Northeast Asia Economic Integration:

An Analysis of the Trade Relations among China, Japan, and South Korea

by

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June 20, 2004

(Very preliminary. Incomplete. Please do not quote.)

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1. Introduction

It has long been held by economists that in a distortion-free world, free trade is the optimal trade policy, at least in terms of the welfare of the world.[1] They are of course arguments for restricted trade, either because when individual country's welfare instead of the world's welfare is concerned, or when distortions are present. In some societies where lobbying and public pressure can play a role in setting trade policies, restricted trade can be the outcome of politics even if it is not the best solution for the country.

It is not recognized that the world is far from free trade. Yet, in the post-war era, countries have made big achievements in dismantling many trade restrictions set up by governments in the past. Three channels for trade liberalization have been experienced: unilateral trade liberalization, multilateral trade negotiations, and regional trade liberalization.

For many reasons, regional trade agreements (RTA) have been getting more and more popular, especially in Asia in the past decade. Ever since the decision of the Association of Southeast Asian Nations (ASEAN) to form a new free trade area (FTA) consisting of the existing members of the association, many Asian countries are trying to get into this FTA bandwagon.

In this paper, we examine several issues concerning the proposed free trade area among the three countries in Northeast Asia (NEAFTA): South Korea, China, and Japan. This proposal is being considered by the governments of the three countries, and many details have to be worked out, should they choose to go ahead with the proposal. We will also investigate the trade relations among the three countries.

In Section 2, we examine the background of this proposal, including how the FTA negotiations were initiated and the trade policies of each of these countries. In Section 3, we investigate in detail the features of the trade relations among the three countries. Section 4 presents several theories of free trade areas, including the traditional view, the international rivalry approach, and the political economy of FTA. How these theories can be applied to the NEAFTA. The last section provides some concluding remarks.

2. The Background

2.1 Historical Development of the FTA Negotiations

Until recently, Northeast Asian countries - China, Japan, and Korea did not show much interests in any regional trading arrangements such as Free Trade Agreements (FTAs), despite the pervasive trend of regionalism worldwide. After the financial crisis,

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[1] This view is stronger than the gains from trade argument because it states that free trade not only is good for each individual country, but also is the best that all the countries when taken together can get.

however, these countries began to show a great interest in establishing bilateral FTAs with major trading partners and East Asian FTAs. Also, a trilateral FTA between China, Japan and Korea (hereinafter CJK FTA) was raised as a possibility to cope with the expansion of European Union (EU) and North American Free Trade Agreement (NAFTA).

In November 1999, the three countries made an official attempt to discuss stronger economic cooperation in Northeast Asia during a trilateral summit meeting in Manila. Two years later (in November 2001), many issues were raised at the trilateral summit meeting in Brunei, including the commencement of foreign affairs and finance ministerial meetings among the three countries, a business forum, the development of cultural exchange and human resources, and the enforcement of an IT cooperation system. Through this process, the three countries finally were able to take their first steps toward trilateral economic cooperation and integration.

On year later, then Chinese Premier Zhu Rongji proposed the study of a trilateral FTA during the summit meeting in Phnom Penh, November 2002. Since then, the Trilateral Joint Research Project has been undertaken by the Development Research Center of the State Council (DRC) in China, the National Institute for Research Advancement in Japan (NIRA) and the Korea Institute for International Economic Policy (KIEP) in Korea. This research has been carried out on a step-by-step basis, beginning to examine the "Economic Effects of a Possible Free Trade Agreement among China, Japan and Korea". The research results were reported at the trilateral meeting in Bali, October 2003 and then a study for sectoral impacts and policy of a CJK FTA has been undertaken in 2004.

The significance of a CJK FTA would be highlighted not only in terms of Korea's national interests, but also in terms of regional integration. First, the CJK FTA will bring about massive economic benefits to the three countries in terms of production, trade and economic welfare. Moreover, the establishment of a CJK FTA will also contribute to introducing suitable arrangements that will accelerate trade and investment in the region. Truly, a trilateral FTA will be much more beneficial to all the three countries in the region than any bilateral FTA among those countries. A CJK FTA can also function as a bridge to establish the goal of an East Asian FTA, implying that the trilateral FTA should first be developed as a form of solid economic integration.

A guideline for seeking a CJK FTA must be used with the concept of NAFTA-plus and a comprehensive FTA. Economic gains from the FTA should be balanced among the three countries while building up common understanding on the agenda. The obstacles in promoting a CJK FTA are characterized as excessive competition in trade, differences in political system, a leadership struggle between China and Japan, historical and a lack of understanding for each other. These problems cannot be easily resolved in a short time. During strengthening economic cooperation, however, the three countries may find some ways to deal with these issues, and Northeast Asian countries may take many lessons from the experiences of the European Economic Integration.

Korea, China and Japan have expanded their industrial cooperation, taking

advantage of the complementarity of their industrial structures, together with their geographical proximity. However, the competitive relationship between these countries has also increased, as the industrial structures of each country became increasingly similar. This phenomenon is taking place as Korea and China catch up with Japan and Korea respectively, as shown by the so-called 'wild geese-flying' model of development.

China, Japan and Korea share the agricultural characteristic of land-saving small-scale farming, which might result in a competitive relationship developing in this area. At the same time, however, they have some differences in factor endowment ratios and factor productivity, which tend to cause mutually complementary relations. The competitive agricultural trade relations between Korea and China as well as Korea and Japan implies that the survival of Korean agriculture cannot be guaranteed even under Northeast Asian Economic Cooperation.

2.2 China's FTA Policy

The Chinese government first announced its plan to promote FTAs at the end of 2000. Previously, China' interest toward regionalism was inevitably low, since its entry into the WTO has been the main direction of its foreign trade policy. However, China has changed its position toward regionalism, as ASEAN countries expressed worry that FDI would be concentrated into China after its access to the WTO. When ASEAN countries expressed concerns about the possible negative impacts on their trade and investment after China's entry into the WTO, Chinese premier Zhu Rongji made a proposal to examine the possibility of China-ASEAN economic cooperation including the formation of FTA during the ASEAN+3 Meeting in Singapore, November 2000.

Since China's proposal, both regions formed a consensus to drive a FTA through experts' meeting. Then, they have been negotiating since late 2001 and signed in a framework agreement in China-ASEAN summit held in Phnom Penh, on November 2002. The basic agreement can be seen as a guideline to the future FTA between the two regions and evaluated as a practical advancement that carries out the Early Harvest Package on which the both have high interests before a formal agreement.

China announced its plan of negotiation to establish an FTA with ASEAN within 10 years; however the date could be advanced. China might launch an earlier FTA with the original six member countries with a long-term goal of launching an FTA with all ten ASEAN countries. At the beginning, the negotiation was expected to be hard due to a tight schedule and possible competition for leadership struggle between the two regions. Moreover, it seemed a little unreasonable for China to complete a commodity concession negotiation with 10 ASEAN countries by June 2004 as planned. However, the settlement in 2004 seems possible. The negotiation for setting sensitive items and rules of origin about these items would not be easy. However, China wishes an earlier settlement of the negotiation to have a leadership in the East Asian region.

China became involved in a FTA with ASEAN for the following reasons: China's accession to the WTO; the development of a Korea-Japan FTA; the response to the

proliferation of regionalism; and China's intention to take the initiative in regional integration. ASEAN countries are willing to promote a FTA with China because of economic reasons. The FTA talks actually arose from a situation where ASEAN recognized its expected losses due to the China's entry into the WTO. Now, with the promotion of a FTA with China, ASEAN began to expand its AFTA to other countries. ASEAN has been promoting to solidify AFTA internally, while developing strategies of being a FTA hub through multiple bilateral FTAs with China, Japan, Korea, India, and other major Asia-Pacific countries.

Because the China-ASEAN FTA is under process at this moment, the contents are not well known. The agenda concerning market access is especially difficult to predict. Fortunately, the framework agreement on a bilateral FTA between China and ASEAN is open, thus revealing general form of the bilateral FTA. The most noticeable point in the basic agreement is the Early Harvest Package. This can be seen as China's favor to attract passive ASEAN latecomers, such as Laos, Myanmar, and Cambodia, into the China-ASEAN FTA. There has been no case as Early Harvest Package in the history of regional trade agreement.

Trade between China and ASEAN was relatively small, regardless of geographical proximity and cultural resemblance between the two regions. However, recent trade has been actively booming. ASEAN countries have increased exports toward China rapidly and bilateral intra-industry trade has also grown. After the proposal of the China-ASEAN economic cooperation, they made a joint research on the economic impacts of China's access to the WTO and the possibility of establishing China-ASEAN FTA.

According the research report, the China-ASEAN FTA will create a market with a population of 1.7 billion, a GDP of US $ 2 trillion, and trade volume of US $ 1.2 trillion. It is estimated that a China-ASEAN FTA will increase ASEAN'GDP by 0.9% (an increase of US $ 5.4 billion) and China's GDP by 0.3% (an increase of US $ 2.2 billion). In addition, in terms of trade and economic size between two regions, economic benefits for ASEAN countries can also be seen as much larger than the estimated volume by the simulation of this research. The FTA is expected to foster Chinese exports toward ASEAN by $5.7 to 6.4 billion.

Besides an FTA with ASEAN, china has not officially promoted FTAs with any other regions. Meanwhile, Japan officially proposed discussing an FTA with ASEAN in January 2002, and now has undertaking a joint research project. Recognizing that it will compete with Japan to play a leadership in East Asia in the future, China would promote FTAs with its neighboring countries, in addition to ASEAN. China would be more progressive in considering bilateral and sub-regional FTAs in Northeast Asia, as it realized the economic necessity of FTAs and decided that the internal and external conditions are ready. Recently, Chinese scholars proposed a FTA with Korea, although there are no formal discussions about China-Korea FTA. Furthermore, Chinese Premier Zhu Rongji proposed the study of a trilateral FTA during the ASEAN+3 summit meeting in Phnom Penh, November 2002. This proposal for an FTA with China, Japan, and Korea (CJK FTA) can be an important momentum for China's FTA policy.

2.3 Japan's FTA Policy

Since the late 1990s, Japan has also shifted its trade policy to pursue regional trading arrangements under the multilateral trade system of GATT/WTO. Then Japan has been participating in promoting regionalism and establishing FTAs with major trading partners. This policy shift finally gave birth to the Japan-Singapore FTA in January 2002. The Japan-Singapore FTA, called New Age Economic Partnership, already put into effect in December 2002. This is the first-ever FTA for Japan, which not only removes tariffs on trade in goods and services between the two countries, but also reinforces cooperation on a wide range of economic activities, including investments.

Under this agreement, more than 94 percent of Japan's trade with Singapore would be freed from tariffs, covering more than 3,800 items. On top of tariff reductions, the FTA includes the liberalization of investment and services, the harmonization of competition policy and a mutual recognition agreement. With an FTA, Japan would open up more than 30 sectors to investment from Singapore in addition to the existing sectors. The agreement also covers the promotion of cooperation in the financial sector and information technology, while calling for cooperation in human resources and academic exchange.

Recently in march 16, 2004, Japan reached a final agreement on a bilateral FTA with Mexico. Ending nearly 16 months of bitter negotiations, the two countries will aim to put the pact into effect in January 2005. As the FTA pact was concluded, Mexico is the second country to ink an FTA with Japan following Singapore. More importantly, Japan has agreed to a comprehensive free-trade package including the agricultural sector for the first time. However, they agreed to postpone a decision on tariffs for some Mexican farm products.

The deal would phase out barriers on many Japanese exports to Mexico, eliminate the tariffs on about 380 Mexican agricultural products and will lower those on Mexican pork, chicken, beef, oranges and orange juice imports. Japanese tariffs on three Mexican products - chicken, beef, and oranges - will remain at zero for the first year or two within the annual low-tariff quota of 10 tons each. The quotas will be expanded after the transitional period. But the two sides postponed deciding on what the tariffs will be until after the transitional periods.

Currently, Japan has been undertaking official negotiations on FTAs with Korea, Chile, Malaysia, Indonesia, and the Philippines. Japan is also in talks with Thailand after carrying out a study of closer economic partnership between the two countries. Furthermore, Japan has examined the feasibility of an FTA with Canada and already proposed a trilateral FTA with Korea and China, an FTA with ASEAN, and an FTA among ASEAN+3 countries.

Discussions of a Japan-ASEAN FTA have progressed rapidly since talks of an FTA between the ASEAN and China blossomed in late 2000. Japan was especially hastening discussions on an FTA with ASEAN for fear of losing its leadership position to China in East Asian region. On his January 2002 visit to Southeast Asia, Japan's Prime

Minister Koizumi Junichiro proposed the establishment of the study Group on the ASEAN-Japan FTA. Japan intends to lead East Asia's economic integration through FTAs with Korea and ASEAN. Japan's recent progressive promotion of FTAs is related to the rise in the Chinese economy.

At present, China and Japan have been competitively promoting bilateral FTAs with ASEAN. However, up to this moment China seems to pursue an FTA with ASEAN more progressively than Japan. China agreed a framework agreement for a bilateral FTA with ASEAN at the ASEAN+China Summit at Phnom Penh, Cambodia on November 2002 and announced its plan to finish the negotiation for an FTA with ASEAN by 2004. Meanwhile, Japan made it clear that Japan plans to promote an FTA with ASEAN within the next 10 years.

Japan also sought to create an ASEAN+3 Free Trade Area linking China, Korea and the 10 ASEAN countries. Japan had an aim to derive a consensus with the 12 countries under the ASEAN-plus-three framework in Cambodia on November 2002. This partnership would involve a comprehensive economic integration in terms of free trade and cross-border investment, services trade, and harmonization of economic policies and systems.

Currently, Japan has more ambitious vision of establishing an East Asian Free Trade Area well ahead of 2010. Japanese government would consider this to take advantage of an integrated market of 2 billion people, encompassing Japan, Korea, and ASEAN, as well as China, Hong Kong, and Taiwan. The grouping, dubbed as "ASEAN plus five," would represent a third of the world's population and would seek to liberalize trade and investment in East Asia's vast markets. It would also aim to offset the economic challenges posed by the European Union and the North American Free Trade Area. Japan hopes that the integration should take place well ahead of 2010, the deadline for the Asia-Pacific Economic Cooperation (APEC) forum to liberalize trade under the so-called Bogor declaration.

2.4 Korea's FTA Policy

Until the mid-1990s, Korea has stayed under multilateral framework of GATT/WTO and implemented its trade policy consistent with the multilateral trade agreements. Korea did not pay much attention to regional trading arrangements because, due to non-discriminatory principle and comprehensive coverage of trade liberalization, it has always preferred the multilateral framework to regional economic blocks and maintained its commitments to trade liberalization at the global level. However, both the external and internal factors made Korea reconsider the adoption of FTA policy. Among these are: (i) the proliferation of regional trading arrangements worldwide, (ii) the changes in the international perception toward regionalism, (iii) the need for securing export markets and attracting foreign direct investment, (iv) the need for continuous market openings and structural reforms of the Korean economy, (v) the need for strengthening political ties and economic cooperation with major trading partners.

In line with the growing importance of regional integration, Korea has reformulated its trade policy and has begun examining the feasibility of FTAs with its major trading countries. Korea's pursuit of FTAs was motivated by a fear of exclusion from the recent trend of growing regionalism and then reinforced by the need of regional economic cooperation after the Korean economic crisis in 1997. To overcome the crisis and stimulate growth, Korea intended to accelerate structural reforms and transform itself into 'open trading country' through the establishment of FTAs with major trading partners. The Korean government has also come to realize that an FTA policy would help to secure stable export markets for Korean industries as well as to attract foreign investment into Korean economy.

In 1998, just after the Korean economic crisis, the Korean government established the Office of Minister for Trade and actively began to consider FTAs at a new trade policy level. Finally, Korea announced its plan to proceed with an FTA with Chile in November 1998. The basic strategy of Korea' s FTA policy is to establish an FTA with Chile and sequential FTAs with similar small and medium sized countries and then pursue additional FTAs with major countries such as the United States, Japan, and China.

Korea strategically chose Chile as its first FTA partner not only because of complementarity in industrial and trade structures but also because of valuable learning effects from Chile's plentiful experience in regional economic cooperation. In addition, Korea might gain a pilot experience of an FTA with small-sized country such as Chile, while it could minimize the risk and possible losses from it. Another main reason why Korea chose Chile as its first FTA partner is that the potential industrial damage will not be so much on the Korean agricultural sector. And the major agricultural imports from Chile are confined to some fruits such as grape, kiwi, and tomato paste. As for grapes, Chile's season is very opposite to Korea's because Chile is geographically located in South hemisphere. Meanwhile, Chile also showed a strong interest in FTA with Korea to take advantage of ever growing Korean markets as well as Korea's close linkages with other neighboring Asian countries.

In April 1999, both governments initiated the first meeting for FTA negotiations and agreed upon three basic principles of a Korea-Chile FTA negotiation: (i) a comprehensive FTA consistent with the GATT/WTO rules, principles, and commitments, (ii) liberalization of all areas including goods, services, investment, intellectual property, government procurement, competition policy, dispute settlement and other legal provisions, (iii) transparency. During 1999~2002, Korea had 6 round of FTA negotiations with Chile. However, at the fourth round both sides revealed some disagreements on the tariff concession for sensitive sectors. Korea proposed exclusion of some agricultural products from tariff concession, but Chile insisted on no exceptions. In return of conceding exclusion of some manufacturing products to Chile, Korea earned that some sensitive agricultural products are exempt from the tariff concession. After the revision and adjustment of tariff concession schedule at the fifth and sixth round of FTA negotiations, they had reached the conclusion on October 24, 2002.

Under the agreement, Chile would lift tariffs on more than 2,000 products ranging from automobiles, mobile phones, computers and machinery - all of which account for

more than two-thirds of Korean exports to Chile. In return, Korea would reduce tariffs on Chilean copper products, animal feed, wheat, wool, tomatoes and 277 types of fish. Considering the Korean export structure in agriculture, the two countries agreed to treat the most sensitive agricultural products such as apples, pears, and rice as 'exceptions to liberalization' as well as impose seasonal tariff on grapes in high demand season. Also, the two governments agreed to postpone the negotiation for the market opening of garlic, onion, pepper, and dairy products after the conclusion of on-going WTO DDA negotiation, and set transitional period up to 10 years for other sensitive sectors – fisheries and forest products.

However, the launch of an FTA with Chile has been long delayed due to the heavy opposition of agricultural sector and labor union. Farmers strongly resisted the launch of the Korea-Chile FTA for fear that the first FTA would bring similar pacts requiring the opening of the agricultural market. It took four years to reach an agreement with Chile and more than one year to gain approval before the ratification by the Korean National Assembly in last February. Finally, the Korea-Chile FTA has come into effect since April 2004.

After the Asian financial crisis, Korea and Japan have recognized the merits of the FTAs and began the discussion of a bilateral FTA between the two countries in 1998. After then, the Korea Institute for International Economic Policy (KIEP) and Japan's Institute of Developing Economies (IDE) began to conduct a joint study on the economic effects of the Korea-Japan FTA. This study reveals that preferential tariff elimination under the Korea-Japan FTA may worsen Korea's welfare level and trade balance with Japan and also cause a reduction in production of Korea's heavy and chemical industries. Especially, it will have the worst adverse impacts on the parts and components industries, thereby making Korean industrial structure a labor-oriented one or over-dependent upon the light industries.

However, Korea will improve substantially in the long-term if its competitiveness is strengthened with an FTA. Additionally, the growing foreign direct investment (FDI) inflows into Korea may improve Korea's industrial structure and trade balance with the world. Overall, the joint study suggests that Korea can benefit from the FTA with Japan, and the governments of both countries should discuss the FTA. Now, Korea has been engaged in bilateral negotiations for an FTA with Japan since 2003. Both governments agreed upon concluding the FTA negotiation within 2004 and launching a bilateral FTA in 2005.

Right now, Korea has also been negotiating on an FTA with Singapore after a joint study on the FTA completed in 2003. In addition, Korea has been conducting a joint feasibility researches on an economic effects the FTAs with New Zealand and Thailand since September and November 1999, respectively. The results of the interim report of a Korea-Thailand FTA were completed in March 2001 and that of a Korea-New Zealand FTA was released in late 2001. These reports will be used as a valuable foundation when the two governments engage in FTA negotiations with each other. Korea also agreed to conduct a research on a FTA with ASEAN in the Korea-ASEAN summit in Bali, October 2003. And Korea has been considering FTAs with Mexico and the United States.

Discussions on the Korea-US FTA began in the late 1980s. In the light of their growing economic interdependence, the two countries felt the strong need for deeper forms of economic cooperation. Korea hoped that it could secure the export markets in the U.S. and avoid trade restrictions and retaliation through an FTA with the U.S. On the other hand, to expand export markets, the United States has initiated discussions on FTAs with some strategic partners such as Chile, Singapore, and Korea. As a first step to an FTA, the two governments agreed to begin negotiations for a Bilateral Investment Treaty (BIT). However, the negotiation came to a deadlock due to the Screen quota problems.

Although no formal BIT or FTA initiatives agreed yet, the private sectors of the two countries have so far been keeping talks on the possibility of an FTA. As a part of legislative move, the Senator Max Baucus submitted the US-Korea FTA act which authorized the US government to launch FTA negotiations with KOREA. The Senate also requested the US International Trade Commission (ITC) submit a report on the feasibility study on the US-KOREA FTA. Although no real progress on KOREA-US FTA was made up to mow, both countries still have a strong interest in establishing a BIT or an FTA.

After the financial crisis, Korea also raised a possibility of a trilateral FTA between China, Japan and Korea (CJK) to counterbalance other regional economic blocks such as the EU and NAFTA. The three countries made an official attempt to discuss stronger economic cooperation in Northeast Asia during a trilateral summit meeting in Manila in 1999. Three years later, then Chinese Premier Zhu Rongji proposed a study of the trilateral FTA during the summit meeting in Phnom Penh, November 2002. Since then, the Trilateral Joint Research has been carried out to examine the Economic Effects of a FTA among China, Japan and Korea (hereinafter CJK FTA). The research results were reported at the trilateral meeting in Bali, October 2003.

There are also ongoing formal and informal discussions on the need for the establishment of ASEAN+3 (i.e. Korea, Japan, and China), which could turn into the East Asian economic cooperation to confront other regional economic blocs such as EU and NAFTA. As emphasized earlier, Korea has stayed within the multilateral framework and implemented its trade policy consistent with the rule-based system of GATT/WTO. However, recently acknowledging the strong need of regional trading arrangements, Korea has been pursuing a parallel approach of multilateral commitments and regional trading arrangements. Therefore, Korean government would promote its future FTA policy as follows:

First, to maximize the benefits of trade liberalization, secure export markets, and to continue structural reform, Korea needs to establish FTAs with large and advanced countries such as Japan, and the United States. An FTA with Japan and the United States can not feasible in the short run, as many problems such as trade imbalance and opposition from sensitive sectors remain unsolved. Therefore, Korean government should take a deliberate and long-term approach to an FTA with these countries. Instead, Korea should continue restructuring its economy and gain more experience of FTAs with other countries.

Secondly, Korea should take its effort in establishing FTAs with neighboring Asian countries with Japan, China and ASEAN to become an East Asian regional trading arrangement, which could preserve regional interest. However, the formation of ASEAN+3 will be very difficult and time-consuming process because China and ASEAN member countries agreed on an FTA. Then, the most feasible choice for Korea is to establish an FTA with Japan and then invite China in a trilateral FTA. Later, AFTA members can be incorporated to develop an East Asian regional trading arrangement.

3. Trade Relations among Korea, Japan, and China

The three Northeast Asian countries, Korea, China and Japan that constitute an important part of the world economy in terms of economic size and the volume of trade, are facing the growing tendencies towards regionalism in the international trade environment.[2] To cope with these trends, regional economic cooperation has been suggested. A Free Trade Area (FTA) for Korea and Japan is being officially considered and there are even talks about including China to form a Northeast Asia FTA.[3] In this section, we will look at the trade among these three countries as well as their trade with other countries in order to draw some implications for effects of an establishment of the Korea-China-Japan FTA on their trade and welfares in this region. Since in order to predict the effects of the trilateral FTA, we must analyze the current state of trade among them and gain an understanding of their basic characteristics.

3.1 Overview of the Trade Structure of Korea, China, and Japan

Table 1 represents the export and import trends of Korea, China and Japan. The total exports of three countries have increased from 699.7 billion US dollars (henceforth dollars) in 1998 to 1,102.9 billion dollars in 2003, and the total imports of them also have increased from 513.7 billion dollars to 974.2 billion dollars during the same period. As the rate of trade expansion in these three countries was much faster than the world average, the corresponding three countries' shares out of world trade have increased substantially. Their shares of exports and imports have increased by 2.4 % points and 3.6 % points from 1998 to 2003, respectively, mainly due to the China.[4] They accounts for 15.3 % and 12.8 % in 2003, respectively.[5]

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[2] Most industrial and developing countries in the world are members of a regional integration agreement, and many belong to more than one. The WTO and the OECD, through their official reports, acknowledged the political reality that the existence of FTAs is a fact of the world economy and accepted regionalism as a building bloc to multilateralism (KIEP 2000).

[3] China's Premier Zhu Rongji proposed the study of the trilateral FTA during the summit meeting in Phnom Penh, November 2002.

[4] The export and import shares of China in the world market have increased by about 100% from 1998 to 2003, while they have been stable for Korea and they have decreased slightly for Japan.

[5] The shares of exports and imports in the world in 2003 are calculated by using the data from January through October.

- Table 1 -

Table 2 shows the rising intra-regional trade shares of these three countries. The intra-regional trade among them has increased substantially and their shares of exports and imports have reached 20.3% and 27.6%, respectively in 2003.[6] Therefore Korea, China and Japan are very important trading partners to each other. Given deepening economic interdependency among the three countries, the need for policy cooperation among them is obvious.[7]

- Table 2 -

One of notable findings from the trilateral trade is that the trade between Korea and China has increased remarkably. Especially, Korea's exports to China have increased by more than 100% during the last 5 years thanks to the rapid economic growth of China, and have reached 35.1 billion dollars in 2003. They passed those to Japan in 2001, and also passed those to US in 2003. Consequently, China became the biggest export market for Korea. Besides, Korea' imports from China also have increased fast since 1998 and have reached 21.9 billion dollars in 2003, while Korea still has trade surplus with China. By products, Korea's principal exports to China consist of HS85 (electrical machinery and equipment), HS84 (nuclear reactors, boilers, machinery and mechanic), HS29 (organic chemicals), HS72 (iron and steel), while, China's main exports to Korea are HS85 (electrical machinery and equipment), HS84 (nuclear reactors, boilers, machinery and mechanic), HS27 (mineral fuels, mineral oils, bituminous substances, mineral waxes), and HS62 (articles of apparel and clothing accessories, not knitted or crocheted knit), in 2003. The 5 products of the 10 principal Korean exports to China and the 10 principal exports of China to Korea overlap.

- Table 3 -

On the other hand, Japan is the third largest importer and the fourth largest exporter for Korea. Of Korea's total external trade, Japan's shares have gradually decreased since 1990s. However, of Japan's total external trade, Korea's shares have remained steadily, except in 1998. Even though the trade shares between the two countries are being decreased, Korea's trade deficit with Japan is still enormous, making it one of the largest sources of Japan's trade surplus. It dropped sharply to 4.6 billion dollars in 1998, but it increased to 19.0 billion dollars in 2003 with the economic recovery of Korea. This is because Korea's trade structure has depended heavily upon Japan as it produces final products using, for inputs, Japan's parts, intermediate goods

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[6] They fell abruptly in 1998 after the Asian financial crisis.

[7] However, the shares of intra-regional trade among these three countries remain small compared to other r egional economic entities. According to Lee (2002), the intra-regional shares of MERCOSUR were 20.0 % and the shares of NAFTA were 46.5% in 1999. Since the shares of intra-regional trade are getting high er as the number of participant countries increases, it is required to adjust the intra-regional trade shares b y the region's shares of world trade to obtain a better measure of the regional concentration (Frankel et al. 1997). The adjusted intra-regional trade shares of the three countries were 1.7 in 1999, which were still lo wer than those of MERCOSUR (14.6), and NAFTA (2.2) (Lee 2002).

and equipment in various industries.[8] This phenomenon is one of the major factors exacerbating Korea's trade deficit with Japan. In the year 2003, Korea's principal exports to Japan consist of HS85 (electrical machinery and equipment), HS27 (mineral fuels, mineral oils), HS84 (nuclear reactors, boilers, machinery and mechanic), HS72 (iron and steel). Japan's main exports to Korea are HS85 (electrical machinery and equipment), HS84 (nuclear reactors, boilers, machinery and mechanic), HS72 (iron and steel), HS90 (optical, photographic, cinematographic, measuring, medical or surgical instruments). The 5 products of the 10 principal Korean exports to Japan and the 10 principal exports of Japan to Korea overlapped in 1998, but the 7 products overlapped in 2003, while Japan's principal export products to Korea in the year of 1998 did not change in the year of 2003. This may reflect the changes in the trade structures between Korea and Japan, which is probably shifting to a more competitive one. However, it should be noted that Korea exports general purpose products, technically standardized products and low-priced products, while Japan exports special processed products, components and intermediate products that cannot be procured within Korea, and high-priced famous brand products (Institute of developing economies 2000).

- Table 4 -

As for the trade between China and Japan, the trade deficit of China with Japan started to increase from 2002 due to the rapid growth of China. In the year 2003, China's principal exports to Japan consist of HS85 (electrical machinery and equipment and parts), HS84 (nuclear reactors, boilers, machinery and mechanic), HS62 (articles of apparel and clothing accessories, not knitted or crocheted knit), HS61 (articles of apparel and clothing accessories, knitted or crocheted knit). Japan's main exports to China are HS85 (electrical machinery and equipment and parts), HS84 (nuclear reactors, boilers, machinery and mechanic), HS90 (optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments), HS87 (vehicles other than railway or tramway rolling stock). Japan's major export products to China in the year of 1998 did not change in the year of 2003. This shows that China's rapid industrialization and catching up Japan with the help of foreign direct investment as well as their competitive advantage of light industrial products.

- Table 5 -

3.2 The Export and Import Trends of Korea, China and Japan

3.2.1 *Changes in their Export Structures*

First, let's comparing the changes in the export structures of Korea and China during the period of 1998-2003. As for the export shares, both countries have HS85

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[8] It may be said that a division of labor by product differentiation and by manufacturing process exists between the two countries. The division of labor by manufacturing process, in particular, is characterized by a trade pattern whereby the materials and capital goods needed for production are imported from Japan and final products are re-exported to Japan (Lee 2002).

(electrical machinery and equipment) and HS84 (nuclear reactors, boilers, machinery and mechanic) placing the first and the second, respectively, which shows deepening similarity of export structures of both countries. For products ranked below third, however, a degree of dependency on exports comes in at high levels for HS87 (vehicles other than railway or tramway rolling stock), HS89 (ships, boats and floating structures), HS39 (plastic and articles thereof), and HS72 (iron and steel) in Korea and for HS61 (articles of apparel and clothing accessories, knitted or crocheted knit), HS62 (articles of apparel and clothing accessories, not knitted or crocheted knit), and HS95 (toys, games and sports requisites) in China, which tells us that Korea still has an competitive edge over China in capital-intensive industries such as automobiles, ships, and steels, even though Korea has been rapidly losing competitiveness to China in the area of light industrial products.

- Table 6 -

Second, comparing the changes in 10 principal export products of Korea and Japan, the shares of the products out of total exports ranked the first, the second and the third presents a similarity between two countries, while Korea depends relatively too much on HS85 (electrical machinery and equipment) than Japan. In the case of Korea, the shares of top 3 export products, HS85 (electrical machinery and equipment), HS84 (nuclear reactors, boilers, machinery and mechanic) and HS87 (vehicles other than railway or tramway rolling stock) have increased since 1998. Especially, the shares of HS85 (electrical machinery and equipment) have increased from 24.0% in 1998 to 28.4% in 2003 owing to the expansion of investments in IT industries. For Japan, on the other hand, the shares of the top three export products including HS85 (electrical machinery and equipment), HS87 (vehicles other than railway or tramway rolling stock), and HS84 (nuclear reactors, boilers, machinery and mechanic), all have maintained the 20-22% levels manifesting that the Japanese export structures are very stable.[9]

Table 7 -

Third, comparing the changes in 10 principal export products of China and Japan in 2003, China's top 3 export products are HS85 (electrical machinery and equipment), HS84 (nuclear reactors, boilers, machinery and mechanic) and HS61 (articles of apparel and clothing, knitted), while Japan's top 3 export products consist of HS85 (electrical machinery and equipment), HS87 (vehicles other than railway or tramway), and HS84 (nuclear reactors, boilers, machinery and mechanic). This shows well the development stage of China's economy and their development policies that were mentioned above.

- Table 8 -

In summary, one of outstanding features shown in the changes in the export structures of Korea, Japan and China is that the export structures of three countries have

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[9] The share of the export products, which reflects the industrial structure, suggests that Japanese industrial structure is very stable. On the other hand, changes in the export products of Korea and China are understood to be accompanied with a relatively radical change in the industrial structure recently.

been similar to each other as China's export products have been more overlapped with Korea's and Japan's. This results from China's industrialization policies such as a foreign capital inducement policy. For example, in the year of 2003, the export shares of HS85 (electrical equipment and machinery) out of total exports were the largest in three countries, and reached 28.4% in Korea, 20.3% in China, and 22.1% in Japan, respectively. The export shares of HS84 (nuclear reactors, boilers, machinery and mechanic) out of total exports reached 16.4% in Korea, 19.0% in China, and 20.1% in Japan, respectively. In the case of China, their (HS85+HS84) shares in total exports increased from 24.0% in 1998 to 39.3% in 2003, showing the most remarkable conversion of the export product structure to those of Korea and Japan.

Another outstanding feature is that exports of Korea and China have depended more on top three export products. The shares of top three export products in Korea (HS85+HS84+HS87) increased from 42.3% to 56.7% during the last 5 years, and the shares of top three export products in China (HS84+HS85+HS61) increased from 32.4% to 45% during the same period, while those in Japan (HS85+HS87+HS84) remained about 64%.

Although overlap of export products of the three countries is going on, the degree of differentiation seems to remain still higher because ranking of export products excluding HS85 (electrical machinery and equipment) and HS84 (nuclear reactors, boilers, machinery and mechanic) shows a great difference in three countries. This differentiation appears to reflect a difference in the quality of the industrial structure that is advanced the most in Japan, the second most in Korea and the least in China. Viewing the characteristics of export products coming from these structural differences, Korea has a comparative advantage over China in materials and large equipment industries, Japan over Korea in capital goods such as core parts including machinery, and China over Korea and Japan in consumer goods. In the case of Korea, imports of core parts and materials from Japan increase as the export structure develops into an advanced country-type based on high-tech products. The industrial structure's conversion to an advanced country type in China, however, is not up to the mark in comparison with that of Korea, so it is concluded that vertical product differentiation relationship in the trade between China and Japan is not obviously established. However, as three countries' exports depend on HS85 (electrical machinery and equipment) and HS84 (nuclear reactors, boilers, machinery and mechanic) and it is expected that this phenomenon will be deepened, it is most likely for as issue on too much investment to be raised.

3.2.2 *Changes in their Import structures*

The trends of import products of three countries have shown no significant change since 1998. For China, exceptionally, the import share of HS85 (electrical machinery and equipment) equipment increased from 18.8% in 1998 to 25.2% in 2003, which is the only noteworthy change arising in the change in the import structure. Comparing the changes in the import structures of Korea, China and Japan during the period of 1998-2003 is as follows.

- Table 9 -

First of all, comparing the 10 major import products of Korea and China, China's import shares of HS85 (electrical machinery and equipment) and HS84 (nuclear reactors, boilers, machinery and mechanic) register a higher level than Korea's in accordance with export expansion of these products owning to the structure that export expansion induces imports of parts and capital goods. In addition, China's import shares of HS72 (iron and steel) and HS39 (plastic and articles thereof) stand at a higher level than those of Korea indicating that Chinese materials industries still remain less developed than Korea's.[10]

- Table 10 -

Comparing the 10 major import products of Korea and Japan, Korea' import shares of HS85 (electrical machinery and equipment) are relatively high in Korea in compared with that of Japan, while its export shares are at a high level in both countries. For items excluding HS27 (mineral fuels, mineral oils, bituminous substances, mineral waxes) and HS85 (electrical machinery and equipment), the import share marks a high value for HS84 (nuclear reactors, boilers, machinery and mechanic), HS72 (iron and steel), HS90 (optical, photographic, cinematographic, measuring, medical or surgical equipment), HS29 (organic chemicals), HS39 (plastic and articles thereof), and HS38 (miscellaneous chemicals) in Korea, which demonstrates that development of core part and intermediate good industries and high value added product industries hasn't yet been accelerated to a great extent.

3.3 Characteristics of trade of Korea, China and Japan

In this section, we will measure simple indices related to trade and analyze the characteristics of trade relationship among three countries. Since it is argued that FTAs will provide more competitive environment as well as more enlarged market. Therefore, we will examine competitive relationship of exports among three countries and complimentary relationship of trade among three countries.

3.3.1 *Competitive Export Relations among the Three Countries*

To see the intensity of export competition among three countries in the world market, we will look at the trade specialization index *(TSI)*, the export similarity index *(ESI)*, and the changes in the US market shares of Korea, China and Japan

First, let me examine the trade specialization index (*TSI*) of country A for product *i*, which is defined as follows:

$$TSI_{Ai} = \frac{X_{Ai} - M_{Ai}}{X_{Ai} + M_{Ai}}, \tag{1}$$

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[10] China still attaches weight to processing industries while Korea invested heavily in steels and plastics industries in the 1990s.

where *X* and *M* represent the export and the import of product *i* by country *A*, respectively. The index *TSI* lies between –1 and +1, and a positive (negative) number reveals the country's comparative advantage (disadvantage) in the product.

Table 11 summarizes the *TSIs* of the 10 major export and import products in Korea, China and Japan. We can find a couple of things noteworthy to be discussed. The first one is that the *TSIs* of Korea's 10 major export products are relatively lower than those of China and Japan. The second one is that the *TSIs* of Korea's 10 major export products are decreasing except for HS84 (nuclear reactors, boilers, machinery and mechanic). This implies that Korea exports the less specialized products, and consequently, Korea is facing more competition than China and Japan. Therefore, the export structure of Korea is weaker against domestic and foreign shocks than China and Japan. Kim and Cho (2003) compared the trends of *TSIs* of major products of Korea and China from 1990 to 2000 and found that Korea lost its competitiveness for the products of clothing, footwear, furniture, toys against China.

- Table 11 -

Second, let us look at the export similarity index (*ESI*) between two countries, A and B, which is defined as follows:

$$ESI_{AB} = \sum \min\left(\frac{X_{Ai}}{X_A}, \frac{X_{Bi}}{X_B} \right) \tag{2}$$

where X_{Ai} and X_A mean the export of a product *i* in the country *A* and the total export of country *A*, X_{Bi} and X_B mean the export of a product *i* in the country *B* and total exports of the country *B*. If the export structures of countries *A* and *B* are similar, then it is expected that the export share of the product *i* of each country should be also similar. Hence, *ESI* increases up to 1 as the export structure similarity between two countries increases, while *ESI* decreases up to 0 as the export structures similarity between two countries decreases.

- Table 12 -

Comparing the *ESI* measured by using HS 2 digit code, it is noteworthy that the export structures of Korea, China and Japan are getting similar to each other and competition in the export markets of the three countries is intensifying. The *ESIs* between Korea and China, between Korea and Japan and between China and Japan increased since 1998, from 0.575 to 0.636, from 0.651 to 0.730, and from 0.467 to 0.595, respectively. Especially the *ESI* between China and Japan increased faster. Therefore the rapid economic development of China is more threat to Japan rather than to Korea. However, the export competition between Korea and Japan is still the most severe and the export competition between China and Japan is the next in 2003. The ESI will decrease as the ESI is measured by the more detailed data, for example, HS4 digit code or HS 6 digit code. Kim (2004) measured the *ESIs* of Korea, China and Japan with HS 4 digit code and Park (2003) measured them with HS 6 digit code. They found that *ESIs* with HS 4 or 6

digit code between Korea and Japan were stable while *ESIs* with HS 2 digit code increased> They claimed that this result showed the product differentiation was being progressed between Korea and Japan.

- Table 13 -

Third, let us look at the changes in market shares of Korea, China and Japan in US market, which is the biggest importing country in the world, and examine more implications on competition among three countries. Generally speaking, China's market share gradually increased, while Korea's market share slightly decreased and Japan's market share has decreased faster. However, this does not mean that Japan's competitiveness is losing because Japan has diversified its export markets to East Asia.

For the details about that, let me give summary of the Kim (2004). By products, for HS8541 (diodes, transistors and similar semiconductor devices) and HS8542 (electronic integrated circuits ad micro assemblies), Korea's and Japan's market share declined due to the expanded exports of multilateral firms located in Southeast Asian countries, while China's market share gradually rose. For HS8517 (electrical apparatus for line telephony) and HS8525 (transmission apparatus for radio-telephony), one of major Korea's export products, Korea' and China's market share rapidly increased since 1999, while Japan's market share has decreased. For HS8471 (automatic data processing machines and units thereof), Korea's and Japan's market share has decreased since 2000, but China's market share grew rapidly and reached at 26.8% in 2003 which is much larger than those of Korea (4.8%) and Japan (10.5%). For HS87 (vehicles other than railway or tramway), Korea's market share increased from 1.5% in 1998 to 4.6% in 2003, while Japan's market share decreased from 26.7% in 1998 to 25.0% in 2003. China's market share has reached just 1.4% in 2003. For HS89 (ships, boats, and floating structures), Korea and Japan has the duopoly market power. For HS72 (iron and steel), HS73 (articles of iron and steel), Korea's market share decreased from 5.7% in 1998 to 3.9% in 2003 and Japan's market share also declined from 14.0% to 6.7% during the same period. However, China rapidly occupied the market share of Korea and Japan and raised its' market share from 4.9% to 13.4%. For HS54 (man-made filaments) and HS55 (man-made fibers), China's market share increased rapidly from 2.6% in 1998 to 4.9% in 2003, while Korea's market share is still the largest in US market. For HS39 (plastics and articles of thereof), China's market share already passed Korea's market share long time ago and Japan's market share has reduced from 10.2% in 1998 to 6.8% in 2003.

- Table 13 –

3.3.2 Complementary Trade Relationship among the Three Countries

In this section, we are going to study the intra-regional trade share, the export market intensity index (*EMI*) and the intra-industry trade index (*ITI*) to look at the complementary relationship of three countries' trade structures.

First, let's see the intra-regional trade share of the three countries. Generally speaking, if the intra-regional trade share is higher, then it is said that interdependency

between countries in the region is also higher. Intra-regional export share has increased from 15.0% in 1998 to 22.2% in 2003, and intra-regional import share has also increased from 20.5% to 24.6% during the same period. Even though these shares are lower than those of NAFTA and EU, it might be quite higher when we consider there is no FTA agreement among three countries. This might be because the industrial structures of three countries are vertically differentiated and their location is near to each other.

- Table 14 -

Let us now look at the export market intensity index (*EMI*), which is defined as follows:[11]

$$EMI_{AB} = \frac{X_{AB}/X_A}{M_B/M},$$ (3)

where X_{AB} represents the exports from a country A to a country B, X_A means the total exports of the country A, M_B means the total imports of the country B, and M means the total imports of the world. If the *EMI* is higher than 1, the export share of the country A to the country B is higher than the export share of the world to the country B. Therefore, it is interpreted as the country A and B are closely related to each other.

The *EMI* of Korea to China, *EMI* of Korea to Japan, the *EMI* of China to Korea, the *EMI* of China to Japan, the *EMI* of Japan to Korea, and *EMI* of Japan to China, all *EMIs* are higher than 1, and it is revealed that three countries are closely related to each other. This is because three countries' locations are near to each other and their industries are vertically differentiated.

By country, the *EMI* of Korea to China (3.5) is higher than the *EMI* of Japan to China (2.6), which means the specialization of Korea's export industries would be more suited to China's market. Therefore, China is more important for Korea's exports than Japan. However, the *EMI* of Korea to China decreased slightly, due to the rapid development of China's import industries and the import diversification of China.

The *EMI* of Korea to Japan (1.7) is lower than the *EMI* of China to Japan (2.3), which implies that Japan is the more important market to China than to Korea. This is because that China's exports are specialized mainly in low price consumption products such as apparel, clothes, footwear, toys, and furniture and it is suited to the demand of Japan. The *EMI* of Japan to Korea (3.5) is higher than the *EMI* of China to Korea (1.7). This is because the Korea's industries depend heavily on Japan.

- Table 15 -

Third, the most frequently used method to measure the extent of intra-industry trade is the Grubel-Lloyd index, which is defined as follows:

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[11] See Kim (2004) for more details.

$$IIT_i = 1 - \frac{|X_i - M_i|}{X_i + M_i} \qquad (4)$$

$$IIT = 1 - \frac{\sum |X_i - M_i|}{\sum (X_i + M_i)}, \qquad (5)$$

where *IITi* and *IIT* indicate the intra-industry trade index of individual industry *i* and the intra-industry trade index of all industries, respectively. *X* and *M* mean the exports and the imports, respectively. The *IIT* takes value between 0 and 1. The larger the index is, the larger the intra-industry trade will be. Helpman and Krugman (1985) argued that intra-industry trade index shows well the product differentiation of the two countries. Based on the literature, it is generally accepted that the *IIT* is positively correlated with the level of a country's per capita income, market size, similarity of factor endowments, and activities of multi-national firms (Kim and Choi, 2001).

As for intra-industry trade between Korea and China, the *IIT* has gradually increased from 1998 to 2003. The *IIT* between Korea and Japan has remained, while the *IIT* between China and Japan has increased rapidly. This is because there has no significant structural change of export industries in Korea and Japan since 1998, but China's export industries has developed so fast and Japan's imports from the Japanese firms located in China increased.

- Table 17 -

Table 18 summarizes the *IITs* of the 10 major export and import products in Korea, China and Japan. The products with relatively high *IITs* in 2003 also had relatively high *IITs* in 1998. The products with relatively high *IITs* for trade between Korea and China in 2003 are HS64 (footwear), HS72 (iron and steel), HS73 (articles of iron and steel), HS85 (electrical machinery and equipment), HS88 (aircraft, spacecraft and parts thereof), HS89 (ships, boats and floating structures), and HS90 (optical, photographic, cinematographic). The products with relatively high *IITs* for trade between Korea and Japan in 2003 consists of HS48 (paper and paperboard, articles of paper), Hs71 (pearls, precious stones), and HS73 (articles of iron and steel). The products with relatively high *IITs* for trade between China and Japan in 2003 are HS71 (iron and steel), HS73 (articles of iron and steel), and HS84 (nuclear reactors, boilers, machines). It is interesting that even though the principal export products of Korea, China, and Japan are HS84 and HS85, their *IITs* are not that high. We guess this is because that trade balances are highly unbalanced for those products in intra-regional trade.

4. The Economics of Free Trade Areas

To better understand the implications and factors of the proposed free trade area (FTA) of Korea, China, and Japan, let us examine some of theoretical issues of FTA. We first begin with the traditional views of FTA (or customs union of other forms of economic integration). We then propose some newer views that fit explain the situation faced by the three countries.

4.1 The Traditional Views of FTA

The traditional views recognize the fact that FTAs (or customs unions) can contribute to more efficient allocation of resources within the region, but possibly at the expense of resource allocation between member countries and non-member countries. Such dual roles of FTA could thus make the welfare implications of FTAs ambiguous.

Viner's approach is to compare the change in the patterns of import of a member country and the relative productivity levels of the initial and final supplying countries. He argues that trade is diverted if the formation FTA causes a member country to switch its import a product from a lower-cost non-member country to a higher-cost member country. Such switch is possible, thanks to the preferential treatment the higher-cost member country receives because of the free trade agreement. On the other hand, (more) trade is created if a member country imports more from another member country, which is also a low-cost supplier. The increase in the volume of trade is the result of trade liberalization among the member countries.

It is argued that trade diversion may be detrimental (to both the importing country and to the welfare of the world) because of the product from a high-cost country instead of a low-cost country. It is, however, not true that welfare of the world must drop in the presence of trade diversion, because of trade liberalization. On the other hand, trade creation is regarded as beneficial to the importing country (a small open economy assumption) and the world.

Viner's partial equilibrium view (usually with the assumption of small open economies of the member countries) focuses more on the import side of the member countries, and links the welfare of the member countries (and that of the world) to the import patterns and volumes of the member countries.

The ambiguous welfare impacts of FTAs in the approach of Viner are not surprising, even though FTAs may be considered as a step in the direction of free trade among all countries. According to the Theory of Second Best, the removal or reduction of some of the existing distortions, while some other distortions still exist, is not a good prediction of how the welfare of the world may change. In other words, such partial removal or reduction of distortions may improve or deteriorate welfare. As a result, forming FTAs is not a guarantee of welfare enhancement for either individual country or the world.

A more definite assertion of positive welfare impact of FTAs is due to Kemp and Wan (1976), who argue that a Pareto improving FTA for any subgroup of countries can

always be found, as long as the external tariffs of the member countries can be set endogenously and intra-regional compensations can be imposed. The intuition behind their argument is simple: The external tariffs are chosen in order to maintain the volume of trade of each non-member country so that its welfare would not be affected. At the same time, the removal of trade restriction will allow more efficient use of the endowed factors in the member countries, and intra-regional compensation will allow a Pareto distribution of the gains from more efficient production.[12]

The Kemp-Wan result is appealing, because if any FTA is welfare improving, when properly specified, then FTA is regarded as the right movement and in the right direction toward ultimate free trade among all countries. For example, a Pareto improving FTA is formed with $n \geq 2$ countries. Then it can be expanded with more members, or a separate Pareto improving FTA is formed. Eventually, all countries form a single FTA. In the process, all countries will either remain as well off as before or gain.

The Kemp-Wan proposition works beautifully in the theory. However, in reality, it meets two major difficulties. First, the external tariffs of the member countries have to be chosen to maintain the volumes of trade of the non-member countries. In reality, external tariffs of the member countries are nearly never coordinated to achieve such a goal. In most cases, the external tariffs of the member countries are kept at the pre-FTA levels.[13] Second, even if external tariffs can be set endogenously, to find the right set of external tariffs will require a lot of information about the preferences, technologies, and factor endowments of all the countries, including the member countries and non-member countries. It will be very difficult and costly to obtain this information, even if it is possible. Moreover, if individuals are to receive lump-sum compensation and if they need to voluntarily reveal their preferences, then there is the question of whether they have the right incentive to reveal the true information.

4.2 The International Rivalry Approach

Neither the Viner approach nor the Kemp-Wan approach is appropriate in explaining the recent fever of FTAs, especially that in Asia. The Viner approach, which is based on partial equilibrium usually with the assumption of small open economies, focuses more on the import side of member countries. The Kemp-Wan approach indicates the needs of the policies of choosing the right external tariffs of the member countries, but the policies are not what are being considered.

Rather, governments are more concerned about the market shares of their exporting firms in other member countries. Very often, they view FTA as a way to increase the market shares of some of their exporting firms, often at the expense of their

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[12] Kemp and Wan (1976) did not explain the compensation scheme in detail. Wong (1995) provides an elaborate discussion of different types of compensation schemes that can be used.

[13] If it is a customs union, member countries are required to maintain the same external tariff structure. This will very likely require all the member countries to make some adjustments in their external tariff policies.

firms' rivalries. In other words, they are exploiting the discriminatory nature of FTA and make it work in their own favor.

We can provide a rigorous model to explain this approach. Consider countries A, B, and C. Countries A and B have firms producing a homogeneous product, which is exported to country C. To make our analysis simpler, we assume that there is no demand for the product in countries A and B, while there is no domestic production in country C. Furthermore, there is only one firm in country A or country B producing the production. This means that the production of the two firms will have their output exported to country C, and the demand for their outputs is the same as the demand for the product of country C.

Initially country C imposes non-prohibitive tariffs on the exports from countries A and B, usually the same. Now country C and country A form an FTA. Thus the tariff on the import from firm A is removed while that on firm B's export is still subject to the same positive tariff as before. As a result, the export of firm A is encouraged by the FTA while that of firm B is discouraged. How would the welfare of the countries be affected?

To answer the above question, consider the demand function of country C given by $p = p(q)$, where p is the market price and q is the quantity demanded. Assume that the demand curve is negatively sloped and not too convex to the origin.

The profit of the firm in country A can be written as:

$$\pi = p(q)x - cx - tx, \qquad (6)$$

where c is the marginal cost (fixed), x the output of the firm, and t the specific tariff imposed by country C on the firm's export. A similar function can be stated for the firm in country B:

$$\pi^* = p(q)x^* - c^*x^* - t^*x^*, \qquad (7)$$

where an asterisk is used to denote a corresponding variable of firm B. In equilibrium, the sum of the firms' outputs satisfies the demand, i.e., $q = x + x^*$. Initially both firms face the same tariff rate, $t_0 > 0$, imposed by country C. Both countries A and B allow free export of this product to country C. For simplicity, the fixed costs of the firms are assumed to be not significant and thus ignored in the above two profit equations.

Each of the firms takes the output of the other firm and the policy parameters as given, and chooses the optimal output to maximize its profit. Thus equations (6) and (7) can be used to derive the reaction functions of the firms, which can then be solved for the Nash equilibrium.

The equilibrium can be illustrated in Figure 1. Curve AA represents the reaction function of firm A at the initial tariff rates while curve BB represents that of firm B. It is easy to show that when given the usual properties of the demand function, both reaction curves are negatively sloped, with curve AA steeper than curve BB at least in the small

region near point N, the point of intersection between the two curves. Point N illustrates the initial Nash equilibrium.

The diagram also shows two iso-welfare contours of country A labeled W_A^N and W_A^S. The two labels also indicate the corresponding welfare levels of country A, and it is easy to show that $W_A^S > W_A^N$. The contour labeled W_A^N passes through point N, meaning that at the initial Nash equilibrium, country A achieves a welfare level of W_A^N.

Suppose now that countries A and C form a FTA. As a result, country C removes the tariff imposed on the product imported from firm A. Suppose that country C maintains the same tariff rate on the import from firm B.[14] Simple comparative static exercises will show that the FTA will shift the reaction function of firm A to the right (the production of firm A at any production level of firm B being encouraged) while the reaction curve of firm B does not move. The new Nash equilibrium will then be another point on curve BB to the right of point N. The location of the new Nash equilibrium depends on the original tariff rate, *t*, or the extent of trade liberalization country C makes. Figure 1 shows one possibility: with the new reaction curve of country A, denoted by A′A′, cutting curve BB at point S. In the case shown, point S happens to be the point of tangency between curve BB and iso-welfare contour of country A, W_A^S.

To see the significance of point S, suppose for the time being that the FTA between countries A and B has not been established so that firm A's export to country C is still subject to the tariff *t*. If, for example, firm A can take a credible, irreversible first move in production, with the expectation that firm B will take this production as given when choosing its own production. Then firm A will play the role of a Stackelberg leader, with firm B a follower. Firm A will choose point S, the point of tangency between curve BB and iso-welfare contour W_A^S. Firm A will benefit but firm B will be hurt.

However, it will be difficult for firm A to take such a first move, and without appropriate government actions, the Nash equilibrium N will be expected. Such a case is common in the literature. In the international context, it has been suggested that each of the exporting countries may use an export subsidy to promote the export performance of its own firm, at the expense of the firm of the other exporting country. Such changes in the profits of the two firms thus lead to the term "profit-shifting" effect of policies like an export subsidy in the presence of international rivalry.[15] An export subsidy imposed by country A will shift the reaction curve of its firm to the right, and the optimal subsidy is the one that shifts the curve so that point S is the new equilibrium point.[16]

Nowadays, the World Trade Organization (WTO) prohibits such use of export subsidies for the sake of improving the export performance of its firms. As a result,

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[14] Free trade agreements usually would not the trade policies involving non-member countries.

[15] See Brander and Spencer (1985) for more details.

[16] Point S is still a Nash equilibrium in the presence of the export subsidy.

governments can no longer improve the trade performance of their firms using policies that involve the budgets of the governments.

However, we explained earlier that forming an FTA with country C will have the effect of shifting the reaction curve of firm A to the right, say, A′A′. Firm A's profit will increase to W_A^S. However, this equilibrium is exactly what country A would want should it be able to impose an export subsidy. Thus forming a FTA can be a way for a country to increase the profits of its exporting firms and thus its welfare.

Figure 1 does show an important feature of the present policy. The extent of shift of firm A's reaction curve depends on the initial tariff rate. Unlike the case of export subsidy, the change in the policy parameter is not under the control of the government of country A. The case shown in Figure 1, with the new curve at A′A′, is a possibility. However it is also possible that the reaction curve of firm A will shift more or less.

If the initial tariff rate is less than t_0, firm A'a reaction curve will shift to a less extent. In this case, we can be sure that forming the FTA is good for country A, at least so long as this industry is concerned. We can thus see that if the initial tariff rate is small, country A can expect to benefit from country C's trade liberalization. If the tariff rate is greater than t_0, then firm A's reaction curve will be beyond A′A′, and the change in country A's welfare is ambiguous. If the initial tariff rate is high so that country A experiences a drop in the tariff, country A could lose out. Figure 1 shows such a case, with the new reaction curve of firm A represented by A″A″ and the new equilibrium at point K. In this case, country A's welfare drops.[17]

The above analysis shows how countries are willing to form FTAs with countries that have markets for some of their own firms and international rivalry firms. Such an argument is very similar to the export subsidy argument. Of course, some major differences between the present argument and the export subsidy argument should be noted. For example, in the present case, forming a free trade is permitted by the WTO, under certain conditions. On the other hand, the extent of tariff reduction depends on the initial tariff rate, which is beyond the control of other member countries.

The above argument can be used to explain Japan's eagerness of forming a FTA with Mexico. Mexico is an important market for Japan's cars and computers. Currently these products when exported to Mexico are subject to tariffs. However, the competitors of the Japanese firms, like Ford, GM, and Hewlett Packard, can export their products to Mexico without any impediments from the Mexican government, thanks to the North American Free Trade Agreement (NAFTA). Japan hopes to form a separate FTA with Mexico in order to get the same treatment as these American firms.

4.3 The Political Economy of FTA

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[17] Figure 1 shows that if point K is beyond point H, the point of tangency between curve BB and iso-welfare contour W_A^N, then country A loses.

In societies in which lobbying, pressure groups, protests, and pressure from media exist to influence the choice of trade policies, the formation of FTA is much more complicated and subject to more uncertainties. South Korea and Japan are examples of these societies. The political decision power in China is more centralized and thus the formation of FTA in China could be more straightforward.

When a country forms a FTA with other countries, it not only gains access to the markets of these countries without government impediments, but also has to allow access to the imports from the other countries without impediments. The removal of trade restrictions on its part could meet with domestic restrictions, especially from those industries that are currently protected.

When a FTA is formed, it is easy to identify gainers and losers: In general, producers of the exportables and consumers of the importables gain while consumers of the exportables and producers of the importables lose. By the compensation principle, if an FTA is gainful to the economy as a whole, the gainers must have sufficient gain to be distributed to the losers to cover their losses. Of course, in the real world, income is rarely redistributed to ensure positive gain for every individual. As a result, individuals would react to an FTA based on how their own welfare will be affected.

As a result, gainers will welcome the formation of a new FTA but losers will not. If there are ways for the losers to express their opposition to the formation of a new FTA and to exert their political pressure and influence, they will have an incentive to do so.

In countries like Korea and Japan, farmers proved to be a group of individuals with strong will to resist any trade liberalization in agricultural products. For governments that care about the political pressure from these groups (both the legislative and executive branches), the resistance from the agricultural sector would have to be taken into account when planning for a new FTA. Very often such resistance is regarded as additional costs of forming an FTA.

To formulate the idea of FTA in the presence of political pressure, let us denote the economic benefit of an FTA by EB, the economic cost by EC, and the political cost by PC. Obviously, on the political side, there is a political cost but political benefit will be minimal. The aggregate net benefit ANB of an FTA can be written as:

$$ANB = EB - EC - PC . \qquad (8)$$

On the other hand, the economic net benefit can be defined as

$$ENB = EB - EC . \qquad (9)$$

Two criteria for choosing an FTA can be stated: (A) $ANB > 0$; and (B) $ENB > 0$. If a government cares about the political resistance, criterion (A) will be used, but if only economic benefits and costs are considered, criterion (B) can be adopted.

The issue here is whether it matters which criterion the government adopts. Depending on whether each criterion passes, three cases can be identified:

(a) $ANB > 0$ and $ENB > 0$;
(b) $ANB < 0$ and $ENB > 0$; and
(c) $ANB < 0$ and $ENB < 0$.

Note that $ANB > 0$ implies $ENB > 0$, or $ENB < 0$ implies $ANB < 0$. In other words, if an FTA is approved using criterion (A), it will be approved even if criterion (B) is used. Alteratively, if an FTA is rejected using criterion (B), it will also be rejected if criterion (A) is ued.

In case (a), the FTA will be approved, no matter which criterion is used, or in case (c), the FTA will be rejected by either criterion. The more interesting case is case (b). If criterion (A) is used, the FTA is rejected, but if criterion (B) is used, the FTA is approved.

As a result, in case (b), what the government chooses and whether the general public agrees with what the government chooses depends on which criterion one uses. Sometimes conflicts between the government and the general public arises when they use different criteria and come to different conclusions.

Let us take an example. Last February, the National Assembly of South Korea passed a FTA with Chile. Despite the fact that it is general believed that such FTA will do good to the economy of South Korea, and many people had urged the government to pass it as soon as possible. Yet, for one whole year the National Assembly had hesitated in passing the proposal, and at some points it was not clear whether the National Assembly will ever pass it. This is a good example of case (b): The FTA seems to be good to the economy, i.e., $ENB > 0$. However, it meets with political resistance from the farmers. As a matter of fact, Chile does not have big volumes of export of agricultural products to Korea, and the trade liberalization associated with the FTA will not much affect domestic production of agriculture in Korea. Yet, farmers worry that if the Korea-Chile FTA is passed, they will have to make more concession in the future. Thus they expressed strong opposition to the agreement, and the National Assembly was reluctant to pass the agreement, even though many economists urged it to do so.

Many governments are thus reluctant to consider FTA that will meet with big political resistance at home, even if the FTA is good economically. In the real world, what we can see is that countries usually try to form an FTA with those countries that the economy has small trade volumes. This is a way to guarantee that an FTA will not cause too much adjustment in the import-competing sectors. Thus Thailand formed an FTA with Bahrain. Japan signed a free trade agreement with Singapore, knowing that Singapore will have insignificant import of agricultural products, even in the absence of any trade restriction. Furthermore, Singapore finds it so easy to form FTAs with many countries (Japan, the United States, for example) because it is not a major agriculture exporter and thus does not pose any threat to the agricultural sector of its trading partners.

How may political costs affect the formation of an FTA in Northeast Asia? To answer this question, let us examine the trade in agriculture among the three countries and the rest of the world. Table 19 shows the percentage trade in agriculture (HS01 to HS23) among South Korea, Japan, China, and the rest of the World in 2002.[18]

South Korea is not a big exporter of agriculture. For example, 1.58% of the world's import from South Korea was agriculture, and the corresponding figure for China is only a mere 0.40%. However, Japan did rely more on South Korea, as 9.15% of its import from South Korea was agriculture. South Korea, on the other hand, was a big importer of agriculture, as 6% of its import was agriculture. It depended minimally on Japan in terms of agriculture but much more on China.

The table also shows that Japan is a big importer of agriculture, not only from the rest of the world, but also from South Korea and China. China is a much stronger country in terms of comparative advantage in agriculture: It imported not much but exported a lot.

What does that table tell us? In South Korea, since farmers resist strongly to trade liberalization in the agricultural sector, the government may find it more costly to form an FTA with China than one with Japan. Japan, however, will find it politically costly when forming a FTA with either China, South Korea, or both. China, on the other hand, has a much more centralized government, and political pressure from the local agriculture industry is not significant. Thus it will be much easier, at least politically, for China to consider the Northeast Asia Free Trade Area.

5. Concluding Remarks

Due to the rapid economic growth of China, the trade between Korea and China and the trade between China and Japan increased fast, along with the increases in the exports and imports of China. We could find several interesting features regarding the trade structures of three Northeast Asian countries.

First, their export structures are getting similar to each other. Especially, massive foreign direct investments to China from abroad including multinational firms, Korea and Japan, have enhanced industrial structure level of China, which accelerates the export structure similarity of three countries.

Second, as the export structures of three countries are getting similar, their competition in the international market is also getting more severe. Looking at the TSI, the ESI, and changes in the US market share of Korea, China and Japan, competition between Korea and China and competition between China and Japan is getting more intensified rather than competition between Korea and Japan. The Rapid economic growth would be more threat to Japan rather than to Korea. However, Korea exports the

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[18] The table was taken from Wong (2004), where more discussion about the strategies of South Korea is available.

less specialized products, and it is most likely for Korea to face heavy competition in near future.

Third, along with the intensified competition among three countries, the closeness of location and different development stages of three countries also enhance the complementary relationship of trade in this region. The intra-regional trade share has gradually increased. Besides, looking at the *EMI*, China is more import for Korea's exports than Japan, while Japan is more important for China's export than Korea. This is because despite accelerating similarity of export structures of three countries, export structures are still differentiated in the areas of intermediate inputs, vehicles, ships and chemicals. In addition, the complementary relationship of trade between Korea and Japan has been more deepened, since the *IIT* between Korea and Japan has increased faster than the *IIT* between Korea and China or the IIT between China and Japan. However, one of top principal export products in three countries, HS85 (electrical machinery and equipment) does not have high *IIT*. This could be the result from the overlapped investments.

The main conventional motives for participating in regional free trade agreement are as follows. The first is that through reciprocal concession on trade barriers, the participants will enjoy a larger market, permitting the achievement of economies of scale. Another motive is that a unified market provides a more competitive environment for firms, thus raising economic efficiency.[19] Therefore, considering the deepening regional economic interdependency and intensified competition among Northeast Asian countries, it is required to establish the FTA among three countries. Since without it, there is possibility that the increasing competition among the three countries, which is mainly due to overlapping and inefficient investment, caused excessive supply and declining export earnings, and domestic policies such as reform policies, will not be effective as expected due to the high dependency and distorted industrial and trade structure.

The overall economic effects of a FTA will be examined from two parts, static (short-term) effects and dynamic (long term) effects. The static effects can be studied by measuring the interplay of the trade creation and trade diversion effects according to the elimination of tariffs and non-tariff barriers. The dynamic effect would most likely result from economies of scale, increased efficiency due to the intensification of competition, and the use of integrated production factors such as capital and labor.

Then, considering trade patterns and trends of Korea, China and Japan, it is expected that the short-term effects would not be significant. Because tariff rates imposed by Japan and Korea are not high, while China's tariff rates are relatively high, and the shares of intra-industry trade out of total trade are high and still increasing. Urata and Kyota (2003) argued that the impact of the East Asia FTA is not large enough to change the composition of each country's exports and imports substantially.

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[19] Urata and Kiyota (2003) also argued the effects of FTAs. FTAs are an effective way to penetrate the market of the member countries. FTAs would promote deregulation and structural reform to revitalize their economy. Especially FTAs would need to avoid another financial crisis and promote regional economic growth.

However, it is expected that the current account imbalance problem among three countries will be worsened in short period. Japan's exports to Korea are greater than Korea's exports to Japan, and Korea's tariff rates are relatively higher than those of Japan. Thus, if tariffs are lifted, the rate of increase of Japan's exports to Korea will surpass those of Korea's exports to Japan. Consequently, Japan's trade surplus will expand. The same story goes for the case of trade between Korea and China, and Korea's trade surplus will also expand. Therefore, to persuade the groups that oppose to form the regional FTA, some ways to reduce the current account imbalances among three countries should be found.

By the way, three countries will be expected to enjoy greater long-term benefits from establishing the regional FTA. Park (2003) analyze quantitatively the economic effects of potential FTAs that could be formed in the region by using a computable general equilibrium model, and found that a proposed Korea-China-Japan FTA would raise the real GDP of all participants and that the gains from freer trade would be distributed advantageously to China and Korea, which have a relatively high intra-regional trade share, and high tariff rates. However, the establishment of a Korea-Japan FTA would worsen the trade balance of Korea and China.[20] In addition he argues that the dynamic gains obtained from the proposed Korea-China-Japan FTA would surpass the static gains.[21]

In conclusion, while the interdependency between the three countries is deepening, it is expected that some difficulties will be encountered when attempting to maximize economic welfare and achieving economic development through trade expansion, due to the increasing competition in outer regional markets, especially for similar products. Therefore, external policy cooperation is required, in order to resolve the problems arising from the increasing competition of regional FTAs, will result in industrial restructuring through increased competition between the three countries, and the maximization of gains from freer trade with each country specializing in certain area. Economic cooperation, such as the establishment of a China-Japan-Korea FTA, would accelerate competition in the regional market and increase efficiency in resource allocation. This would lead to higher productivity, stabilize inflation, and increase potential GDP.

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[20] According to the study of the Korea Institute for International Economic Policy (KIEP), which analyzed the economic effects of the Korea-Japan FTA, preferential tariff elimination between Japan and Korea may worsen Korea's welfare level and its trade balance with Japan and a bilateral FTA may have a deep impact on Korea's heavy and chemical industry and worsen Korea's industrial structure. However, studies done by other institutions report different results. While KIEP expects that tariff elimination will cause Korea's welfare level to fall, Korea Institute for Industrial Economy and Trade (KIET) and Japan's Institute for Developing Economies (IDE) claim opposite findings. With regards to effects on GDP, KIET and BDS (Brown, Deardorff and Stern 2000) offer similar results to the KIEP study, but IDE derives conflicting results. Anyway, one common conclusion shared by all the studies is that Korea's trade balance will worsen under a bilateral FTA.

[21] He also argue that a China-Korea, A Japan-Korea or China-Japan FTA would bring about a Pareto superior outcome, but a Korea-China-Japan FTA would present the ideal form of cooperation for the three countries in the region, enabling the regional economy to shift to a Pareto optimal state.

Table 1. Export and Import Trends of Korea, China and Japan

		1998	1999	2000	2001	2002	2003
Exports	Korea	132.3 (2.4)	143.7 (2.5)	172.3 (2.7)	150.4 (2.5)	162.5 (2.5)	193.8 (2.7)
	China	180.5 (3.3)	196.2 (3.5)	249.2 (3.9)	266.7 (4.4)	325.6 (5.1)	438.5 (6.0)
	Japan	386.9 (7.1)	417.4 (7.4)	479.3 (7.5)	403.0 (6.6)	415.6 (6.5)	470.6 (6.7)
	Total	699.7 (12.9)	756.3 (13.4)	900.8 (14.2)	820.1 (13.4)	903.7 (14.1)	1,102.9 (15.3)
Imports	Korea	93.3 (1.7)	119.8 (2.1)	160.6 (2.4)	141.1 (2.2)	152.1 (2.3)	178.8 (2.3)
	China	140.4 (2.5)	165.8 (2.9)	225.1 (3.4)	243.6 (3.8)	295.3 (4.5)	413.1 (5.4)
	Japan	280.0 (5.0)	309.6 (5.3)	379.9 (5.8)	349.0 (5.5)	336.8 (5.1)	382.3 (5.1)
	Total	513.7 (9.2)	596.2 (10.3)	765.5 (11.7)	733.7 (11.6)	784.2 (12.0)	974.2 (12.8)

Notes: Numbers in parentheses represent the shares of exports (imports) in the world exports (imports). Those for 2003 are calculated by using the data from January through October.

Source: Korea International Trade Association, KOTIS data.

Table 2. Trends and Status of a Trilateral Trade

Unit: billion dollar, %

		1998	1999	2000	2001	2002	2003
Korea to (from) China	Export (A)	11.9	13.7	18.5	18.1	23.8	35.1
	Import (B)	6.5	8.9	12.8	13.3	17.4	21.9
	A-B	5.4	4.8	5.7	4.8	6.4	13.2
Korea to (from) Japan	Export (A)	12.2	15.9	20.5	16.5	15.1	17.3
	Import (B)	16.8	24.1	31.8	26.6	29.9	36.3
	A-B	-4.6	-8.2	-11.3	-10.1	-14.8	-19.0
China to (from) Japan	Export (A)	29.5	32.4	41.6	45.1	48.5	59.5
	Import (B)	28.3	33.8	41.5	42.8	53.5	74.2
	A-B	1.2	-1.4	0.1	2.3	-5.0	-14.7
Intra-regional trade share	Export	13.6	15.3	17.0	18.1	18.9	20.3
	Import	22.5	24.0	24.2	24.7	26.3	27.6

Note: Intra-regional trade share for 2003 is calculated by using the data from January through October.

Source: Korea International Trade Association, KOTIS Data

**Table 3. Trends of 10 Major Export and Import Products
of Korea with China**

<div align="right">Unit: %</div>

Export to China				Import from China			
1998		2003		1998		2003	
Product	Share	Product	Share	Product	Share	Product	Share
HS39	13.7	HS85	24.8	HS85	17.5	HS85	25.2
HS85	11.9	HS84	20.0	HS27	11.2	HS84	9.5
HS27	9.6	HS29	8.9	HS72	6.0	HS27	7.4
HS84	8.5	HS72	7.6	HS10	5.5	HS62	5.1
HS72	7.8	HS39	7.4	HS55	5.0	HS10	4.8
HS29	7.6	HS27	5.3	HS84	4.7	HS72	3.6
HS41	5.0	HS87	3.9	HS89	3.6	HS61	3.4
HS54	4.6	HS90	2.4	HS29	2.9	HS03	3.1
HS48	4.3	HS54	1.7	HS03	2.9	HS76	2.6
HS55	3.6	HS60	1.5	HS62	2.4	HS90	2.3

Source: Korea International Trade Association, KOTIS Data

**Table 4. Trends of 10 Major Export and Import Products
of Korea with Japan**

Unit: %

Export to Japan				Import from Japan			
1998		2003		1998		2003	
Product	Share	Product	Share	Product	Share	Product	Share
HS85	23.0	HS85	29.3	HS85	31.8	HS85	30.4
HS27	9.7	HS27	15.3	HS84	16.0	HS84	17.7
HS72	8.1	HS84	12.1	HS72	8.4	HS72	11.1
HS84	5.7	HS72	5.5	HS90	6.8	HS90	8.9
HS03	5.5	HS39	4.3	HS29	6.6	HS39	4.5
HS61	5.2	HS03	3.1	HS39	4.3	HS29	4.5
HS39	3.2	HS29	2.9	HS38	2.7	HS38	2.8
HS73	2.8	HS73	2.6	HS74	2.6	HS87	2.6
HS02	2.6	HS90	2.5	HS87	2.0	HS70	1.6
HS29	2.5	HS87	1.6	HS37	1.7	HS37	1.5

Source: Korea International Trade Association, KOTIS Data

**Table 5. Trends of 10 Major Export and Import Products
of China with Japan**

<div align="right">Unit: %</div>

Export to Japan				Import from Japan			
1998		2003		1998		2003	
Product	Share	Product	Share	Product	Share	Product	Share
HS62	15.2	HS85	17.6	HS85	25.6	HS85	31.4
HS85	15.1	HS84	15.3	HS84	22.2	HS84	22.6
HS61	9.4	HS62	11.7	HS39	7.4	HS90	8.0
HS84	5.3	HS61	8.7	HS72	7.3	HS72	5.8
HS27	4.9	HS27	4.1	HS90	4.9	HS87	5.4
HS90	3.1	HS90	3.3	HS29	3.2	HS39	4.9
HS16	3.1	HS16	2.8	HS87	2.5	HS29	4.2
HS07	2.8	HS63	2.3	HS54	2.4	HS73	1.4
HS63	2.6	HS94	2.1	HS55	2.4	HS74	1.2
HS03	2.5	HS64	1.8	HS73	2.2	HS55	1.1

Source: Korea International Trade Association, KOTIS Data

Table 6. Export Trends of Korea and China

Unit: %

Korea				China			
1998		2003		1998		2003	
Product	Share	Product	Share	Product	Share	Product	Share
HS85	24.0	HS85	28.4	HS85	14.8	HS85	20.3
HS84	9.7	HS84	16.4	HS84	9.2	HS84	19.0
HS87	8.6	HS87	11.9	HS61	8.4	HS61	5.7
HS89	6.1	HS89	5.7	HS62	6.0	HS62	4.7
HS71	6.0	HS39	4.6	HS64	4.6	HS95	3.0
HS72	4.8	HS72	3.7	HS95	4.2	HS64	3.0
HS39	4.3	HS27	3.6	HS42	2.9	HS94	2.9
HS54	3.8	HS29	3.0	HS27	2.8	HS27	2.5
HS27	3.5	HS54	1.8	HS39	2.8	HS90	2.4
HS29	2.5	HS71	1.7	HS90	2.4	HS39	2.4

Source: Korea International Trade Association, KOTIS Data

Table 7. 10 Major Export Products of Korea and Japan

Unit: %

Korea				Japan			
1998		2003		1998		2003	
Product	Share	Product	Share	Product	Share	Product	Share
HS85	24.0	HS85	28.4	HS84	22.3	HS85	22.1
HS84	9.7	HS84	16.4	HS85	22.2	HS87	22.1
HS87	8.6	HS87	11.9	HS87	20.3	HS84	20.1
HS89	6.1	HS89	5.7	HS90	5.9	HS90	5.8
HS71	6.0	HS39	4.6	HS72	3.1	HS72	4.1
HS72	4.8	HS72	3.7	HS29	2.7	HS29	3.3
HS39	4.3	HS27	3.6	HS89	2.6	HS39	2.9
HS54	3.8	HS29	3.0	HS39	2.2	HS89	2.6
HS27	3.5	HS54	1.8	HS73	1.6	HS40	2.1
HS29	2.5	HS71	1.7	HS40	1.5	HS73	1.5

Source:　Korea International Trade Association, KOTIS Data

Table 8. 10 Major Export Products of China and Japan

Unit: %

China				Japan			
1998		2003		1998		2003	
Product	Share	Product	Share	Product	Share	Product	Share
HS85	14.8	HS85	20.3	HS84	22.3	HS85	22.1
HS84	9.2	HS84	19.0	HS85	22.2	HS87	22.1
HS61	8.4	HS61	5.7	HS87	20.3	HS84	20.1
HS62	6.0	HS62	4.7	HS90	5.9	HS90	5.8
HS64	4.6	HS95	3.0	HS72	3.1	HS72	4.1
HS95	4.2	HS64	3.0	HS29	2.7	HS29	3.3
HS42	2.9	HS94	2.9	HS89	2.6	HS39	2.9
HS27	2.8	HS27	2.5	HS39	2.2	HS89	2.6
HS39	2.8	HS90	2.4	HS73	1.6	HS40	2.1
HS90	2.4	HS39	2.4	HS40	1.5	HS73	1.5

Source: Korea International Trade Association, KOTIS Data

Table 9. Trends of 10 Major Imports of Korea and China

Korea				China			
1998		2003		1998		2003	
Product	Share	Product	Share	Product	Share	Product	Share
HS85	20.8	HS27	21.6	HS85	18.8	HS85	25.2
HS27	19.5	HS85	21.6	HS84	17.6	HS84	17.3
HS84	10.5	HS84	11.3	HS39	7.5	HS27	7.1
HS71	5.0	HS72	4.6	HS27	4.8	HS90	6.1
HS90	3.7	HS90	4.5	HS72	4.2	HS72	5.4
HS29	3.6	HS29	3.1	HS90	2.9	HS39	5.1
HS72	3.5	HS71	2.0	HS48	2.6	HS29	3.9
HS26	1.8	HS39	1.9	HS29	2.5	HS87	2.9
HS39	1.8	HS87	1.8	HS54	2.4	HS26	1.7
HS10	1.7	HS38	1.4	HS88	2.3	HS74	1.7

Source: Korea International Trade Association, KOTIS Data

Table 10. Trends of 10 Major Imports of Korea and Japan

Korea				Japan			
1998		2003		1998		2003	
Product	Share	Product	Share	Product	Share	Product	Share
HS85	20.8	HS27	21.6	HS27	15.4	HS27	21.2
HS27	19.5	HS85	21.6	HS85	11.2	HS85	12.5
HS84	10.5	HS84	11.3	HS84	10.6	HS84	10.8
HS71	5.0	HS72	4.6	HS03	3.8	HS90	3.9
HS90	3.7	HS90	4.5	HS90	3.7	HS87	3.1
HS29	3.6	HS29	3.1	HS44	3.3	HS03	2.8
HS72	3.5	HS71	2.0	HS87	2.9	HS62	2.7
HS26	1.8	HS39	1.9	HS62	2.7	HS44	2.6
HS39	1.8	HS87	1.8	HS61	2.3	HS29	2.4
HS10	1.7	HS38	1.4	HS29	2.3	HS61	2.1

Source: Korea International Trade Association, KOTIS Data

Table. 11 Trade Specialization Index

	Korea		China		Japan	
	1998	2003	1998	2003	1998	2003
HS03	0.31	-0.38	0.44	0.28	-0.91	-0.88
HS10	-1.00	-1.00	0.37	0.71	-0.93	-0.10
HS26	-0.98	-0.99	-0.94	-0.94	-0.99	-0.99
HS27	-0.60	-0.70	-0.13	-0.45	-0.95	-0.96
HS29	-0.01	0.03	-0.01	-0.38	0.24	0.18
HS38	-0.55	-0.52	-0.32	-0.46	0.19	0.24
HS39	0.55	0.44	-0.35	-0.36	0.35	0.32
HS40	0.55	0.40	-0.05	-0.19	0.54	0.51
HS42	0.72	-0.39	0.99	0.97	-0.97	-0.92
HS44	-0.76	-0.91	-0.19	-0.15	-0.99	-0.98
HS48	0.64	0.35	-0.58	-0.31	0.11	-0.01
HS54	0.78	0.72	-0.58	0.02	0.79	0.68
HS61	0.84	0.34	0.95	0.95	-0.97	-0.95
HS62	0.77	0.00	0.91	0.94	-0.95	-0.96
HS64	0.67	-0.01	0.93	0.94	-0.96	-0.98
HS71	0.25	-0.03	0.62	0.28	-0.53	-0.45
HS72	0.32	-0.07	-0.43	-0.73	0.60	0.67
HS73	0.33	0.28	0.38	0.47	0.54	0.37
HS74	-0.04	-0.19	-0.55	-0.77	0.34	0.55
HS84	0.14	0.22	-0.20	0.08	0.49	0.39
HS85	0.24	0.18	0.01	-0.08	0.46	0.37
HS87	0.87	0.76	0.04	-0.19	0.81	0.80
HS88	0.06	-0.22	-0.76	-0.82	-0.50	-0.49
HS89	0.91	0.91	0.82	0.58	0.97	0.98
HS90	-0.16	-0.45	0.03	-0.41	0.38	0.30
HS94	0.25	-0.36	0.92	0.90	-0.74	-0.75
HS95	0.46	-0.29	0.93	0.94	-0.01	-0.31

Note: Products cover 10 major export and import products of Korea, China and Japan.

Table 12. Export Similarity Index of Korea, China and Japan

	1998	1999	2000	2001	2002	2003
Korea and China	0.575	0.593	0.596	0.622	0.639	0.635
Korea and Japan	0.651	0.695	0.729	0.713	0.724	0.730
China and Japan	0.467	0.495	0.517	0.545	0.572	0.595

Note: ESI is calculated by using the HS two digit code.

Table 13. Market Share in US of Korea, China and Japan

		1998	1999	2000	2001	2002	2003
HS8541	Korea	15.7	17.7	15.7	11.6	13.3	13.1
HS8542	China	1.5	1.8	1.6	2.2	2.8	3.2
	Japan	17.7	17.7	17.7	15.5	11.6	10.6
HS8517	Korea	5.1	8.0	8.6	14.2	14.3	15.7
HS8525	China	10.5	9.7	8.6	10.3	15.2	17.9
	Japan	25.8	24.0	18.5	15.4	14.3	12.7
HS8471	Korea	4.7	6.8	8.8	6.4	6.1	4.8
HS8473	China	7.3	9.0	11.4	13.7	19.3	26.8
	Japan	18.6	17.1	16.4	13.9	11.9	10.5
HS87	Korea	1.5	2.2	3.2	4.3	4.3	4.6
	China	0.7	0.7	1.2	1.0	1.1	1.4
	Japan	26.7	25.8	26.2	25.8	26.6	25.0
HS89	Korea	28.7	33.2	39.1	37.2	39.7	-
	China	5.8	5.6	4.8	5.9	5.2	-
	Japan	40.6	40.2	38.4	38.6	36.6	-
HS72	Korea	5.7	5.7	5.2	5.1	4.4	3.9
HS73	China	4.9	6.5	7.9	9.5	10.7	13.4
	Japan	14.0	10.0	8.0	8.5	7.1	6.7
HS54	Korea	14.1	13.2	13.0	12.2	11.9	11.4
HS55	China	2.6	2.4	3.4	3.1	4.2	4.9
	Japan	9.1	9.3	8.8	8.1	6.6	6.8
HS39	Korea	2.5	2.7	2.5	2.3	2.6	2.7
	China	13.9	14.8	15.3	16.9	18.5	18.7
	Japan	10.2	9.6	9.1	7.8	7.1	6.8

Note: The share for HS89 is based on the world market, not US market.
Source: Kim (2004).

Table 14. Intra-regional Trade Share of Korea, China and Japan

unit: %

	1998	1999	2000	2001	2002	2003
Export	15.0	17.0	18.5	19.8	20.8	22.2
Import	20.5	21.6	21.8	22.1	24.0	24.6

Table 15. Export Market Intensity Index of Korea, China and Japan

Market		1998	1999	2000	2001	2002	2003
Korea	China	2.04	1.95	1.86	2.12	2.24	1.73
	Japan	2.34	2.66	2.63	2.84	3.10	3.49
China	Korea	3.52	3.34	3.14	3.17	3.25	3.50
	Japan	2.04	1.96	1.86	2.01	2.86	2.62
Japan	Korea	1.83	2.08	2.06	2.01	1.81	1.67
	China	3.23	3.12	2.90	3.09	2.90	2.29

Table 16. Intra-industry Trade among Korea, China, Japan

	1998	1999	2000	2001	2002	2003
Korea-China	0.49	0.56	0.56	0.58	0.54	0.53
Korea-Japan	0.52	0.52	0.53	0.52	0.50	0.49
China-Japan	0.41	0.39	0.40	0.43	0.45	0.46

**Table 17. Intra-industry Trade Index of Major Export Products
of Korea, China and Japan**

	Korea-China		Korea-Japan		China-Japan	
	1998	2003	1998	2003	1998	2003
HS03	0.66	0.18	0.08	0.42	0.21	0.20
HS10	0.00	0.00	0.06	0.00	0.00	0.00
HS26	0.07	0.09	0.49	0.56	0.64	0.47
HS27	0.78	0.93	0.22	0.32	0.29	0.32
HS29	0.35	0.27	0.43	0.47	0.49	0.30
HS38	0.67	0.72	0.29	0.23	0.58	0.37
HS39	0.05	0.17	0.70	0.63	0.35	0.41
HS40	0.19	0.54	0.52	0.54	0.32	0.38
HS42	0.66	0.23	0.02	0.19	0.01	0.01
HS44	0.57	0.19	0.58	0.46	0.03	0.05
HS48	0.02	0.31	0.76	0.85	0.33	0.64
HS54	0.43	0.31	0.60	0.49	0.06	0.15
HS61	0.20	0.10	0.03	0.17	0.01	0.01
HS62	0.63	0.30	0.06	0.31	0.13	0.05
HS64	0.79	0.82	0.04	0.18	0.03	0.02
HS71	0.86	0.92	0.50	0.76	0.91	0.85
HS72	0.59	0.45	0.82	0.38	0.30	0.23
HS73	0.58	0.93	0.84	0.88	0.83	0.94
HS74	0.72	0.41	0.76	0.40	0.13	0.09
HS84	0.47	0.46	0.41	0.49	0.40	0.70
HS85	0.89	0.78	0.69	0.63	0.76	0.62
HS87	0.13	0.14	0.43	0.46	0.58	0.41
HS88	0.14	0.77	0.03	0.36	0.12	0.18
HS89	0.14	0.83	0.17	0.03	0.68	0.54
HS90	0.81	0.75	0.40	0.24	0.80	0.50
HS94	0.76	0.38	0.46	0.67	0.10	0.15
HS95	0.92	0.37	0.64	0.64	0.22	0.20

Table 18. Table HS Code

Code	Product	Code	Product
01	Live animal	26	Ores, slag, ash
02	Meat, edible meat offal	27	Mineral fuels, oils, waxes
03	Fish, crustaceans, mollusks, others	28	Inorganic chemicals
04	Dairy products, birds eggs, honey	29	Organic chemicals
05	Other products of animal origin	30	Pharmaceutical products
06	Live trees, other live plants, bulbs	31	Fertilizers
07	Edible vegetables, roots	32	Tanning or dyeing extracts, paint
08	Edible fruit and nuts	33	Essential oils, cosmetic preparations
09	Coffee, tea, mate	34	Soap, candles
10	Cereals	35	Albuminoidal substances, glues
11	Products of milling industry	36	Explosives, matches
12	Oil seeds, oleaginous fruit, medicine	37	Photographic and cinematographic
13	Lac, gums, other vegetable products	38	Miscellaneous chemical products
14	Vegetable plaiting materials	39	Plastics and articles thereof
15	Animal or vegetable fats, oils	40	Rubber and articles thereof
16	Preparation of meat, of fish	41	Raw hides and skins (other than furskins)
17	Sugars and sugar confectionery	42	Articles of leather or animal gut, harness
18	Cocoa, cocoa preparations	43	Furskins and artificial fur
19	Preparations of cereals, flour, milk	44	Wood and articles of wood, wood charcoal
20	Preparations of vegetables, fruit, nuts	45	Cork and articles of cork
21	Miscellaneous edible preparations	46	Manufactures of straw, esparto
22	Beverages, spirits, vinegar	47	Pulp of wood or of other fibrous cellulous
23	Residues, wastes from food industry	48	Paper and paperboard, articles of paper
24	Tobacco, tobacco substitutes	49	Printed books, new paper, pictures
25	Salt, earths, stone, cement	50	Silk

Code	Product	Code	Product
51	Wool, fine or coarse animal hair	76	Aluminum and articles thereof
52	Cotton	78	Lead and articles thereof
53	Other vegetable textile fibers, paper yarn	79	Zinc and articles thereof
54	Man-made filaments	80	Tin and articles thereof
55	Man-made staple fibers	81	Other base metals, cermets
56	Wedding, felt and nonwovens	82	Tools, implements, cutlery, spoons
57	Carpets and other textile floor coverings	83	Miscellaneous articles of base metal
58	Special woven fabrics, tufted textile	84	Nuclear reactors, boilers, machinery
59	Impregnated, coated, covered textile	85	Electrical machinery and equipment
60	Knitted or crocheted fabrics	86	Railway or tramway locomotives
61	Articles of apparel and clothing, knitted	87	Vehicles other than railway or tramway
62	Articles of apparel and clothing, not knitted	88	Aircraft, spacecraft and parts thereof
63	Other made up textile articles, sets	89	Ships, boats and floating structures
64	Footwear, headgear, umbrellas	90	Optical, photographic, cinematographic
65	Headgear and parts thereof	91	Clocks and watches and parts thereof
66	Umbrellas, sun umbrellas, walking-sticks	92	Musical instruments, parts
67	Prepared feathers and down	93	Arms and ammunition, parts
68	Articles of stone, plaster, cement, asbestos	94	Furniture, bedding, mattresses, cushions
69	Ceramic products	95	Toys, games and sports requisites
70	Glass and class	96	Miscellaneous manufactured articles
71	Pearls, precious pr semi-precious stones	97	Works of art, collectors pieces and antiques
72	Iron and steel		
73	Articles of iron and steel		
74	Copper and articles thereof		
75	Nickel and articles thereof		

Table 19. Percentage Trade in Agriculture among Korea, Japan, China, and the Rest of the World, 2002.

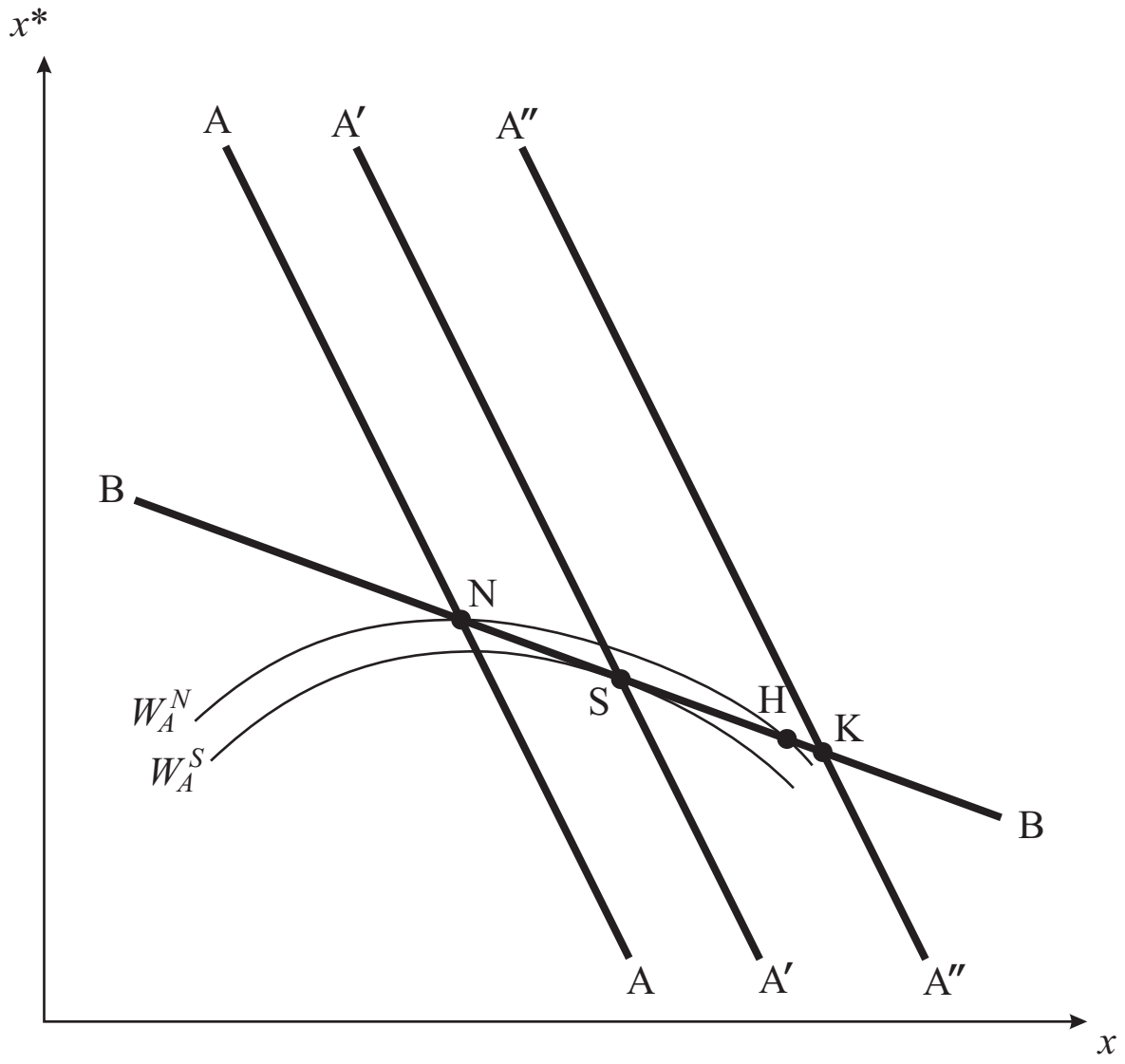|	Export from			
	South Korea	China	Japan	World
South Korea	-	12.67	0.95	6.00
China	0.40	-	0.88	3.42
Japan	9.15	14.42	-	12.97
World	1.58	5.21	0.51	-

Figure 1 Nash Equilibria

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