

Joint Report and Policy Recommendations
on
Sectoral Implications of a China-Japan-Korea FTA

November 2004

Trilateral Joint Research

by

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Executive Summary

Following the agreement between the leaders of China, Japan and Korea at the historic Manila Meeting in November 1999, a joint research on economic cooperation between the three countries has been undertaken by the Development Research Center of the State Council (DRC) of China, the National Institute for Research Advancement (NIRA) of Japan and the Korea Institute for International Economic Policy (KIEP) since 2001.

In 2003, the three institutes embarked upon the second phase of joint research on “Long-term Economic Vision and Medium-term Policy Direction,” starting from a three year project on “Economic Effects of a Possible FTA (Free Trade Agreement) between China, Japan and Korea.” Last year’s joint study showed that all the three countries would benefit from the trilateral FTA in terms of economic welfare gains and GDP growth. Additionally, the majority of business people surveyed about the FTA in the three countries looked favorably at a CJK FTA.

After 2003’s overall analysis on the subject, the three institutions conducted a joint research on “Sectoral Implications of a China-Japan-Korea FTA” covering agriculture and manufacturing sectors. It will be followed in 2005 by a comprehensive concluding report on the economic effects of a CJK FTA with policy directions.

On the basis of this year’s study, the following policy recommendations are proposed jointly to the leaders of China, Japan and Korea by the three institutions involved in the joint research project.¹

Utilize FTA Policy as Means of Trade Liberalization

This study on sectoral implications of a China-Japan-Korea FTA clearly shows that a regional trade agreement (RTA) such as a CJK FTA is likely to result in worldwide trade liberalization producing either other RTAs or facilitating multilateral trade liberalization to minimize losses caused by trade diversion. For instance, while with a CJK FTA, agricultural products exporting countries would exert pressure on Korea and Japan, it would also be in the interest of Japan and Korea to lower their

¹ The recommendations do not necessarily imply official agreements between the governments of the three countries.

tariffs on agricultural products to non-member countries. The same logic applies to the Chinese automobile sector. This time countries of major automakers such as the EU and United States would be involved. Therefore, a CJK FTA, which involves major players in many sectors, is likely to expand into a larger RTA like an East Asian FTA or bring about other bilateral FTAs involving one of the three Northeast Asian countries and a non regional country. Another alternative would be to lower their tariff rates multilaterally.

Jointly Set the Goal of a China-Japan-Korea FTA

Apart from the positive effects on the overall economies of all three countries such as welfare gains and GDP growth, and above mentioned positive effects of a CJK FTA in terms of East Asian economic integration and worldwide trade liberalization, just announcing a CJK FTA as a goal by the three countries can deepen intra-regional trade and avoid overproduction capacity in some industries. In particular, given the nature of the three countries' medium and long-term industrial policy and major companies' development or investment strategies, the lack of clear indication regarding the formation of CJK FTA can worsen the emerging overcapacity of some sectors like petrochemical and steel industry in Northeast Asia. Therefore, it is important for the three countries to agree on a CJK FTA as a common future goal in the near future.

Adopt a Gradual Approach in Pursuing a China-Japan-Korea FTA

Despite benefits a quick implementation of a CJK FTA would bring, the existence of sensitive sectors in some industries is a serious obstacle to its realization. Therefore, a CJK FTA must be approached gradually. In this regard, they may face temptation of excluding certain sensitive sectors and products. However, for a CJK FTA to facilitate further FTAs and worldwide trade liberalization, it must cover all sensitive sectors and maximum items. Thus, in order to maximize the number of items covered, when a CJK FTA is negotiated, a phase-out period approach is preferable to complete exclusion. A phase-out period can reduce readjustment costs by providing firms engaged in sensitive sectors time to restructure.

Accelerate Structural Adjustment in Sensitive Industries

In order to alleviate the adjustment burden of sensitive industries of the three countries highlighted in the study, each country must embark upon immediate structural adjustment. At the same time, they must devise a comprehensive system to meet the challenge of high social costs such as reeducation, job training, social safety net, compensation schemes and regional development. In this regard, structural adjustment of sensitive sectors must be approached by taking into account their particular status in their economy and society.

Future Agenda of Joint Research Work

Joint research on “ Economic Effects of a Possible FTA between China, Japan and Korea” will be concluded in 2005 with more concrete and comprehensive policy direction and policy measures, taking the complexity and urgency of the issues into consideration. Therefore, for 2005, it is recommended to further study the possible effects of the CJK FTA on several industries, which were not addressed this year. In order to conclude the current joint research project with more concrete policy implications, we need more intensive cooperation with both business and government sectors of the three countries to reflect their practical view and ideas.

I. Introduction

The trilateral joint research on economic cooperation between China, Japan and Korea began following the agreement between the leaders of the three countries at the historic Manila Meeting in November 1999. The Development Research Center (DRC) of the State Council of China, the National Institute for Research Advancement (NIRA) of Japan and the Korea Institute for International Economic Policy (KIEP) have undertaken the joint research since 2001. For the first two years, they focused on the issue of “Enhancing Trade and Investment between China, Japan and Korea,” and each year a summary of the joint research along with a set of policy recommendations were submitted to the leaders of the three countries.

In 2003, the three institutes embarked upon the second phase of the joint research on “Long-term Economic Vision and Medium-term Policy Direction,” starting from a three year project on “Economic Effects of a Possible FTA (Free Trade Agreement) between China, Japan and Korea.” Last year’s joint study showed that all three countries would benefit from a CJK FTA. According to a model simulation, in case of a trilateral FTA, China’s economic welfare and GDP growth rate will increase by US\$4.7-6.4 billion and 1.1-2.9 percent, respectively, whereas economic welfare gains and GDP growth for Japan and Korea will be US\$6.7-7.4 billion, 0.1-0.5 percent, and US\$11.4-26.3 billion, 2.5-3.1 percent, respectively. In addition, the majority of surveyed business people in the three countries were favorable to a CJK FTA.

In Bali, on October 7, 2003, the leaders of the three countries, appreciating the progress made in last year’s joint study on the economic impact of a trilateral FTA, declared that the three countries would explore, in a timely manner, the direction of a closer future economic partnership between the three countries.

This year, on the basis of last year’s overall analysis on the subject, the three institutions conducted joint research on “Sectoral Implications of a China-Japan-Korea FTA.” In this study, only agriculture and manufacturing sectors will be addressed. After a cross-sectoral analysis of the economic effects of the trilateral FTA, three industries, namely, agriculture, automobiles and electronics, will be subject to further in-depth analysis complemented by interviews with business people and specialists. Lastly, based on these analyses and discussions, policy recommendations will be proposed.

This report will be followed next year by a comprehensive concluding report. Next year's report will assess the effects of a CJK FTA on the overall economies of China, Japan and Korea as well as on industries which were not addressed this year including the service sector, and then, suggest concrete policy directions.

II. Implications of a CJK FTA for Major Industries in China, Japan and Korea

Unlike the overall positive effects of a CJK FTA, its impact on each individual industry varies. Naturally, people related to industries negatively affected will resist forming a CJK FTA. Therefore, in this section, we will attempt to find sensitive industries in the three countries. Then, at the end of the report, some policy recommendations will be suggested among other things to alleviate the adjustment burden of these industries.

Comparative Advantages of Industries

China, Japan and Korea have different comparative advantages depending on industries. As of 2003, based on Revealed Comparative Advantage (RCA) Index, China

Table 1. RCA Index of Korean, Chinese and Japanese Industries (2003)

	China	Japan	Korea
Agriculture	0.68	0.07	0.19
Textile	2.97	0.28	1.37
Electronics	1.45	1.58	2.04
General Machinery	1.28	1.35	1.10
Steel	0.80	1.26	1.36
Automobiles	0.18	2.12	1.14
Petrochemical	0.63	0.92	1.13

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.

Source: COMTRADE database [online].

has a high comparative advantage in textiles and electronics, while China lags behind in automobiles and petrochemical. Japan has a strong comparative advantage in automobiles, electronics and general machinery, whereas its agricultural and textile industries show weaknesses. Korea has a comparative advantage in electronics, textiles, and steel, but its comparative advantage is quite low in the agriculture sector.

Among the three countries, Japan shows a clear comparative advantage in automobiles, China is strong in textiles and has a relative comparative advantage in agriculture, although it does not enjoy a strong comparative advantage internationally. All three countries are highly competitive in electronics.

Tariff Structure by Industry in China, Japan and Korea

In 2003, based on HS 6 digits tariff rates, China's average² tariff rate for products of both primary and secondary industries was 11.3 percent, while the average tariff rates for primary and secondary industries were 13.8 percent and 10.7 percent, respectively. The average tariff rates were relatively high in automobiles (20.9 percent), agriculture (18.0 percent) and textiles (15.2 percent).

In Japan, the average tariff rate for products of primary and secondary industries was 3.1 percent, whereas the average tariff rates for primary and secondary industries were 5.9 percent and 2.5 percent, respectively. Average tariff rates were relatively high in agriculture (18.4 percent) and textiles (6.4 percent).

Korea's average tariff rate for products of both primary and secondary industries was 12.4 percent in which the average tariff rates for primary and secondary industries were 34.6 percent and 7.1 percent, respectively. The average tariff rate was particularly high for agricultural products (52.1 percent) with a high standard deviation. The average tariff rate was also relatively high in textiles (10.0 percent) and automobiles (7.5 percent).

It is interesting to note that in all three countries, the average tariff rates were relatively high in agriculture and textiles industries.

² Simple average.

Table 2. Tariff Structure by Industry in China, Japan and Korea

(%)

		China		Japan		Korea	
		Tariff rate	Standard deviation	Tariff rate	Standard deviation	Tariff rate	Standard deviation
The Primary Industry	Agriculture	18.0	12.4	18.4	19.8	52.1	113.8
	Forestry	5.9	4.2	2.9	2.4	6.5	2.5
	Fishery	13.1	3.6	5.2	4.3	18.2	67.7
	Mineral	10.2	13.1	0.9	2.0	4.5	2.6
	Total of the primary products	13.8	11.7	5.9	8.3	34.6	90.7
The Secondary Industry	Textiles	15.2	5.8	6.4	2.9	10.0	3.3
	Chemical	8.9	5.4	2.4	3.1	7.0	9.2
	Steel/Metal	7.7	4.6	1.1	1.7	5.2	2.9
	Electronics	10.3	8.6	0.1	0.7	6.0	3.2
	Machinery	8.8	4.8	0.0	0.0	6.1	3.1
	Automobiles	20.9	12.2	0.1	0.9	7.5	2.4
	Other products	11.7	7.2	1.9	4.6	6.1	3.6
	Total of the secondary products	10.7	76.7	2.5	3.5	7.1	6.1
Total	11.3	8.0	3.1	5.0	12.4	41.8	

Notes: 1) Average MFN tariff rates based on HS 6 digits in 2003.

2) HS classification:

Agriculture: 1~2 /4~15/17~24, Forest: 44~46, Fishery: 3/16, Mineral: 25~27/71, Textile: 50~63, Chemical: 28~43 47~48 68~70, Steel/ Metal: 72~83, Electronics: 85, Machinery: 84, Automobiles: 87, Others: 49/64~67/86/88~97.

Sensitive Sectors in China, Japan and Korea

Given the different levels of comparative advantages and tariff rates, a CJK FTA, which requires elimination of tariffs, will hurt in the short term those industries

with low comparative advantages and high tariff rates. Moreover, as we can see in the previous sections, those industries with low RCAs usually have high tariff rates.

Considering the level of average tariffs and RCAs, China's most sensitive sector will be automobiles. It has a high average tariff rate (20.9 percent) and a low RCA. CGE model simulations also show a negative impact of a CJK FTA on China's automobile industry. China's petrochemical industry will also face challenges from a more competitive Korea and Japan.

As for Japan, the agricultural sector, which has an extremely low RCA and a high average tariff rate (18.4 percent), will be the most sensitive. Among the manufacturing sectors studied, the textile industry will be the only vulnerable sector. Japan's textile sector has a low RCA and its average tariff is relatively high (6.4 percent).³

For Korea, agriculture will be the most vulnerable sector. It has the highest average tariff rate and its RCA is quite low. Automobiles even with a relative high RCA is likely to be a sensitive sector vis-à-vis Japan, given Japan's very high RCA. Textiles is likely to be a sensitive sector considering China's very high RCA and Korea's relatively high average tariff rate (10.0 percent).⁴

However, it is very difficult to estimate the real impact on each sector. Within a sector, situations may be quite different depending on upstream or downstream industries and sometimes situations vary product by product. For instance, the impact of a CJK FTA will be different within the Chinese textile industry. Firms producing high-tech upstream products may suffer in the short run, while firms processing downstream products will benefit from it. Furthermore, there are other factors to consider apart from tariff levels and RCAs such as complex input-output relations, trade and FDI within and outside the region, and industrial policy. In fact, a negative impact of a CJK FTA on the Chinese automobile industry can be alleviated by huge FDI into China from the world's major automakers. On the other hand, those industries for which an import substitution policy is adopted such as China's heavy chemical industry may receive more negative

³ CGE model simulations also confirm a strong negative impact on Japanese agriculture, but their results on textiles are mixed.

⁴ According to CGE model simulations, a CJK FTA's will produced negative impacts on Korea's agriculture, automobiles and general machinery.

impact depending on the schedule of the CJK FTA, since more resources are concentrating in these industries with high profit margin.

In addition, a more detailed analysis on trade and tariff structure shows that several high-tech electronics parts and components from Japan and Korea will constitute sensitive items for China, while for Korea, certain specialized chemical products and electronic components will be sensitive items vis-à-vis Japan, and some electric parts and components will be sensitive vis-à-vis China.

When it comes to the impact of a CJK FTA on other countries, agriculture and electronics will be the most sensitive sectors. In 2002, China, Japan and Korea represented 16.6 percent of the world's total import of agricultural products, while their share in the world's agricultural export amounted to only 6.2 percent. Although China has a relative comparative advantage among the three countries, China does not enjoy a comparative advantage internationally. Therefore, agricultural products exporting countries will be sensitive about a CJK FTA, because of the expected trade diversion. Other countries will also be sensitive with regard to the electronics sector. The three countries' share in the world's total import in electronics amounted to 17.0 percent in 2002, while they represented 25.5 percent of the world's total export in electronics. Since all three countries are highly competitive in electronics, the other countries would fear that a CJK FTA might make them even more competitive in this sector.

III. Implications of a CJK FTA for Agriculture, Automobiles and Electronics

In order to better assess the impact of a CJK FTA on the industries of the three countries, further in-depth analyses were conducted on agriculture, automobiles and electronics, and they were complemented by interviews with business people, including representatives of industrial associations and major firms.

1. Agriculture

Main Characteristics of Agriculture Industries in China, Japan and Korea

Agriculture is a rare sector in which the three countries do not have international competitiveness. Even China, which is the most competitive country of the

three, is no exception. Although small-scale farming is a common characteristic of all three countries, each country has a different situation. In China, two thirds of the population lives in rural areas and arable land per farm household is only 0.55 hectare, which is much smaller than that of Japan (1.47 hectare) and Korea (1.52 hectare) let alone the United States and Europe. In Japan, as of 2000, there are 2.9 million workers engaged mainly in agricultural activities out of 3.12 million farm households. That means that in some farm households there are no workers engaged mainly in agriculture. In fact, the share of full-time farm households in total farm households amounts to only 14 percent, and part-time farming is very common, particularly in rice farming. In Korea, on the other hand, full-time farm households represent 65 percent of total farm households. The main difference between Japan and Korea comes from the availability of job opportunities in rural areas. In Korea, family members have to leave their farm households if they want to get off-farm jobs due to the lack of job opportunities in rural areas.

The weakness of agriculture is also reflected in the international trade of the three countries. In 2002, their agriculture exports amounted to US\$18 billion, while their agricultural imports represented US\$63 billion. China's surplus amounted to US\$5.7 billion, while Japan and Korea recorded deficits of US\$42 billion and US\$8.3 billion, respectively. It is interesting to note that the share of intra-regional trade of agricultural products is relatively high. In 2003, 45.4 percent of Korea's agricultural export went to Japan and China, while shares of agricultural exports of China and Japan to the other Northeast Asian countries in their total agricultural exports amounted to 34.2 percent and 17.2 percent, respectively. China recorded surplus in agricultural trade vis-à-vis both Japan and Korea, whereas Korea showed surplus vis-à-vis Japan.

All three countries, in particular Japan and Korea, heavily protect their agricultural sectors. Consequently, agriculture is often regarded as a major stumbling block to the CJK FTA. According to an analysis using PSE (Producer Support Estimate)⁵ and NPC (Nominal Protection Coefficient)⁶ indicators, rice and milk are highly protected in both Japan and Korea while the protection levels for chicken (in Japan) and eggs (in Japan and Korea) are low. Both indicators show that the protection

⁵ PSE is an indicator of the annual monetary value of gross transfer from consumers and taxpayers to support agricultural producers resulting from policy measures on farm production and income.

⁶ NPC is a ratio between the average price received by producers, including payment per ton of current output, and the border price.

level is on average higher in Korea than Japan. For China, protection level is high for grains such as wheat and rice with 65% secondary tariff applied to amounts beyond a certain level of import quota, while livestock products are protected only with tariffs and their levels are relatively low compared to those of grains.

Impact of a CJK FTA on Agriculture of China, Japan and Korea

Considering the current status of intra-regional agricultural trade between the three countries as well as other factors such as RCAs, tariff rates and other protection measures on their agriculture, China is likely to benefit the most from a CJK FTA. On the other hand, Japan and Korea's agricultural sectors are likely to suffer. In particular, the negative impact of a CJK FTA on agriculture seems to be greater in Korea than Japan, even though Korea records a surplus in agricultural trade vis-à-vis Japan, and RCA for Korean agriculture is higher than Japan. First, China's share in Korea's agricultural import is much bigger than its share in Japan's agricultural import. In 2003, China represented 21.9 percent and 10.6 percent of total agricultural imports in Korea and Japan, respectively. Secondly, the share of full-time farm households in total farm households is much higher in Korea than Japan. In addition, elderly farmers and a high concentration on rice production, which is highly protected, are additional weak points of Korea's agriculture.

The interviews with people related to the agricultural sector on the impact of a CJK FTA generally also confirm these views. They think that China will benefit the most, and most of them predict that Korea's deficit in agricultural trade will increase. People in the Japanese agricultural sector also foresee negative impacts of a CJK FTA. Apart from the market loss resulting income reduction, they also show concerns on IPR protection of agriculture related technology and breeds, ensuring food safety and observation of quarantine. On the other hand, some expect opportunities to increase intra-regional trade by deepening the division of labor or enhancing trade facilitation including harmonization of SPS (Sanitary and Phytosanitary) measures. Chinese experts and agriculture related people agree that a CJK FTA will produce overall positive effects on China's agriculture. However, in this regard, they enumerate several constraining factors such as China's exporting capacities, quality dimension and non-tariff barriers including discriminatory standards and quarantine inspection measures of Japan and Korea.

2. Automobiles

Main Characteristics of Automobile Industry in China, Japan and Korea

Three Northeast Asian countries, Japan, Korea and China, are major players in the world automobile industry. In terms of number of produced automobiles (including commercial vehicles), the three countries represented 28.9 percent of the world's total in 2003, while their share of the world's total export amounted to 25.2 percent. In 2003, Japanese automakers occupied 28.8 percent and 12.7 percent of the U.S. and EU markets, respectively, whereas Korean automakers' shares were 3.8 percent and 3.3 percent, respectively. Although China is a latecomer to automobiles, recently its auto production has increased very rapidly and almost all the world's major automakers continue to invest in China.

One of the key characteristics of the automobile industry in China, Japan and Korea is the existence of clear disparities between the three countries in terms of level of development and competitiveness. For both manufacturing of passenger cars (HS 8703) and auto parts and accessories (HS 8708), Japan has the highest revealed comparative advantage followed by Korea, then China.⁷

Table 3. Tariff Rates of Automobiles in China, Japan, and Korea (2003)

	China		Japan	Korea
	2003	2006		
Passenger cars	39.1	25.0	0	8
Trucks	28.2	21.3	0	9.6
Buses	39.1	22.0	0	10
Parts*	15.0	10.3	0	8

* Parts for cars and buses

These disparities are clearly reflected in the tariff rates of the three countries. In fact, the tariff structure of automobiles differs significantly between Japan, Korea and

⁷ In 2003, RCA index of passenger cars (HS 8703) and auto parts and accessories (HS 8708) were 3.98 and 1.15, respectively for Japan, while they were 2.48 and 1.10 for Korea, and 0.01 and 0.15 for China.

China. In Japan, there is no tariff on automobile products. As for Korea, an 8 percent tariff rate applies for passenger cars and auto parts, while a 10 percent tariff rate applies for trucks and buses. The Chinese tariff rates for automobiles are much higher but are in the process of being lowered to 25 percent for passenger cars and 10.3 percent for parts of cars and buses by July 1 2006.

Compared to their presence in the world automobile market, the volume of intra-regional trade of automobiles between the three countries has not been comparable. Regarding the trade between Japan and Korea, which are the world's key automobile export countries, the volume of auto trade has been relatively small. Both Korea's auto export intensity⁸ to Japan and Japan's auto import intensity from Korea have been below one for 1993-2002, which means that Korean auto export to Japan has been exceptionally low given the Korean auto industry's competitiveness in other international markets and the geographic proximity between Korea and Japan.⁹

On the other hand, although both Japanese and Korean automakers were latecomers to the Chinese market, recently their presence has grown rapidly. In 2002, Japanese automakers invested in China occupied 21.4 percent of the sales revenue realized by all foreign invested automakers in China, while Korean automakers' share (0.7 percent) doubled in 2003 following the opening of the Beijing Hyundai Co., Ltd. at the end of 2002.

Impact of a CJK FTA on the Automobile Industry of China, Japan and Korea

Considering the tariff structure and competitiveness of the automobile industries of the three countries, it is likely that the Chinese automobile industry will be greatly affected by a CJK FTA. Chinese business people¹⁰ predict that, following a CJK FTA, Japanese and Korean imported cars will substitute for some imports from Europe

⁸ Export intensity index is defined as: $EII_{ij} = (x_{ij}/X_{it})/(x_{wj}/X_{wt})$

where x_{ij} and x_{wj} are the values of country i 's exports and of world exports to country j and where X_{it} and X_{wt} are country i 's total exports and total world exports, respectively.

⁹ KAIDA (Korea Automobile Importers & Distributors Association)'s statistics shows that Japanese automakers sold only 3774 passenger cars (0.28 percent of the Korean auto market) in Korea, while according to JAIA (Japan Automobile Importers Association), only 2573 Korean passenger cars (0.04 percent of the Japanese auto market) were sold in Japan in 2003.

¹⁰ Business people's opinions are based on the interviews and surveys that we conducted.

and America, while imports of Japanese and Korean spare parts and components will increase by Japanese and Korean automakers and by European and American invested automakers. On the other hand, they think that Chinese auto exports to Japan and Korea will not markedly increase, aggravating the trade deficit of automobile products vis-à-vis them. However, they expect that a CJK FTA will not bring about trade substitute for investment in China of Japanese and Korea automakers. In addition, due to pressures from other foreign invested automakers, they foresee that a CJK FTA will precipitate full liberalization of the Chinese automobile industry.

Given the competitiveness of the Japanese automobile industry and the zero tariff rates on Japanese automobile products, the majority of Japanese business people¹⁰ related to automobile industry welcome a CJK FTA. In fact, they even prefer a larger regional FTA including ASEAN (an ASEAN+3 FTA). They also expect that a CJK FTA will help abolish non-tariff barriers and enhance business environments especially in China.

Based on current competitiveness, tariff rates and intra-regional trade of the automobile industries of the three countries, a CJK FTA is likely to produce both positive and negative impacts. Korean business people¹⁰ in the automobile industry predict that a CJK FTA will substantially increase automobile imports from Japan, while it will greatly increase both Korea's auto exports and imports vis-à-vis China. Furthermore, they foresee that a CJK FTA will increase both Japan's auto parts investment to Korea and Korea's auto parts investment to China. In addition, a CJK FTA is expected to decrease Korean automakers' domestic market share, while it will increase Korean automakers' Chinese and world market shares. Korean business people also expect that a CJK FTA will enhance the competitiveness of the Korean automobile industry.

3. Electronics

Main Characteristics of the Electronics Industry in China, Japan and Korea

China, Japan, and Korea, are major players in the world electronics industry. In terms of production, the three countries represented 32.5 percent of the world's total in 2003. In 2002, electronics-related goods accounted for 31 percent of Korea's total exports, outstripping China's 19 percent and Japan's 17 percent. In the meantime, Japan

exported US\$70 billion in electronics-related goods in the same year and China recorded US\$62.2 billion exports in the industry, overtaking Korea's electronics exports of US\$50.7 billion. On the other hand, China's electronics-related imports accounted for 20 percent of its total imports, while Korean and Japanese imports accounted for 17 percent and 13 percent, respectively in 2002.

One of the key characteristics of the electronics industry of China, Japan and Korea is that the intra-regional trading relationship between the three countries is disproportionately large given their relative positions in world trade. With respect to world trade, the export similarity index¹¹ between China, Japan and Korea shows higher competition relationship, and also all three countries have export specialization in the world context.¹² Interestingly, since the late of 1990s, Korea-China and Japan-China have had a more competitive relationship in the electronics industry, but the degree of competition between Korea and Japan has gradually declined. This fact suggests that both Korea and Japan are transferring their production-bases of their electronics industry into China.

In an analysis of industrial interdependency between China, Japan and Korea, on the other hand, the level of intra-regional trade of electronics between the three countries is very high. In the electronics industry, most of the trade is intra-regional trade and the share of intra-regional trade in their total trade had risen to 70 percent in 2002, reflecting the increasingly intensified trade and production linkages in the region. In particular, the share of intra-regional trade between Japan and China in their total trade was higher than that of Korea-China, which reflects the steady progress made by the division of labor between Japan and China.

¹¹ ESI is defined as: $ESI_{ab} = \sum \text{Min}(X_{ai}/X_a, X_{bi}/X_b)$, $0 \leq ESI_{ab} \leq 1$

where X_a is country A's total export value, X_{ai} is country A's export value of item i .

¹² However, export specialization of Japan and Korea revealed a slight decrease or a constant trend, while export specialization in China increases steadily.

Trade Specialization Index (TSI) is defined as:

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

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 , where approaching 1 indicates high export specialization while close to -1 means high import specialization.

Impact of a CJK FTA on the Electronics Industry of China, Japan and Korea

With the assumption that the proposed CJK FTA will work similar to previous FTAs, the empirical results show that a CJK FTA has a positive effect on intra-regional trade volume for the electronics industry. The estimation results imply that if the three countries form a CJK FTA, they will experience an increase in intra-regional trade of 23 percent.

On the other hand, empirical results suggest that lowered tariff rates after a CJK FTA lead to a more concentrative electronics industry trade structure. As each country specializes in their exports in products in which they have relative comparative advantage, each country has a positive impact on growth of the electronics industry.

Given the higher competitive relationship between the three countries, the majority of the three countries' business people related to the electronics industry agrees on an FTA between China, Japan and Korea. A reduction of trading costs such as those resulting from customs procedures is the main reason behind the favorable opinion. Therefore, what they expect of a CJK-FTA is complete abolition of not only tariffs on electronics products, but also non-tariff barriers. Moreover they expect the expansion of exports of high-tech electronics goods and devices, and imports of parts. In addition some business people and specialists of the electronics industry agree with a CJK-FTA because they think it will accelerate structural reform of each country's economy.

In sum, they think the FTA will bring benefit to the electronics industry of all three countries because it accelerates development of the electronics industry by trade and investment along with comparative advantage.

IV. Joint Policy Recommendations

On the basis of these analyses and discussions with business people and specialists, the following policy recommendations are proposed to the leaders of China, Japan and Korea by the three institutions involved in the joint research project.¹³

¹³ The recommendations do not necessarily imply official agreements between the governments of the three countries.

Utilize FTA Policy as Means of Trade Liberalization

This study on sectoral implications of a China-Japan-Korea FTA clearly shows that a regional trade agreement (RTA) such as a CJK FTA is likely to result in worldwide trade liberalization producing either other RTAs or facilitating multilateral trade liberalization to minimize losses caused by trade diversion. For instance, while with a CJK FTA, agricultural products exporting countries would exert pressure on Korea and Japan, it would also be in the interest of Japan and Korea to lower their tariffs on agricultural products to non-member countries. The same logic applies to the Chinese automobile sector. This time countries of major automakers such as the EU and United States would be involved. Therefore, a CJK FTA, which involves major players in many sectors, is likely to expand into a larger RTA like an East Asian FTA or bring about other bilateral FTAs involving one of the three Northeast Asian countries and a non regional country. Another alternative would be to lower their tariff rates multilaterally.

Jointly Set the Goal of a China-Japan-Korea FTA

Apart from the positive effects on the overall economies of all three countries such as welfare gains and GDP growth, and above mentioned positive effects of a CJK FTA in terms of East Asian economic integration and worldwide trade liberalization, just announcing a CJK FTA as a goal by the three countries can deepen intra-regional trade and avoid overproduction capacity in some industries. In particular, given the nature of the three countries' medium and long-term industrial policy and major companies' development or investment strategies, the lack of clear indication regarding the formation of CJK FTA can worsen the emerging overcapacity of some sectors like petrochemical and steel industry in Northeast Asia. Therefore, it is important for the three countries to agree on a CJK FTA as a common future goal in the near future.

Adopt a Gradual Approach in Pursuing a China-Japan-Korea FTA

Despite benefits a quick implementation of a CJK FTA would bring, the existence of sensitive sectors in some industries is a serious obstacle to its realization. Therefore, a CJK FTA must be approached gradually. In this regard, they may face temptation of excluding certain sensitive sectors and products. However, for a CJK FTA

to facilitate further FTAs and worldwide trade liberalization, it must cover all sensitive sectors and maximum items. Thus, in order to maximize the number of items covered, when a CJK FTA is negotiated, a phase-out period approach is preferable to complete exclusion. A phase-out period can reduce readjustment costs by providing firms engaged in sensitive sectors time to restructure.

Accelerate Structural Adjustment in Sensitive Industries

In order to alleviate the adjustment burden of sensitive industries of the three countries highlighted in the study, each country must embark upon immediate structural adjustment. At the same time, they must devise a comprehensive system to meet the challenge of high social costs such as reeducation, job training, social safety net, compensation schemes and regional development. In this regard, structural adjustment of sensitive sectors must be approached by taking into account their particular status in their economy and society.

Future Agenda of Joint Research Work

Joint research on “Economic Effects of a Possible FTA between China, Japan and Korea” will be concluded in 2005 with more concrete and comprehensive policy direction and policy measures, taking the complexity and urgency of the issues into consideration. Therefore, for 2005, it is recommended to further study the possible effects of the CJK FTA on several industries, which were not addressed this year. In order to conclude the current joint research project with more concrete policy implications, we need more intensive cooperation with both business and government sectors of the three countries to reflect their practical view and ideas.

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