are 5 individual industries. Hence 4 dummy variables are introduced into the model. Dummy variables help to capture effects that are due to changes in any industries within the primary sector. Three dummy variables are also introduced to the manufacturing sector model for the same reason.

In our study we are more concerned with the magnitude of the tariff rate coefficient. China's entry to WTO definitely lead to further reduction in tariff rate. The larger the tariff rate coefficient, the greater the impact it had on trade value. Our concern in this study is the magnitude of a_{2i} . With a 1 percent reduction in tariff rate, trade value will increase by a_{2i} thousand dollars. This represents the opportunities available to the ASEAN countries with a reduction in China's import tariff rate.

The 1-digit and 2-digit SITC trade data are obtained from World Trade Analyzer CDROM as well. It consists of ASEAN-5 total exports to China and also the exports of individual ASEAN countries. However, due to insufficient data on China's imports tariff rate, our analysis will only cover the following years, 1987, 1989, 1992, 1994, 1998 and 2000. Data on china's import tariff rate does not follow the SITC category. China does not employ the normal SITC method to classify products. Instead China followed Harmonized System. Our data will be converted to SITC as this method is more commonly used and to make it compatible with our trade data. The general tariff rate will be used since there is no special trade policy or favored treatment between China and ASEAN. Exchange rate for the 5 ASEAN countries is obtained from International Financial Statistics CDROM. Exchange rate between China and the individual ASEAN countries differ. Therefore there will be 5 different sets of exchange rate for the 5 ASEAN countries and in the form of Yuan per the various ASEAN currencies.

EMPIRICAL RESULTS

Competition between China and ASEAN-5 in World Exporting Markets

The U.S. is the biggest market in developed economies and both China and ASEAN-5 export a large percentage of their primary and manufactured products to the U.S. A closer look at US market for the possible two competitors in different products can provide some information about this issue. Tables 7 and 8 show the exports volumes of China and ASEAN-5 to the U.S. They show that the U.S. total imports increased by 197 percent from 1987 to 2000, while ASEAN-5 increased by 336 percent and China increased by 1910 percent. Both ASEAN-5 and China expanded their exports to the U.S. quickly, though China increased with a much faster speed.

The resulting competition matrix based on the regression of MSSR model is formed by the estimated parameters, b_0 to b_5 , shown in Table 9. It is easy to see that in the category of SITC0-4, ASEAN-5 as a whole group is having a competition in primary goods in the U.S. market with China. But the individual country regressions show that Indonesia, Singapore and Thailand are not having this problem. Malaysia and the Philippines are significantly having a competition in primary goods with China. From the magnitudes of the parameters we can also find that these two countries are the major competitors of China in primary goods.

Table 7 US Imports from ASEAN-5 and China in Billions US Dollars

	World Total of US	Indonesia	Malaysia	Philippines	Singapore	Thailand	ASEAN 5	China
1987	424.4	4.0	3.1	2.5	7.3	2.3	19.2	3.1
1988	459.5	3.6	3.7	2.6	9.5	3.3	22.7	3.5
1989	492.9	4.3	4.9	3.3	10.7	4.5	27.7	4.7
1990	517.0	4.2	5.2	3.3	11.7	5.5	29.7	5.8
1991	508.4	4.2	6.0	3.3	11.9	6.3	31.7	6.8
1992	553.9	5.3	7.9	4.0	13.6	7.6	38.5	9.6
1993	603.4	6.1	10.2	4.6	15.1	8.3	44.3	18.4
1994	689.2	6.7	12.7	5.3	17.6	9.6	51.8	22.5
1995	770.9	7.5	15.7	6.4	21.2	10.3	61.0	26.0
1996	822.0	8.1	14.9	7.4	23.2	10.4	63.9	28.9
1997	899.0	8.5	15.2	9.2	23.1	11.8	67.8	35.4
1998	944.4	8.5	16.4	10.3	22.0	14.0	71.2	41.2
1999	1059.4	8.6	19.2	11.1	22.6	13.5	75.0	47.4
2000	1259.3	9.4	22.8	12.5	23.6	15.5	83.8	62.3

Source: *World Trade Analyzer (WTA) CDRUM, 2001* and International Monetary Fund, *International Financial Statistics, 2001*.

Table 8 Growth Rate of US Imports from ASEAN-5 and China (%)

	World Total of US	Indonesia	Malaysia	Philippine	Singapore	Thailand	ASEAN-5	China
1988	8.3	-9.8	17.6	5.7	29.9	42.5	18.0	12.5
1989	7.3	18.3	32.4	26.3	12.8	39.7	22.3	33.8
1990	4.9	-2.6	6.2	-1.5	8.8	20.0	7.2	22.5
1991	-1.7	1.0	16.5	0.6	2.1	15.2	6.7	17.5
1992	9.0	27.0	32.1	22.9	13.8	21.5	21.5	41.5
1993	8.9	15.4	28.2	13.7	11.2	8.4	15.0	91.7
1994	14.2	8.5	24.7	14.6	16.8	15.8	17.1	22.1
1995	11.8	12.2	23.4	21.1	20.0	7.5	17.6	16.0
1996	6.6	8.2	-4.8	15.7	9.6	0.9	4.9	10.9
1997	9.4	5.3	2.0	24.5	-0.4	13.3	6.0	22.4
1998	5.0	-0.4	7.7	12.3	-4.6	18.7	5.0	16.6
1999	12.2	1.4	17.0	8.3	2.4	-3.4	5.3	14.9
2000	18.9	9.3	18.8	12.6	4.4	14.8	11.7	31.4

Source: *World Trade Analyzer (WTA) CDROM, 2001* and International Monetary Fund, *International Financial Statistics, 2001*.

Table 9 Competition Matrix for ASEAN-5 and China for Different Types of Products in US Market (1987-2000)

Products	N	ASEAN -5	Indonesia	Malaysia	Philippine	Singapo	Thailand
Primary goods (sitc 0,1,2,3,4)	70	-5.82 (-2.25)	0.10 (0.31)	-3.39 (-4.08)	-4.73 (-4.03)	0.15 (3.45)	2.05 (9.33)
Manufactures (sitc 5,6,7,8,9)	70	0.02 (0.12)	0.13 (4.81)	0.05 (2.12)	-0.21 (-1.78)	-0.08 (-2.06)	0.13 (8.41)
Food & beverages (sitc 00-12)	168	3.44 (15.01)	0.43 (4.37)	0.08 (3.11)	0.39 (3.75)	0.17 (4.35)	2.36 (12.73)
Crude materials (sitc 21-43)	224	-0.87 (-2.58)	-0.18 (-1.13)	-0.38 (-2.46)	-0.18 (-1.75)	-0.06 (-2.17)	-0.07 (-1.25)
Chemical & related (sitc 51-59)	126	-0.05 (-0.56)	-0.01 (-0.31)	0.02 (0.77)	0.001 (0.07)	-0.09 (-1.30)	0.01 (1.28)
Basic manufactures (sitc 61-69)	126	0.10 (0.63)	-0.04 (-0.33)	0.03 (1.16)	0.02 (1.35)	-0.02 (-3.42)	0.12 (3.05)
Machines, transport (sitc 71-79)	126	1.70 (5.81)	0.12 (11.13)	0.74 (8.23)	0.21 (6.85)	0.37 (1.86)	0.26 (7.97)
Miscellaneous manufactured (sitc 81-89)	112	0.10 (2.91)	0.08 (5.27)	-0.01 (-1.10)	0.02 (1.71)	-0.03 (-4.16)	0.05 (4.28)

Note: N is the number of observations; numbers in the parentheses below the estimators are t-values.

However, the conflicting in primary goods does not mean ASEAN-5 are losing their market shares in every type of primary products at all. The breakdown analysis from the two digits regressions shows that the competitions in primary goods are mainly in crude materials. The estimated competition parameters for crude materials (SITC21-43) are significantly negative for the ASEAN-5 as a whole and Malaysia and negative too for Indonesia, Philippines, Singapore and Thailand, even though insignificantly. However, the magnitudes are very small. In food and beverages (SITC01-12) there is no competition appearing. Overall, there are some conflicts in trade in crude materials between ASEAN-5 and China. But the magnitudes are far from severe.

Competition cannot be seen between ASEAN-5 and China in manufactured products (SITC 5-9) except Philippines and Singapore. Even for Philippines and Singapore, the parameters are marginally significant and the magnitude is negligible. The breakdown analysis from the 2-digit regressions shows that the competition in manufactured products between Singapore and China are mainly in basic manufactures (SITC 61-69) and miscellaneous manufactured (SITC 81-89).

Taking into account of the large percentage of manufactured exports of both China and ASEAN-5, it can be seen that the conflict in trade between China and ASEAN-5 in primary goods is in a very limited magnitude and it does not form much harm to both sides at all. The overall conclusion is that through the period 1987 to 2000 the competition in trade between China and ASEAN-5 in developed economies was in a negligible level.

Cooperation in Trade between ASEAN-5 and China and the Impact of China's WTO Entry

In this part, the possible existence of opportunities for ASEAN-5 to increase their export to China upon China's entry into the WTO is examined. A negative coefficient of exchange rate means that as the Chinese Yuan appreciates, China will increase her import from ASEAN, and vice versa. A negative coefficient of tariff rate represents opportunities available to the ASEAN countries, with China's entry to WTO. The larger the coefficient, the greater the trade opportunities are available for the ASEAN economies. We are concerned with the coefficients of tariff (Table 10) rates because tariff reduction is the direct effect of the China's WTO entry.

Table 10 Tariff-export Matrix for Different Types of Products in China market from ASEAN-5 (1987-2000)

Products	N	Indonesia	Malaysia	Philippines	Singapore	Thailand
Primary goods (sitc 0,1,2,3,4)	168	-888.16 (-2.62)	-195.30 (-0.90)	-36.35 (-1.33)	-732.63 (-1.88)	-203.95 (-1.29)
Food & beverages (sitc 00-12)	72	20.88 (0.75)	-21.38 (-1.32)	2.94 (0.09)	392.32 (2.26)	-218.49 (-1.27)
Crude materials (sitc 21-43)	96	-2510.71 (-2.52)	812.96 (1.30)	-93.40 (-1.40)	-2537.54 (-2.49)	-333.82 (-0.84)
Manufactures (sitc 5,6,7,8,9)	210	-231.13 (-1.23)	-412.98 (-2.09)	-119.37 (-1.48)	-602.82 (-1.56)	-205.96 (-1.02)
Chemical & related (sitc 51-59)	54	-163.64 (-0.79)	-47.85 (-0.26)	-105.16 (-2.33)	60.31 (0.15)	72.48 (0.19)
Basic manufactures (sitc 61-69)	54	-682.93 (-0.96)	-581.39 (-1.57)	-173.71 (-1.78)	-153.08 (-2.30)	232.54 (1.94)
Machines,transport (sitc 71-79)	54	-69.64 (-0.32)	-529.31 (-1.97)	-33.72 (-0.08)	-636.27 (-2.33)	-418.88 (-2.42)
Miscellaneous manufactured (sitc 81-89)	48	79.98 (3.04)	-73.52 (-2.28)	-4.36 (-0.89)	-168.58 (-2.54)	-53.70 (-1.43)

Note: N is the number of observations; estimators are tariff's coefficients; numbers in the parentheses below the estimators are t-values.

The regression results for primary products (SITC 0-4) show that except for Indonesia whose estimated tariff rate coefficient is negatively significant, Malaysia, Philippines, Singapore and Thailand have negatively insignificant coefficient. Hence with China's entering WTO and further reduction in tariff rate, it is unlikely to affect Malaysia, Philippines, Singapore and Thailand's primary exports to China. One of the reasons of this phenomenon could be the existence of other variables such as import quotas and import licensing. Primary products that are subjected to import licensing include finished oil, grain, vegetable oil, and sugar. For Indonesia, it seems to imply that there are opportunities in primary sector with China's entry to WTO.

The breakdown analysis from the 2-digit regressions shows that in the Food & Beverages (SITC 00-12) sector both Malaysia and Thailand are insignificantly negative, but positive for Indonesia, Philippines and Singapore. Hence, there is more opportunity for Malaysia and Thailand in this industry when China lowers her tariff rate. According to the magnitude of coefficients, Thailand has more opportunity as compared to Malaysia. The agricultural products that Malaysia exports to China include rice and coffee. As for Thailand, rice shared 99.7% of the Chinese imported rice. Other major exports included sugar, frozen prawns, and tapioca products. At present, Thailand has abundant supplies of farm produce. The advantage of establishing additional food processing industries is, therefore,

apparent. Large-scale commercial livestock production offers unlimited growth potential. Hence, Thailand and Malaysia will have much more opportunity in the Chinese market. Unlike other resource-rich ASEAN nations, Singapore is not endowed with any natural resources other than her strategic location. Therefore even if tariff rate for such primary products is to be reduced, Singapore may not be able to increase her primary exports because of her limited resource endowment. China does not import many products of this category from Indonesia and Philippines. Therefore, even if China lowers her tariff rate upon entering the WTO, there won't be any further opportunity for Indonesia and Philippines in this industry.

The regression results for Crude Materials (SITC 21-43) show that the estimated coefficients are significantly negative for Indonesia and Singapore, insignificantly negative for Philippines and Thailand whereas it is positive for Malaysia. In Thailand, developments in mineral processing industries point to future expansion of zinc, rock salt and gypsum processing facilities. Other agro-based industries with good prospects include palm oil, vegetable oil, and paper pulp. Although there are good prospect in the crude materials industry of Thailand, the insignificant t-ratio shows that China's tariff rate does not affects Thailand's crude materials export to China by much. Hence, the opportunity in this industry for Thailand may be minimal.

From Table 10, we also see that in the crude material market there is no further opportunity for Malaysia in the Chinese market even if China lowers her tariff level. In the case of rough and worked wood, and metalliferous ores, Malaysia expanded their exports to the U.S. All these growth in exports are targeting at the U.S. market instead of the Chinese market. Hence, Malaysia may be too engrossed in competing for the U.S. market share and ignored the Chinese market with potential. Other main export items of Malaysia are petroleum and liquefied natural gas. It is reported that China's oil output has failed to keep up with rapidly growing domestic demand. However, there is no opportunity for Malaysia because Middle East oil accounts for nearly half of China's imports, with Oman, Yemen, and Iran being the most important crude suppliers. It may be difficult for ASEAN countries to compete for a share in China's market with the countries mentioned above.

It is not surprising that the estimated coefficient for ASEAN-5's manufacturing sector (SITC 5-9) turns out to be negative, significant for Malaysia and Singapore, and insignificant for Indonesia, Philippines and Thailand. As latecomers to industrialization, both ASEAN and China tend to specialize in the same basic manufactures and compete for same exports. While China is able to harness her vast pool of labor, ASEAN may not be able to compete based on costs. Basic manufacturing industry becomes very cost competitive.

Moreover, China imports high-technology products mainly from the developed countries. Only countries such as Singapore and Malaysia, which have shifted towards technology-intensive production, will be able to compete with the developed countries. Hence from the table, we see that only these two countries have opportunity in the manufacturing market with China's entry to WTO. As mentioned earlier, Indonesia, Philippines and Thailand may not be able to compete with China based on cost for basic manufacturing industry. Hence even a reduction in tariff rate does not warrant increase in their exports to China since these three countries do not have comparative advantage in manufacturing sector.

Once we examine the regression results for Chemical and Related products (SITC 51-59), Philippines' t-ratio of tariff rate for chemical industry is significant. This shows that opportunity does exist in chemical industry for Philippines. With current market demand, the chemical products industry in Philippines is expected to expand rapidly over the next few years. Items in this group include herbicides, pesticides, acetylene black, glue gelatin and cellulose acetate. However, as can be seen from Table 10, the opportunity for both Indonesia and Malaysia appear to be very insignificant. Some of the chemical and related products are not only subjected to tariff rate, they are also subjected to other trade barriers such as import licensing. Hence, these explained the insignificance of tariff rate to exports of this industry.

Regression results for Basic Manufactured (SITC 61-69) in Table 10 show that except for Indonesia, Malaysia, Philippines and Singapore, Thailand does not have any opportunity in the basic manufactured market in China. Although Indonesia, Malaysia and Philippines have negative tariff rate coefficient, the t-ratios are insignificant while the t-ratio for Singapore is highly significant. At present, the potential for ASEAN countries to expand their exports of low and high technology manufactured products to China is limited since China import high-tech products mainly from the developed economies. It would be difficult for ASEAN countries to increase their exports of primary manufacture products into China because China has already established a comprehensive foundation of heavy and light manufacturing industries. Moreover, China, with her abundant labor and land, is able to expand production of these resources-based manufactures without incurring much cost. Hence, Taiwan, Hong Kong, and many of the rapidly developing coastal provinces in China have already provided and are able to provide sufficient quantity of the current low-tech products for China's market.

Singapore embarked on the path to industrialization earlier than other ASEAN nations. With the opening up of the Chinese economy and industrialization of other ASEAN nations, Singapore finds its cost competitiveness in basic manufacturing eroding as China and other ASEAN nations produce the same goods at a lower cost. Hence Singapore turned to producing high-value-added and

more sophisticated products. While our results show opportunities in this industry due to the significance of the tariff rate coefficient, opportunities available to Singapore for this industry may be limited. The coefficient of tariff rate for basic manufacturing is smaller than that of machinery & transportation equipment as will be presented later. Moreover Singapore with limited human resources will not be able to compete with China for basic manufactures. On the whole, ASEAN-5 as a whole group does not have any significant opportunity in this industry.

Table 10 shows that the estimated tariff rate coefficient for Singapore, Thailand and Malaysia are negatively significant, but insignificantly negative for Indonesia and Philippines in the Machinery and Transport Equipment (SITC 71-79) sector. Singapore has very significant t-ratio for tariff rate coefficient for transport equipment industry. The coefficient of tariff rate for this industry is larger than that of basic manufacturing. Hence we believe that there will be greater opportunity in machinery & transportation equipment for Singapore. The coefficient for Machinery & Transportation and Equipment is 636.27. For every 1 percent reduction in tariff rate, trade value in that industry increases by \$636 270, which is around 5 times the increase in Basic Manufacturing. As for Malaysia, electronics and electrical machinery constituted the main export items to China, with exports amounting to near half of the total exports. The increase in exports of manufactured goods was largely attributed to a strong demand for electrical and electronics products.

In Thailand, an impressive rate of export growth has occurred for electronic equipment. Intermediate products, among them machinery and electrical machinery also expanded rapidly. Although Thailand's major exports to China do not include machinery and transport equipment, but with the potential in their own industry, Thailand may be able to benefit from the lower tariff level upon China's accession to the WTO. On the whole, although machinery and transport equipment doesn't constitute a great proportion of ASEAN countries' (except for Singapore) exports to China, the regression results show that there are opportunities in the Chinese market for the ASEAN economies.

The regression results for Miscellaneous Manufactured Articles (SITC 81-89) show that the estimated tariff rate coefficient is negatively insignificant for Philippines and Thailand, negatively significant for Singapore and Malaysia, positive for Indonesia. As Philippines and Indonesia's exports were mainly primary goods and resources-based manufactures, the regression results show that there is little opportunity for them in this particular industry after China enters the WTO. With no natural resources, Singapore does not depend on primary exports for economic growth. Instead much of Singapore's economic growth is driven by her manufacturing sector. Hence t-ratio for tariff rate coefficients for most of her manufacturing industries are highly significant, representing opportunities in her

manufacturing sector. Singapore has slowly moved away from labor-intensive production and has set her eyes on R&D and new technologies in order to compete in the high-tech product market with developed economies. Therefore the coefficient for her Machinery and Transport Equipment industry is the largest, relative to that of Basic Manufactures and Miscellaneous Manufactured Article.

CONCLUSION

According to our analysis, competition between ASEAN-5 and China exists in some industries because they rely on the same markets, namely, the U.S., EU and Japan. In primary goods sector, especially crude materials, ASEAN-5 conflict with China. However, taking into account the large percentage of manufactured exports of both China and ASEAN-5, it can be seen that the conflict in trade between China and ASEAN-5 in primary goods is very limited and does not present much harm to either side. As for manufactured products, there is little competition between ASEAN-5 and China, except Singapore. Even for Singapore, the magnitude of competition is very small. In addition, the market for manufactured products in the U.S. is so large and diversified that two small trade partners are unlikely to become competitors. The overall conclusion is that through the period 1987 to 2000 the trade competition between China and ASEAN-5 in developed economies was negligible.

Since the competition is negligible, it seems that the opportunities are much larger than challenges for ASEAN-5 after China accession to WTO and the establishment of FTA between ASEAN and China. The pattern of China's trade with ASEAN-5 reflects the different endowment of resources and technology of the trading countries and their respective comparative advantages. Singapore, Malaysia and Thailand accounted for most of China's imports of machinery and electronic products from ASEAN-5. Hence, these three countries have the most opportunities in the machinery and transport equipment industry. Besides this industry, both Malaysia and Thailand also enjoy comparative advantages in the food and beverage industry. Other than the two industries mentioned above, Malaysia and Singapore have opportunities in the miscellaneous, manufactured-articles industry as well. As for Indonesia and Philippines, both economies have potential in the chemicals-and-related-products industry in the Chinese market.

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