

# **Comparative Advantage of the Services and Manufacturing Industries of a Korea, China and Japan and Implication of its FTA Policy**

Chang-In Yoon

([ciyoon@kiep.go.kr](mailto:ciyoon@kiep.go.kr))

Korea Institute for International Economic Policy

Kiheung Kim

([sghkim@hanmail.net](mailto:sghkim@hanmail.net))

Kyonggi University

<Abstract>

CJK(china, Japan and Korea) have experienced consecutive trade surplus in goods trade, while maintaining wide trade deficit in services trade. And not only the trends of CJK towards services economies, but also the comparison of comparative advantages of services sectors with advanced countries confirm that there are considerable gaps in the level of services sectors.

CJK must be in a situation to strengthen their services industry. And the only viable strategy for the sustainable development of CJK might be the opening to the world. . The stronger competition associated with regional services trade, with similar cultural background, can reduce costs and prices, increase efficiency and innovation, and broaden the range of services being offered. It can also reduce the fragmentation of services markets. More productive services sectors can also be the foundation for the better performance of other sectors, notably the manufacturing sectors, as this increasingly relies on support and inputs from efficient and cost-effective producer services. FTA on services among CJK might help them in strengthening their respective comparative advantage in services.

This paper has analyzed trade relationships of China-Korea and suggested flying-geese pattern of Korea and China' economic development, some strategic considerations for their strategic alliance, and China continues to record deficit in trade with Korea) and trade conflicts (e.g., anti-dumping issues), thereby providing a foundation for their FTA in the future. Although Korea shows a relatively high RCA in automobiles, Korea's automobile industry will face a serious challenge vis-à-vis Japan's, given the Japanese auto industry's extremely high RCA, Korea's low import dependency and Korea's relatively high average tariff rate (7.9 percent). Vis-à-vis China, textile is likely to be a sensitive sector considering China's very high RCA and Korea's relatively high average tariff rate (9.9 percent).China's most sensitive sector will be automobiles. It has high average tariff rate (26.4 percent) and a low RCA. China's general machinery and petrochemical will also face challenges from more competitive Japanese and Korean industries. In addition, some electronics parts and components from Japan and Korea will constitute sensitive items.

**Key word : Korea- China- Japan FTA, service, Northeast Asia  
FTA, RCA, Export Similarity Index, Trade Specialization Index, Intra-  
Industry Trade Index, Smiling Curve, Flying-Geese Pattern**

## **I. Introduction**

China's emergence as an industrial power has given rise to concerns that Korea's hollowing out problem and international competitiveness may worsen. Because economic relations between Korea and China can be characterized as complementary rather than competitive, however, economic cooperation can be a win-win game that benefits both sides. Korean companies doing business with China is to use China's strength to make up for their own weakness. To fully exploit the complementarity between the two countries, Korea should relocate declining industries to China on one hand, while promoting new industries at home on the other hand. The two countries should pursue a free trade agreement (FTA) that removes trade barriers between them. By allowing Korea's high-tech industries to access the fast growing Chinese market through trade instead of through foreign direct investment, an FTA would help Korea to keep "good jobs" at home and achieve industrial upgrading without hollowing out.

Services are widely differing economic product activities distinct from manufacturing, mining and agriculture. The term encompasses a broad range of industries that provide basic economic infrastructure (communications, transport, distribution, energy-related services, construction, water supply, sanitation and sewerage services, waste collection and disposal), financial infrastructure (banking, insurance, financial markets), business support (advertising, marketing, computer services, professional services), to needed social infrastructure (education, health and social services).<sup>1</sup>

One easy definition of "services" is everything that you cannot drop on your foot – retail stores, banking, insurance, energy, telecommunications, maintenance and repair, construction, mining, tourism, libraries, food preparation and hotels, and transport.<sup>2</sup> This definition emphasizes the intangibility or invisibility of services, which in turn requires the need for face-to-face contact between the service provider and its customer.

The intangibility, with the characteristics of simultaneous consumption and production, also contributed to the belief that services were essentially non-tradable. As a result, the pre-Uruguay Round GATT framework applies only to trade in goods, reflecting traditional assumptions that services are not easily tradable. Services were neglected by

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<sup>1</sup> Marchetti (2004), p. 4.

<sup>2</sup> Wallach, Lori etc. (2004), p. 110.

the international trading system for so long, disregarding the fact that 60% percent of employment and production in advanced countries and the major and growing share in virtually all countries are from the services sectors. Assumptions in relation to traditional thinking that services are not easily tradable have come into question for a variety of reasons.<sup>3</sup>

In particular, technological developments and the removal or loosening of substantial limits on domestic competition via regulatory reform made a breakthrough for international transactions of services or service trade. Many services transactions such as international banking or insurance make it possible to conduct trade without physical proximity between the provider and consumer of the service. In almost all countries, state monopolistic services such as telecommunications and transportation service were liberalized at least partially and opened to international competition.

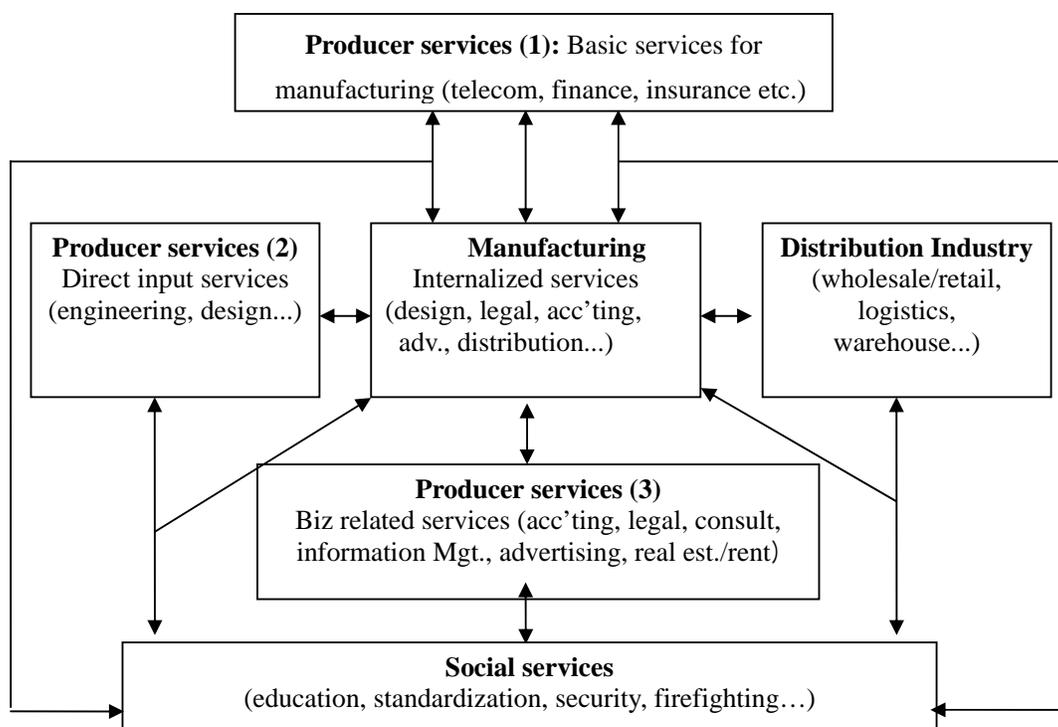
The past two decades have seen a growing trend towards the outsourcing of business related services, such as R&D and development, financing or logistics. Services have been contracted to existing specialized service providers, or are provided by a newly created firm or spin-off from a manufacturing firm that can provide the services at lower cost or higher quality. Services industries function as “bridges for innovation” not only for the services sector, but notably also for services-using manufacturing industries. The interdependent relationship between manufacturing industries and the service industries is deepening (see Figure. 1). The production of a car, for instance, would not be possible without service activities such as market research, technical research and development and design, human resource management, and consulting services. Moreover, a car is often sold in a package that includes financing, which may be provided directly by the car producer or indirectly by way of subcontracting.<sup>4</sup>

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<sup>3</sup> Trebilcock, Michael. etc. (1999), p. 270.

<sup>4</sup> OECD (2004b), p. 2.

<Figure 1> Relationship between Manufacturing and Services Industry



Source: BOK (2003), p.3.

Almost all RTAs (Regional Trade Agreements) are adopting services liberalization agreements, and GATS 2000 services negotiations are undergoing. The performances of CJK (China, Japan and Korea) in services trade are not as enjoyable as those in goods trade. For the past 10 consecutive years, CJK have imported more services than they exported. Moreover, manufacturing industries cannot create more value without the advancement of services. Accordingly, the objective of this paper is to check the current situation in which CJK are placing in terms of international trade in services and find some implications from the liberalization of CJK services market under the umbrella of a CJK FTA.

In this paper, the trends to the services economy of CJK will be considered first. Comparative advantages of CJK in services sectors will be considered using the IMF BOP (Balance of Payments) statistics. Following, the sensitive sectors and sub-sectors in each country of CJK will be identified through the revised proposal they made recently at the GATS negotiations. This paper will conclude with the consideration of

the issues related to the liberalization of service among CJK.

China's emergence as an industrial power has given rise to concerns that Korea's hollowing out problem and international competitiveness may worsen. Because economic relations between Korea and China can be characterized as complementary rather than competitive, however, economic cooperation can be a win-win game that benefits both sides. Korean companies doing business with China is to use China's strength to make up for their own weakness. To fully exploit the complementarity between the two countries, Korea should relocate declining industries to China on one hand, while promoting new industries at home on the other hand. The two countries should pursue a free trade agreement (FTA) that removes trade barriers between them. By allowing Korea's high-tech industries to access the fast growing Chinese market through trade instead of through foreign direct investment, an FTA would help Korea to keep "good jobs" at home and achieve industrial upgrading without hollowing out.

The paper is organized as follows. In section 2, I discuss FTA of Services industries in East Asian countries. In section 3, I give a brief overview of the structure of relative importance of the manufacturing trading relationship (RCA, ESI, TSI of Korea, China and Japan), both in the world context and in Korea-China-Japan economies. I analyze trade relationships among China, Korea and Japan and describes the relative importance of the bilateral trading relationships (comparative advantage of the industries). Section 4 provides a final summary and conclusion.

## **II. Comparative Advantage of Services Industries of Korea, China and Japan**

### **1. Service economy trends**

Although the share of services in GDP and employment tends to rise with income, even the poorest countries now have significant shares. In 2001, services sectors accounted for 45% of GDP in low-income economies; 57% in middle-income; and almost 71% in high-income. And trade in services is thought to account for only about 20%-25% of world trade. Services activities in low-and middle-income countries have been expanding faster than GDP for the last two decades, and represent on average 5 to 10 percent points more of GDP than in the early 1980s.<sup>5</sup> An implication of this continuous shift toward services is that the overall growth of productivity in the economy will be

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<sup>5</sup> Marchetti (2004), p. 4.

increasingly determined by what happens in the services sectors.

Although the rise of services is a global phenomenon, the greatest expansion of services sectors has taken place in the United States. Services accounted for approximately 67 percent of U.S gross domestic income in 1980.<sup>6</sup> Approximately 72 percent of the U.S. work force was employed in services industries at that time. Now they are approximately 75.4 percent and 75.2 percent respectively. The United States is also the world's leading exporter of services, accounting for about 16 to 17 percent of the total. In recent years, as deficits on the U.S. merchandise account have grown dramatically, services have consistently shown an increasingly positive balance and have made possible a surplus on the overall balance of payments.

To compare the trends in the services economy of CJK, three indicators, the occupancy of services in terms of GDP, workforce, and total trade were used. The statistics selected for comparison are basically from the most recent data of the World Development Indicators (WDI, 2005). Services percentage of GDP for the year of 2003 was available for the three countries. However, services employment statistics for the year 2001 were not available for China. The missing data was selected from the employment statistics of China Statistics Yearbook 2004. The weights of services in services trade for the year of 2003 were picked up from the IMF BOP statistics. For reference, the corresponding data of the United States, the most advanced country in services industries in the world, were included

The Services sectors in China, Japan and Korea account for approximately 33.5%, 68.3% and 62.6% of total economic output, 24.6%, 63.9% and 62.3% of total workforce, and 10.9%, 19.3% and 16.4% of total trade respectively (see Table 1). Services account for more than 60 percent of gross domestic product and employment in both Japan and Korea, while below 30 percent in China, seems to be lower than developing countries.<sup>7</sup>

<Table 1> Service Economy Trends of CJK

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<sup>6</sup> Spero, Joan (1983), p. 18.

<sup>7</sup> For example, services account for 51% and 38% of employment in both India and Vietnam respectively.

(unit: %)

	<b>China</b>	<b>Japan</b>	<b>Korea</b>	<b>US</b>
Services, % of GDP	33.5	68.3	62.6	75.4
Workforce in Services	24.6	63.9	62.3	75.2
Weight of service in trade	10.9	19.3	16.4	22.1

Source: World Development Indicators 2005 for percent of GDP and workforce, IMF BOP Statistics (2005) for services in trade.

In the area of international trade in services, China also reports lower percentage than those of Japan and Korea. The services sectors of the OECD accounts for roughly 70% of all jobs and value added in the OECD area, and contribute close to 15% to their total exports.<sup>8</sup>

To see the trends of the services economy visually, Table 1 was converted to Table 2 by dividing all the percentages by Japan's counterpart. With the same weights to the three areas of the indices, the average was calculated. If the trend to services economy of Japan is '1', Korea's trends seem to stand at about 0.91 and China at about 0.47 on the average. And the U.S. is about 1.2.

<Table 2> Services Index of CJK based on Japan

(unit: %)

	<b>China</b>	<b>Japan</b>	<b>Korea</b>	<b>US</b>
Services, % of GDP	0.44	1	0.92	1.1
Workforce in Services	0.39	1	0.97	1.2
Weight of service in trade	0.57	1	0.85	1.2
<b>Average</b>	<b>0.47</b>	<b>1</b>	<b>0.91</b>	<b>1.2</b>

Source: own calculations, based on Table 1.

## 2. Comparison of Comparative Advantages of CJK's Services Sectors

Services were among the fastest growing components of world trade over the last three decades, particularly in the 1980s. From 1980-1990, the average annual growth rate of services exports was 8.3 percent, compared to 5.7 percent for merchandise exports ( see

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<sup>8</sup> OECD (2005b), p. 14.

Table 3). The performance of services trade was particularly impressive in the second half of the 1980s, with an average growth rate of 15.5 percent per annum. However, thereafter the record is mixed. At the aggregate level, services and merchandise trade have evolved in a roughly similar way since 1990 (both growing at 6.6 percent per annum), leaving the share of trade in services in international trade stagnant, at around a fifth of all cross-border trade.<sup>9</sup>

<Table 3> Average annual growth of exports of different products

(unit: percentage)

	1980-1990	1985-1990	1990-2000	1990-1995	1995-2000	1990-2002
Agricultural products	3.59	9.42	3.17	7.38	-1.04	3.10
Mining products	-0.65	3.92	7.26	1.98	12.54	5.27
Manufactures	8.46	15.24	7.13	9.39	4.88	5.99
<b>All merchandise</b>	<b>5.68</b>	<b>12.09</b>	<b>6.64</b>	<b>8.64</b>	<b>4.65</b>	<b>5.59</b>
Transport	5.51	12.39	4.60	6.42	2.79	4.11
Travel	10.33	18.29	6.04	8.78	3.29	5.18
Other comm. services	9.06	15.74	8.51	10.52	6.49	8.06
<b>All Services</b>	<b>8.25</b>	<b>15.46</b>	<b>6.66</b>	<b>8.80</b>	<b>4.51</b>	<b>6.10</b>

Source: Marchetti (2004), P. 24.

Advanced countries are the leading exporting countries. <Table 4> shows the trade in services for 2003. Top five countries account for 40.5 percent and 40.4 percent in both export and import respectively. Japan and China are within the top 10 countries in both export and import. In these two countries, the import market shares, however, slightly exceed the export market share, and this is also true for Korea.

<Table 4 > Trade in Services of Top 5 Countries and CJK (2003)

(Unit: Hundred Million Dollars, Percentage)

Rank	Country	Export	%	Rank	Country	Import	%
	World	18587.7	100.0		World	18539.1	100.0
Top 5							
1	U.S.	3040.9	16.4	1	U.S.	2563.0	13.8
2	U.K.	1488.5	8.0	2	Germany	1734.2	9.4
3	Germany	1230.0	6.6	3	U.K.	1233.2	6.7
4	France	987.6	5.3	4	Japan	1115.3	6.0

<sup>9</sup> Marchetti (2004), pp. 23-24.

5	Japan	776.2	4.2	5	France	828.6	4.5
Japan, China and Korea							
5	Japan	776.2	4.2	4	Japan	1115.3	6.0
9	China	467.3	2.5	9	China	553.1	3.0
16	Korea	327.0	1.8	15	Korea	403.1	2.2
Other							
11	Hong Kong	446.3	2.4	20	Hong Kong	251.9	1.4

Source: own calculations, based on IMF, *Balance of Payments Statistics* (2005).

CJK has imported more services than it has exported for the past ten years without any exception, with the trade deficit of approximately from 500 to 600 million dollars per year (see Table 5). In 2003, CJK's services export and import took 8.4 percent and 11.2 percent of the world trade in services respectively, and trade deficit was 501 million US dollars. Through this Table, one can say that CJK's dependence on foreign services is chronic.

<Table 5> Services Export and Import of CJK

(unit: 100 million US \$. %)

	1994	1996	1997	1999	2000	2001	2002	2003
Export	917 (8.5)	1117 (8.5)	1202 (8.8)	1138 (7.9)	1302 (8.6)	1269 (8.3)	1338 (8.2)	1571 (8.4)
Import	1413 (12.8)	1737 (13.7)	1809 (13.2)	1739 (12.0)	1863 (12.1)	1804 (11.7)	1911 (11.6)	2072 (11.2)
<b>Deficit</b>	496	620	607	601	561	535	573	501

Source: own calculations, based on IMF, *Balance of Payments Statistics* (2005).

Since there are no detailed trade statistics about services among countries as in the trade of goods, it is impossible to directly compare comparative advantages of services sectors country by country. One way to compare competitive advantages among CJK is to calculate the TSI (Trade Specialization Index) and RCA (Revealed Comparative Advantage) against the world by using the international services trade statistics such as IMF BOP statistics, which records exports and imports of international trade in services by sectors, and use them as proxies for the strength of services sectors for each country. International transactions in services are defined by the IMF Balance of Payments Manual as the economic output of intangible commodities that may be produced,

transferred, and consumed at the same time.<sup>10</sup>

As a first step, it would be worthwhile to compare the strength of CJK's goods and services sectors together against the world before the comparison of individual services sectors to see whether CJK' services are competitive in the world setting. RCAs (Revealed Comparative Advantage) were computed for CJK and the top four services exporting countries such as the U.S., U.K., Germany and France, which is useful in judging the comparative advantages of a certain product or services in the world export market.

<Table 6> shows the RCAs of goods and services sector(s) of CJK and top four countries in services trade. The following formula was used to calculate the RCAs.

$$RCA_i = \frac{X_j^i / X_w^i}{X_j / X_w}$$

where,  $i$  is a services sector,  $j$  is a certain country,  $w$  is the world, and  $X$  is the trade volume of both goods and services

RCA analyzes a country's world export share of a commodity or services with the country's total export share of total world exports. If one country's share of world exports of a particular commodity is greater than that of world exports of all goods, the RCA will be greater than '1', which suggests that a country has a "revealed" comparative advantage in the production of that particular commodity.

CJK's RCAs in goods are higher than those of the top three countries. Only Germany is on the same level with Japan and Korea. On the contrary, the reverse situation is occurring in services. CJK are strong in goods, however, weak in services. Table 6 shows that one of the urgent tasks of CJK is to enhance their strength in services.

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<sup>10</sup> IMF BOP statistics includes eleven sectors such as transport services (sea, air, land, internal waterway, space, and pipeline), travel services include the goods and services consumed by travelers, such as meals, lodging, and transport, insurance and financial services which cover freight insurance on goods exported and other direct insurance such as life insurance, financial intermediation services, Computer, information, communications, and other commercial services such as international telecommunications and postal services; computer data; news-related service transactions between residents and nonresidents; construction services; royalties and license fees; miscellaneous business, professional, and technical services; and personal, cultural, and recreational services.

< Table 6> RCAs of Goods and Services of CJK and Top 4 Countries

	China	Japan	Korea	U.S.	U.K.	France	Germany
Goods	1.13	1.07	1.07	0.88	0.84	0.98	1.07
Services	0.48	0.74	0.71	1.49	1.63	1.07	0.70
Transportation	0.37	1.15	1.69	1.07	1.06	1.08	0.75
Travel	0.63	0.30	0.40	1.46	0.88	1.40	0.46
Communications	0.33	0.31	0.53	1.39	1.83	1.35	0.74
Insurance	0.12	0.13	0.06	0.89	4.06	0.84	1.43
Royalties and license fees	0.02	2.33	0.57	4.72	2.24	0.88	0.49
Other Business Services	0.81	0.77	0.65	1.42	2.25	1.18	0.82
Financial	0.03	0.67	0.31	1.76	5.01	0.24	0.47
Computer and information	0.36	0.32	0.02	0.84	2.65	0.43	1.18
Personal, cultural and recreational	0.03	0.10	0.13	2.79	1.92	1.57	0.37
Construction	1.46	0.00	0.08	1.47	0.40	3.34	4.40

Source: own calculations, based on IMF, *Balance of Payments Statistics*( 2005).

The next step is to compare advantages of individual services sectors using the Trade Specialization Index (TSI), RCA, and average growth rate over a period of ten years (1994~ 2003)

TSI is sometimes considered another measure of revealing comparative advantage, and can be written as follows:

$$SI_{ij} = \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}}$$

where  $X_{ij}$  is exports by country  $i$  in commodity  $j$ . This equation analyses a country's world export share of a commodity with the country's total export share of total world exports.

The net trade to total trade ratio evaluates a country's trade performance and considers the possibility of simultaneous exporting and importing within a particular product category. The ratio ranges from -1 when there are no exports ( $X_{ij} = 0$ ) which reveals comparative disadvantage, to +1 when there are no imports ( $M_{ij} = 0$ ) which reveals comparative advantage.

RCA can be defined as:

$$RCA_{ij} = \frac{\frac{X_{ij}}{\sum_j X_{ij}}}{\frac{\sum_j X_{ij}}{\sum_j \sum_j X_{ij}}}$$

If country i's share of world exports of commodity j is greater than country i's share of world exports of all goods, the RCA will be greater than 1 which suggests that a country has a "revealed" comparative advantage in the production of that particular service.

In general, the relative comparative advantages of individual services sectors among the CJK were identified without any difficulties (see Table 12). However, it was not easy to compare those services such as communication, construction, computer and information services, and other business services. For these services sectors, RCA of each sector was given more emphasis than TSI, since the former compares the world share of country's individual services to the average share of services in the world. At the same time, the growth rates of the related industries were also considered.

The final evaluation of the comparative advantages of the services sectors show that Japan is strong in 5, China in 4 and Korea in 1 sector(s). Japan has comparative advantages in five sectors, construction, finance, computer and information, patent and licensing fees and personal entertainment sectors. China has comparative advantage in travel, communication, insurance and other businesses. And Korea maintains comparative advantage in transportation services. However, the interpretation of the competitive strength of both insurance and other businesses sectors need careful evaluation since the China's services are in the early stages in development. In this regards, if we exclude these sectors from the evaluation, China has comparative

advantage in the travel and communication sectors.<sup>11</sup> In this case, it can be seen that the difference between China and Korea are actually small.

<Table 7> Comparative Advantages of Services Sectors by TSI and TCA

Country Sector	China			Japan			Korea		
	TSI	RCA	Average Growth Rate	TSI	RCA	Average Growth Rate	TSI	RCA	Average Growth Rate
Transportation	-0.47	0.61	13.26	-0.17	1.53	3.21	0.05	1.91	10.63
Travel	1.60	1.60	10.60	0.20	0.20	17.62	0.70	0.70	7.31
Communications	0.36	1.28	30.60	-0.18	0.66	13.17	0.19	1.03	-2.52
Construction	-0.14	2.60	19.85	0.19	7.45	0.73	0.31	0.12	79.13
Insurance	-0.64	1.31	15.11	-0.85	0.16	-84.68	-0.71	0.09	45.95
Financial	-0.32	0.04	50.87	-0.02	0.61	103.32	0.38	0.26	37.23
Computer and information	-0.11	0.46	3.61	-0.29	0.99	-0.65	-0.82	0.02	36.92
Royalties and license fees	-0.86	0.06	8.77	-0.10	2.62	10.33	-0.70	0.39	33.78
Other Business Services	0.04	1.23	22.71	-0.18	1.29	-1.45	-0.09	1.15	5.55
Personal, cultural and recreational	-0.49	0.05	24.95	-0.68	0.28	21.09	-0.48	0.22	0.56

Source: own calculations, based on IMF *Balance of Payments Statistics (2005)*.

### 3. Barriers and Sensitive Sectors of Services

Services have long operated in politically sensitive economic sectors and as such have been heavily regulated. In most countries of the world, for example, governments own and directly or indirectly control the communications infrastructure and services. Other services industries such as banking and insurance are either government owned or highly regulated in most countries. Furthermore, such regulation frequently

<sup>11</sup> Part of the communication service also need further explanation about being the initial sender rather than receiver in business communications.

discriminates against foreign services providers. Restrictions may take the form of discriminatory licensing procedures, discriminatory taxation, and denial of the ability to establish branches or subsidiaries.

One of the areas in which protectionism is particularly strong is telecommunications and information. Restrictions on international information flows become serious in light of the growing importance of telecommunications and computer services. In addition, information-intensive service industries, such as banking and insurance cannot function without reliable, unrestricted communications links. Furthermore, barriers against the flow of services are putting a brake on the development of some of the most dynamic sectors of an increasingly interdependent world economy, including information industries, finance and communications. These actions at the same time threaten the growth of international trade, and in the process work against structural changes that have been the source of growth within domestic economies.

Undoubtedly, there are still many kinds of barriers or brakes among CJK, and stocktaking of the barriers could belong to one of the further studies. Here, a question arises, "What sectors or sub-sectors are sensitive to CJK?" Since the GATS adopted the positive list approach, the schedule of specific commitments lists only the sectors or sub-sectors that each country liberalizes. The sensitive areas were traced by way of identifying those sectors or sub-sectors, which were not listed on the schedule. Table 8 shows the sector and sub-sectors, which CJK are not binding at all. China and Korea offered to liberalize eleven out of twelve sectors except the audiovisual services market, while Japan opened to all .

In the business services, services provided by midwives, nurses, physiotherapists and paramedical personnel are not liberalized in common. Japan and Korea are closing their services market for medical and dental services, and China and Japan are reluctant to open veterinary services.

CJK seem to be too conservative to open the sub-sectors in the communication services. China does not list postal or telecommunication services except value-add and audiovisual services. Korea does not list postal services, motion picture projection, and radio and television (transmission) services in audiovisual services. And Japan does not list radio and television services.

Only in Korea primary and secondary education services are restricted. All the sub-sectors in Health Related and Social services are closed in both China and Korea, while

Japan opens her hospital services market. Both China and Korea do not liberalize the services market, ‘News agency, libraries, archives, museums and other cultural services’ in the ‘Recreational, cultural and sporting’ sector.

<Table 8> Sectors and Sub-sectors not Committed among CJK

	<b>Sectors</b>	<b>Sub-sectors not liberalized</b>
Korea	All	Movement of natural persons
	Business	Medical and dental services, Service provided by midwives, nurses, physiotherapists and paramedical personnel. Building-cleaning services
	Communication	Postal services, Motion picture projection, Radio and television (transmission) services in Audiovisual services
	Educational	Primary, Secondary and Other educational services
	Environmental	Sanitation and similar services
	Health Related, Social	All sub-sectors
	Recreational, cultural and sporting	News agency, Libraries, archives, museums and other cultural services, Sporting and other recreational services
China	Business	Veterinary, Service provided by midwives, nurses, physiotherapists and paramedical personnel. R&D Rental/leasing services without operator
	Communication	Postal, Value-added telecommunication, and Audiovisual
	Tourism, Travel related	Tourist guides services
	Health Related, Social	All sub-sectors
	Recreational, cultural and sporting	News agency, Libraries, archives, museums and other cultural services
Japan	All	Movement of natural persons
	Business	Medical and dental services, Veterinary, Service provided by midwives, nurses, physiotherapists and paramedical personnel. R&D on natural science and Interdisciplinary R&D services, Services incidental to agriculture, hunting and forestry, Fishing, Mining, Manufacturing, and Energy distribution
	Communication	Radio and television services in Audiovisual services
	Health Related, Social	Other human health and Social services

Sources: OECD (2005c), (2005d), (2005e).

	<b>Sectors</b>	<b>Sub-sectors not liberalized</b>
Korea	All sectors	Movement of natural persons
	Communication	Postal services, Motion picture projection, Radio and television (transmission) services in Audiovisual services
	Educational	Primary, Secondary and Other educational services
	Environmental	Sanitation and similar services
	Health Related, Social	All sub-sectors
	Recreational, cultural and sporting	News agency, Libraries, archives, museums and other cultural services, Sporting and other recreational services
China	Business	Veterinary, Service provided by midwives, nurses, physiotherapists and paramedical personnel. R&D Rental/leasing services without operator
	Communication	Postal, Value-added telecommunication, and Audiovisual
	Tourism, Travel related	Tourist guides services
	Health Related, Social	All sub-sectors
	Recreational, cultural and sporting	News agency, Libraries, archives, museums and other cultural services
Japan	All sectors	Movement of natural persons
	Business	Medical and dental services, Veterinary, Service provided by midwives, nurses, physiotherapists and paramedical personnel. R&D on natural science and Interdisciplinary R&D services, Services incidental to agriculture, hunting and forestry, Fishing, Mining, Manufacturing, and Energy distribution
	Communication	Radio and television services in Audiovisual services
	Health Related, Social	Other human health and Social services

Sources: OECD (2005c), (2005d), (2005e).

### **III. The Relative Importance of the Bilateral Manufacturing Trading Relationship : Comparative Advantage of the Manufacturing Industries**

## 1. RCA (Revealed Comparative Advantage) of the Korea – China–Japan

We adopt Balassa's (1965, 1979, 1983) measure of RCA to describe their relative trade performances and competitive abilities of selected countries. The index of RCA in each product category is formulated in the following way:

$$RCA_{ij} = \frac{X_j^k / X_w^k}{X_j / X_w}$$

where X denotes exports. k denotes the commodity group classification (SITC Revised) of exports. j denotes the particular country in question and w refers to the world. In this case the RCA index will be greater than 1. Otherwise, it will be less than 1. Trade theory and the different resource endowments in the Korea-China region suggest that resource-poor countries would have a strong comparative disadvantage in primary products, whereas resource-rich economies would have a strong comparative advantage in primary products.

<Table 9> RCA Index of Korean, Chinese and Japanese Industries

		1996	2001	2002(0)	2003(1)	2004
Korea	Agriculture	0.32	0.30	0.29	0.28	0.27
	Textile	2.28	1.91	2.08	2.09	2.10
	Electronics	2.15	1.76	1.73	1.87	2.26
	General Machinery	0.62	0.65	0.61	0.73	0.75
	Steel	2.72	1.65	1.61	1.71	1.73
	Automobile	0.89	0.85	1.12	1.16	1.22
	Petrochemical	0.75	0.83	0.87	0.88	0.93
China	Agriculture	1.69?	1.07	1.00	0.87	0.91
	Textile	5.52	3.97	3.21	3.53	3.53
	Electronics	0.71	1.02	1.45	1.48	1.95

	General Machinery	0.46	0.42	0.48	0.51	0.60
	Steel	0.98	1.35	1.31	1.05	1.21
	Automobile	0.18	0.19	0.25	0.28	0.32
	Petrochemical	0.61	0.52	0.50	0.52	0.55
Japan	Agriculture	0.09	0.06	0.10	0.13	0.10
	Textile	0.41	0.37	0.33	0.31	0.34
	Electronics	2.34	1.92	1.58	1.65	1.69
	General Machinery	1.89	1.83	1.71	1.62	1.79
	Steel	1.87	1.53	1.29	1.38	1.75
	Automobile	3.21	3.01	2.86	2.67	2.74
	Petrochemical	0.62	0.59	0.56	0.53	0.60

Note : The index is defined by :  $\frac{X_j^k / X_w^k}{X_j / X_w}$  where X denotes exports, k denotes the commodity group

classification of exports, j denotes the particular country in question, and w refers to the world.

Sources : COMTRADE database [online] ; KOTIS database [online].

<Table 9> indicates that China has a high comparative advantage in textile and electronics. In particular, China's comparative advantage continues to rise in electronics. On the other hand, China lags behind in petrochemical, general machinery and especially automobiles. Japan has a strong comparative advantage in automobiles, general machinery, electronics and steel industries, while its agricultural and textile **industries show weaknesses**. Korea has a comparative advantage in electronics, textile, steel and automobiles. Among them, for the past ten years, Korea's comparative advantage has decreased in textile, while it has increased in automobiles. During the same period, Korea's general machinery and petrochemical sectors have gained some comparative advantage. On the other hand, Korea's comparative advantage in the agriculture sector is quite low and continues to decline. Among the three countries, Japan shows a clear comparative advantage in automobiles and general machinery, China is

strong in textile and has a relative comparative advantage in agriculture, although it does not enjoy a strong comparative advantage internationally. All the three countries are highly competitive in electronics.

## 2. Export Similarity Analysis in the Korea–China and ASEAN Economies

To capture the nature of the Korea-China countries' bilateral trading relationship more detail, I examine the export similarity index in Korea-China economies for 1996 – 2000/4 by bilateral countries. In fact, the volume of bilateral exports is greater than their share of world exports and their bilateral imports are greater than world imports. That is, the trading relationship is a relatively intense one. Whether a bilateral trading relationship is disproportionately large or not can be shown by making use of the export similarity index (ESI).<sup>12</sup> The index between countries is close to unity (zero) indicates that the trade structure is very similar (different) to each other. Therefore there has been competition in exports to the world.

<Table 10>. Export Similarity Index between Korean and Chinese Industries

	1996	2001	2002	2003	2004
Agriculture	0.57	0.59	0.60	0.57	0.59
Textile	0.51	0.50	0.49	0.46	0.53
Electronics	0.50	0.48	0.56	0.61	0.68
General Machinery	0.50	0.52	0.53	0.51	0.57
Steel	0.81	0.97	0.71	0.52	0.58
Automobiles	0.27	0.20	0.18	0.15	0.19
Petrochemical	0.91	0.87	0.97	0.92	0.96

<sup>12</sup> This index is defined by 
$$ESI = \sum_{k=1}^n MIN(M_{ih}^k / M_{ih}^K, M_{jh}^k / M_{jh}^K)$$

where  $M_{ih}^k$ : commodity k's imports from country i in market h.

$M_{ih}^K$ : group of commodity K's total imports from country i in market h.

$M_{jh}^k$ : commodity k's imports from country j in market h.

$M_{jh}^K$ : group of commodity K's total imports from country j in market h.

Note :  $ESI_{ab} = \sum Min(X_{ai} / X_a, X_{bi} / X_b), 0 \leq ESI_{ab} \leq 1$  ( $X_a$  is country A's total export value,  $X_{ai}$  is country A's export value of item i)

Sources : COMTRADE database [online] ; KOTIS database [online]

<Table 11> Export Similarity Index between Korea and ASEAN

		1996	1997	1998	1999	2000	2001	2002	2003	2004
Korea-Singapore	Semiconductor	0.41	0.45	0.47	0.48	0.47	0.49	0.50	0.54	0.56
	Electric appliance	0.44	0.45	0.48	0.49	0.48	0.46	0.49	0.51	0.57
	Communication	0.44	0.46	0.48	0.48	0.49	0.52	0.51	0.53	0.56
	Electronic parts	0.43	0.46	0.47	0.48	0.49	0.49	0.52	0.55	0.57
Korea-Malaysia	Semiconductor	0.45	0.46	0.51	0.52	0.53	0.54	0.56	0.54	0.55
	Electric appliance	0.43	0.45	0.47	0.48	0.49	0.52	0.53	0.55	0.56
	Communication	0.44	0.46	0.47	0.48	0.49	0.50	0.52	0.54	0.55
	Electronic parts	0.45	0.47	0.48	0.49	0.50	0.51	0.53	0.55	0.56
Korea-Thailand	Semiconductor	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37
	Electric appliance	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38
	Communication	0.31	0.32	0.33	0.34	0.35	0.34	0.33	0.35	0.36
	Electronic parts	0.31	0.32	0.34	0.35	0.36	0.34	0.34	0.36	0.37

Source: Author's calculation based on UNCTAD COMTRADE and PC-TAS

<Table 11> shows the export similarity index (ESI) for bilateral trade between Korea and China. Between Korea and Japan, their exports have become more similar over the past ten years. Consequently, they compete in all the industries studied. Their competition level is especially high in steel, automobile and petrochemical industries. Korea and China compete in petrochemical and electronics exports, and the situation is similar between Japan and China.

Overall, all three countries seem to export especially similar products in petrochemical and electronics industries.

### 3. Trade Specialization Index Analysis

To understand the competitiveness of China and Korea in the world market, this section gives a brief overview of the structure of competitiveness of them in the world context.

To analyze a bilateral competitiveness, trade specialization index (TSI) is employed. The index is designed as following formula:

$$TSI_i = (X_i - M_i) / (X_i + M_i)$$

where X and M refer to a country's exports and imports of goods contained in industry i in one particular year. This measure takes values between -1 and 1.<sup>13</sup>

<Table 12> shows trade specialization of the three countries. China is a net exporter of textile and agricultural products and a net importer of general machinery, petrochemical and steel products. Japan is a net exporter of automobiles, steel, general machinery, electronics and petrochemical and a net importer of agricultural and textile products. Korea is a net exporter of automobiles, textile, electronics, petrochemical and a net importer of agricultural products and general machinery.

**<Table 12> Trade Specialization Index of Korean, Japanese and Chinese Industries**

		1996	2000	2001	2003	2004
Korea	Agriculture	-32.9	-39.1	-45.7	-49.5	-55.9
	Textile	58.7	47.9	56.9	51.3	49.7
	Electronics	28.0	31.0	22.0	21.2	25.1
	General Machinery	-58.9	-61.5	-56.7	-47.9	-45.7
	Steel	31.8	-2.8	7.9	9.8	1.5
	Automobile	70.1	73.1	82.7	80.0	77.4

<sup>13</sup> The more this index is close to minus one (plus one), the stronger is that economy's import (export) specialization in that industry.

	Petrochemical	0.9	1.8	22.5	20.9	20.8
China	Agriculture	37.6	25.7	22.7	25.9	29.0
	Textile	45.9	40.8	51.8	52.8	55.6
	Electronics	0.4	1.9	2.8	4.9	7.2
	General Machinery	-66.4	-64.3	-43.9	-42.3	-41.4
	Steel	-57.7	-21.9	-16.8	-27.5	-28.2
	Automobile	-56.5	-42.4	18.3	12.6	4.9
	Petrochemical	-29.1	-27.0	-38.8	-36.9	-32.9
Japan	Agriculture	-81.1	-83.1	-81.6	-77.5	-71.0
	Textile	-31.5	-38.9	-39.7	-32.5	-45.?
	Electronics	55.8	58.8	41.9	35.4	37.9
	General Machinery	77.1	76.5	76.0	70.1	69.3
	Steel	54.1	46.4	52.8	55.4	60.7
	Automobile	74.3	75.2	77.2	79.6	82.3
	Petrochemical	27.9	29.1	21.8	21.4	24.8

Note :  $TSI_i = (X_i - M_i) / (X_i + M_i)$  where  $X$  and  $M$  refer to a country's export and imports of goods contained in industry  $i$  in one particular year.

#### 4. Intra-Industry Trade Index

I construct Grubel-Lloyd index of intra-industry trade (IIT). It is defined as:

$$IIT = 1 - \frac{\sum_i^n |X_i - M_i|}{\sum_i^n (X_i + M_i)}$$

To understand pattern of intra-industry trade more detail, I now examine Grubel-Lloyd

index of intra-industry trade in the region, among Korea, and ASEAN.

<Table 13> Intra-Industry Index among Korea, China and ASEAN

		1996	2000	2001	2003	2004
Overall	Korea-Japan	0.45	0.46	0.48	0.51	0.53
	Korea-ASEAN	0.35	0.37	0.38	0.41	0.43
	Korea-Thailand	0.33	0.34	0.35	0.38	0.40
	Korea-Philippines	0.30	0.32	0.33	0.35	0.37
	Korea-China	0.25	0.28	0.31	0.35	0.38
Semiconductors	Korea-Japan	0.46	0.49	0.51	0.52	0.55
	Korea-ASEAN	0.38	0.39	0.41	0.43	0.46
	Korea-Thailand	0.39	0.42	0.42	0.41	0.46
	Korea-Philippines	0.27	0.31	0.38	0.39	0.40
	Korea-China	0.30	0.31	0.31	0.35	0.39
Electronic parts	Korea-Japan	0.32	0.36	0.37	0.38	0.40
	Korea-ASEAN	0.19	0.20	0.18	0.18	0.20
	Korea-Thailand	0.26	0.21	0.24	0.19	0.21
	Korea-Philippines	0.21	0.23	0.25	0.26	0.27
	Korea-China	0.30	0.231	0.32	0.33	0.36
Computer	Korea-Japan	0.45	0.46	0.48	0.51	0.53
	Korea-ASEAN	0.28	0.29	0.31	0.32	0.35
	Korea-Thailand	0.32	0.34	0.37	0.40	0.42
	Korea-Philippines	0.25	0.27	0.28	0.29	0.31
	Korea-China	0.29	0.31	0.32	0.33	0.35
Communications	Korea-Japan	0.38	0.37	0.39	0.41	0.44
	Korea-ASEAN	0.29	0.31	0.34	0.38	0.39
	Korea-Thailand	0.35	0.36	0.38	0.37	0.39
	Korea-Philippines	0.21	0.25	0.23	0.26	0.27
	Korea-China	0.30	0.32	0.35	0.37	0.40
Electric appliance	Korea-Japan	0.55	0.54	0.57	0.61	0.63
	Korea-ASEAN	0.48	0.46	0.49	0.51	0.58

Korea-Thailand	0.36	0.39	0.41	0.43	0.46
Korea-Philippines	0.29	0.28	0.31	0.32	0.33
Korea-China	0.32	0.33	0.35	0.38	0.39

Source: Author's calculation based on UNCTAD COMTRADE and PC-TAS

<Table 13> presents intra-industry trade index for the electronics industry among Korea and China. The major conclusion is summarized as follows: first, the overall IIT index among Korea-ASEAN countries had risen consistently over 0.3, reflecting the increasing importance of cooperation in the region. Second, Korea's index with China was higher than Korea's with Korea-ASEAN which reflects that the division of labor between Korea and China made steady progress.

#### 5. Complementary Relations between Korea and China

Although manufactured goods have come to make up the bulk of China's fast expanding exports, the country's competitiveness still lies in low-value-added products and processes. Reflecting this, Chinese exports do not compete directly with Japanese exports, which tend to be higher value-added; rather, Koreanese and Chinese exports complement each other. China's export structure also lags behind that of Asia's newly industrializing economies (NIEs) and major members of the Association of Southeast Asian Nations (ASEAN). Despite the rapid pace of industrialization in China, the flying-geese pattern of economic development is still relevant in describing the division of labor among Asian countries.

##### 1) Division of Labor by Production Process

One way to confirm the complementary relations between Korea and China is to compare production activities in the two countries in terms of their position along the supply chain.

In many industries, looking across the supply chain, production processes at the upstream and downstream ends are high in value added while midstream activities are low in value-added. With personal computers, for example, upstream processes, which include the development of operating systems (OS) and central processing units (CPU), and downstream processes, which include branding and maintenance services, exhibit high profitability while computer assembly and other labor-intensive midstream processes add the least value. Stan Shih, Chairman of Taiwan-based Acer Inc., is said to

have coined the term “smiling curve” to describe this U-shaped path of value-added moving along the supply chain. In terms of the smiling curve, China’s industrial capability (as well as that of other developing countries) is largely limited to low-value added assembly type process, while Korea and other industrialized nations specialize in the high value-added activities at either ends of the supply chain, such as R&D and marketing, while outsourcing midstream activities to developing countries. This division of labor across the value chain means that production activities in Korea and China are complementary to, rather than competing with, one another.

## 2) Complementary relations between Korea and China

The complementary relations between Korea and China can also be confirmed by looking at the division of labor between the two countries by the level of product of sophistication.

The export structures of Korea and China can each be represented by a distribution over range of industrial goods from low-to high-tech. The size of the distribution is proportionate to the country’s total exports, and the further it lies to the right, the more advanced or sophisticated the country’s export structure. Where the distributions of Korea and China overlap is the range of products in which the two countries compete.

## IV. **Conclusions** : Implications of Economic Integration

This paper has analyzed trade relationships of China-Korea-Japan and suggested services and manufacturing trade pattern of Japan, Korea and China’ economic development, some strategic considerations for their strategic alliance, particularly on IT industry in an attempt to reconcile their chronic trade imbalance (tail-to-tail structure of trade balance : Korea continues to record deficit in trade with Japan, Japan continues to record deficit in trade with China, and China continues to record deficit in trade with Korea) and trade conflicts (e.g., anti-dumping issues), thereby providing a foundation for their FTA in the future. For the last ten years or more, trade among Japan, Korea and China has recorded an explosive growth due to many factors

including China's high economic growth at annual average 10% and steady economic liberalization, and the three countries' geographic closeness and complementary industrial structure.

The key for success for Korean companies doing business with China is to use China's strength to make up for their own weakness and vice versa. To fully exploit complementarity between two countries, Korea and China should pursue a free trade agreement (FTA) that removes trade barriers between them. Among the manufacturing sectors, general machinery, in which Korea has a relatively low RCA while Japan enjoys a high RCA, is likely to be a sensitive sector vis-à-vis Japan.

This paper claimed the importance of international production/distribution networks between Korea and China. The sophistication of networks and the development of agglomeration require extensive involvement of local indigenous firms. The focus of local industry promotion is not placed on infant industry protection for import substitution. Korea and China are engaging the effort toward formulating regional trade arrangements. The contents of such arrangements are expected to reflect necessary policy reform.

Korea should pursue a free-trade agreement with China to encourage "good direct investment" and prevent "bad direct investment". If import tariffs are eliminated, trade between the two countries will become active. Korea's key industries such as electronics, automobiles will no longer have to take the risk of producing in China. An FTA with China is the ultimate way for Korea to prevent the hollowing-out of its industry.

Asian countries including Korea, Japan and China are exploring the possibility of forming FTAs. There seems to be a tacit understanding to proceed with small-scale FTAs first—those between Korea and Singapore, between Japan and ASEAN, and between China and ASEAN then converge these into a region-wide ASEAN plus three (Japan, China and South Korea) FTA. When it comes to the specific combination of member countries and the sequencing of steps to reach that goal, the region is in the stage of trial and error, and there exist no convincing theory that can serve as guide.

Recently, attention has shifted to the most dynamic segment of the services sectors, producer services. Producer services, banking; finance; insurance; business services such as various professional services, research, advertising, marketing, consulting or data processing; transportation; storage; and communication services are used in the intermediate production of manufactured goods and other services. Demand for these activities results largely from the economic transactions of other industries. Producer

services are thus facilitators of other businesses, both international and domestic, and thus are important for CJK which have comparative advantages in goods trade over the rest of the world.

For the past ten years, CJK have experienced consecutive trade surplus in goods trade, while maintaining wide trade deficit in services trade. And not only the trends of CJK towards services economies, but also the comparison of comparative advantages of services sectors with advanced countries confirm that there are considerable gaps in the level of services sectors. CJK must be in a situation to strengthen their services industry. And the only viable strategy for the sustainable development of CJK might be the opening to the world.

The primary effect of protection in services is to reduce the supply of certain services and thereby force domestic demand towards more expensive, domestically produced services. Protection reduces supply and raises prices directly because of the higher costs of domestic producers. Increases in the price of inputs due to protection will in many cases translate into a tax on the production of exportable and import-competing goods and services

At present, CJK are trying to make the services industries competitively strong and improve their market economic system to promote the growth of services industry through the liberalization of services sectors. The elimination of monopoly, liberalization of prices, human resources development, and the introduction of competition in services industries are being emphasized.

China is giving much attention to the areas of finance, telecommunication, transportation, education, health care, and so on. Moreover, China, after her accession to the WTO, has concluded CEPAs (Close Economic Partnership Agreements) with Hong Kong and Macao. Through the CEPAs, China is attracting services professionals to her services markets so that they can then train Chinese workers.

Japan named several services industries in 2004, which would receive strong support. Content, health and welfare services, business support services, tourism and transportation services, and environmental and energy services were the targets.

Business support services contain marketing research, information management, information technology outsourcing, legal, accounting services, and so on.<sup>14</sup>

Korea is trying to improve the productivity of the service industry, too. The knowledge-based service industry including e-business and design is one of Korea's next-generation growth engines. And Korea is considering the opening of sectors such as education and medical services, to strengthen the competitiveness of her domestic services industries.

According to the Schedule of Specific Commitments offered recently by CJK to the WTO GATS negotiations, sensitive sectors look like the sectors such as health related and social services, radio and television services in audiovisual services, and recreational, cultural and sporting. These sectors are not the sectors directly related to manufacturing and international trade. Therefore, producer services sectors can be chosen for the application of the liberalization of services.

As opposed to goods trade, the economics of regional cooperation suggests that there are circumstances in which benefits from plurilateral cooperation could be higher than gains from multilateral liberalization in the areas of services without generating trade diversion. It is the case of deeper regulatory cooperation in the form of harmonization and mutual recognition, which naturally takes place among a group of similar countries.<sup>15</sup> Regulatory cooperation may be feasible and in many cases more desirable among a subset of countries like CJK than globally. Already, there are fewer restrictions on the short-term movement of people across borders to provide or receive services.

In summary, it is necessary to consider including services trade into the framework of CJK FTA in order to develop trade in services to satisfy the demands caused by the trade in goods among the three countries. The stronger competition associated with regional services trade, with similar cultural background, can reduce costs and prices, increase efficiency and innovation, and broaden the range of services being offered. It can also reduce the fragmentation of services markets. More productive services sectors can also be the foundation for the better performance of other sectors, notably the manufacturing sectors, as this increasingly relies on support and inputs from efficient and cost-effective producer services. FTA on services among CJK might help them in

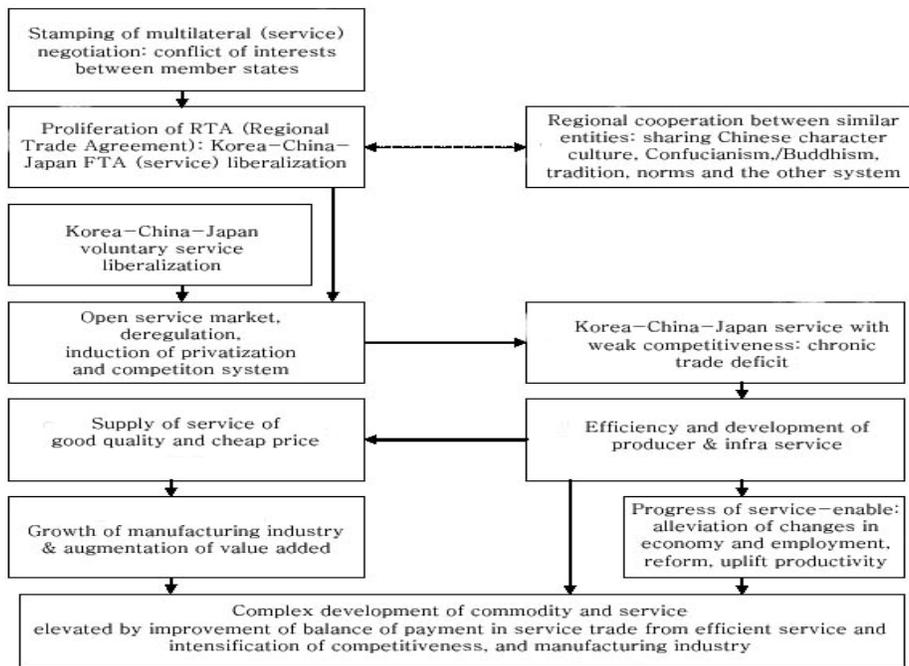
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<sup>14</sup> 日本 経済産業省. 2004. 6, サービス産業の現状と課題.

<sup>15</sup> OECD(2005). pp. 3-4.

strengthening their respective comparative advantage in services. <Figure 2> summarizes the efficiency and expected effect through service liberalization among Korea-China-Japan FTA.

<Figure 4> Efficiency and expected effect through Korea-China-Japan FTA: service liberalization



## V. Reference

- 飯盛信男. 2004. サービス産業. 新日本出版社
- 経済産業省. 2003. サービス産業の国際化、重点分野に関する論点 (第4回サービス産業フォーラム資料). 商務情報政策局.
- 経済産業省. 2004. サービス産業の現状と課題. 商務情報政策局 サービス政策課.
- 金周英, 任林. 2004. 服务创新与社会资源-科技团体案例研究. 中国财政经济出版社.
- 江小涓, 裴长洪, 何德旭, 高培勇. 2004. 财经蓝皮书 中国服务业发展报告. 社会科学文献出版社
- 日本統計年鑑, 2005.
- Ando, Mitsuyo & Kimura, Fukunari, "The Foundation of International Production and Distribution Network in East Asia", *NBER Working Paper, No. 10167*.
- Arndt, S. W. 2001. Production Networks in an Economically Integrated Region, *ASEAN Economic Bulletin* Vol. 18, No. 1, April, pp. 24-34
- Bank of Korea. 2003. The Structure of Korea's Services Industries and their Competitiveness (Korean)
- Hoekman, Bernard & Mattoo, Aaditya, and English, Philip editors. *Development, Trade, and the WTO*. 2003 World Bank.
- Finger, J. M. and M.E. Kreinin 1979. "A Measure of Export Similarity and its Possible Uses," *The Economic Journal*, 89, December, 905-912.
- Marchetti. 2004. Developing countries in the WTO services negotiations, WTO. Staff Working Paper ERSD-2004-06.
- Ng, F. and Yeats, A. 2003, "Major Trade Trends in East Asia", World Bank, 2003.

- Ng, F. and Yeats, A. 1999. *Production Sharing in East Asia: Who Does What for Whom and Why?*, Policy Research Working Paper 2197, The World Bank, Development Research Group, Washington D.C.
- OECD. 2003. *Regionalism and the Multilateral Trading System*.
- OECD. 2004a. "Economy-wide Effects of Barriers to Trade in Services in Selected Developing Countries". TD/TC/WP(2004)42/REV1.
- OECD. 2004b. "The Interaction Between Manufacturing and Services: Some Preliminary Findings". DSTI/EAL/IND/SWP/AH(2004)7
- OECD. 2005a. *Enhancing Services Sector Performance*. DSTI/STP/ICCP(2005)2.
- OECD. 2005b. *The Impact of Structural Policies on Trade-Related Adjustment and the Shift to Services*. ECO/WKP(2005)14.
- OECD. 2005c. "Revised Offer on Services," TN/S/O/KOR/Rev.1
- OECD. 2005d. "Revised Offer," TN/S/O/JPN/Rev.1.
- OECD. 2005e. "Revised Offer," TN/S/O/CHN/Rev.1.
- Rebert, M. Stern. 2005. "The Place of Services in the World Economy, " University of Michigan(<http://www.fordschool.umich.edu/rsie/workingpapers/wp.html>).
- UNCTAD. 2005. "Trade in Services and Development Implications," TD/B/COM.1/71.
- Building, Casey etc. 2005. *Australia-China Free Trade Agreement joint Feasibility Study*.
- Hiroyuki Nitta. 2004. *Invigorating Japan's Service Sector*.
- Spero, Joan . 1983, "Trade in Services: Removing Barriers". PS. Vol. 16, No 1(Winter). pp. 17-24.
- Trebilcock, Michael, etc. 1999. *The Regulation of International Trade* 2nd. ed. Routledge. New York.
- Wallach, Lori, etc. 2004, *Whose Trade Organization?*, The New Press. New York
- WTO. 2000. *Guide to the GATS. An Overview of Issues for Further Liberalization of Trade in Services*.
- WTO. 2003. *Measuring Trade in Services*.

