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Trade, Investment and Economic Integration of South Korea and China

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Abstract

The emergence of China has had a significant effect on the Korean economy. China is now the largest market for Korean exports and an important supplier of its imports. It has also become a serious challenger of Korea in the global markets for manufacturing exports. This paper investigates the effect of the rapid industrialization of the Chinese economy on its export structure and the bilateral trade between the two countries and examines the role that Korea's investment in China has played in transforming the export structures of the two economies. It presents evidence of increasing trade in parts and components and expanding production networks spanning the two economies. The paper concludes with a discussion of the prospects for future economic integration of China and Korea.

Keywords: China, Korea, trade, investment, economic integration
JEL Classification: F10, F21

I. Introduction

Economic relations between South Korea (henceforth Korea) and the People's Republic of China (henceforth China) have been on a rapid growth path ever since the establishment of a formal diplomatic relationship between the two in 1987. Their bilateral trade has grown steadily in both the volume and the variety of goods traded. Capital flows between the two have also increased although they are mostly from Korea to China in the form of direct investment. Between 1989 and 2003, for instance, Korea's merchandise exports to China grew from $1.3 billion to $35.1 billion while China's merchandise exports to Korea grew from $472 million to $20.1 billion (UNCOMTRADE). In fact, in 2005 China was Korea's largest trade partner with its exports to China amounting to $62 billion and its imports from China $38.6 billion (*The Korea Times* 1/12/06). In 2004, Korea invested $2.0 billion in China with the total stock of investment in China amounting to $8.9 billion at the end of that year. These increases in both trade and investment are signs of growing economic interdependence and integration of China and Korea.

The emergence of China has had, as observed by Gaulier, Lemoine and Ünal-Kesenci (2005) and Lall and Albaladejo (2004), far-reaching consequences on the East Asian economies: It has accelerated the restructuring of production in these economies and led to the expansion of their intra-regional trade as well as trade with the rest of the world. Korea, one of the East Asian economies, has likewise been significantly affected—both positively and negatively—by this development in the region.[2] While China is now the largest market for Korean exports and a major supplier of low-cost imports for Korean firms and consumers, it has begun to challenge Korea in the global markets for manufacturing exports.

These developments naturally raise a number of questions about the effects of China's emergence on the Korean economy. Has the overall effect been beneficial to Korea? Has Korea met China's challenges by making the necessary structural changes and gaining a comparative advantage in new high tech industries? How are they partaking in

[2] Eichengreen, Rhee and Tong (2004) and Eichengreen and Tong (2005) argue that economic growth in China has had a positive effect on high income countries and on countries that produce and export capital goods, components and technology and a negative effect on low-income countries and countries that produce and export consumer goods. In this paper we show that it has had both a positive and a negative effect on the Korean economy.

cross-border production sharing? How will it affect the future course of the Korean economy? These are some of the questions that we need to address in looking into the multi-faceted effects of rapid industrialization in China on the Korean economy.

In this paper, as a first step toward answering these questions, we examine the effect of rapid industrialization in China on its export structure and its bilateral trade with Korea and the nexus between Korea's investment in China and their trade and cross-border production sharing. In the following section we examine the trends and characteristics of the overall export structures of Korea and China. We also examine bilateral trade between the two economies and report that it has increased more rapidly than their respective trade with the rest of the world. We explain this as due in part to increasing trade in parts and components and as a sign of expanding production networks and increasing economic integration of the two economies. In section III we discuss various linkages between foreign direct investment (FDI) and bilateral trade between home and host countries as a prelude to examining the trade-investment nexus connecting China and Korea. In section IV we examine the motives for Korea's investment in China, shedding light on the linkage between Korea's investment in China and bilateral trade between the two and their cross-border production networks. We offer some concluding observations in Section V.

II. Rapid Industrialization in China and Its Effect on the Korean Economy

To find out how rapid industrialization in China has affected Korea's trade vis-à-vis China and the rest of the world, we examine the changes in the export structures of the two countries, their bilateral trade, and the production networks spanning the two.

1. Changes in the export structure

To learn about the changes in the export structures of China and Korea we examine the sectoral distribution of exports for 1992, 1997, and 2003, classified by the level of

production technology. Following the OECD classification system we group products into the following four categories: 1) low technology, (2) medium-low technology, (3) medium-high technology, and (4) high technology products.[6] We find that in 1992-2003 China, and Korea to a lesser extent, went through a major change in their export structure while that of Japan remained relatively stable over time (Table 1).

It is clear that China's export structure has shifted rapidly toward technologically more sophisticated products. In 1992, for instance, more than a half of China's manufacturing exports was in low tech products such as textile, apparel & footwear with medium (medium-high and medium-low) and high tech products accounting for 23.1 and 10.9 percent, respectively. By 2003, however, China made a significant change in its export structure, increasing the share of exports in medium-high tech and high tech products, especially in ICT (information and communication technology) products. Among ICT products, the share of computers & office products and radio, TV & communication equipments increased the most in 1992-2003. The combined share of these exports increased from less than 6 percent in 1992 to more than 24 percent in 2003.

A note of caution is warranted here, as although computers & office products and radio, TV & communication equipments are classified as high tech products the technologies actually involved in their production in China may not be of high technology. Many of the products may simply be assembled at the plants of foreign multinational firms, involving only simple labor-intensive assembly processes.[8] China will eventually acquire the capability to produce many of the high tech products on its own, but at present we need to be careful in inferring "Made by the Chinese" from the label of "Made in China."[9]

Between 1992 and 2003 Korea also experienced a steady increase in the export shares of both high and medium-high tech products—from 25.8 to 37.9 percent and from 20.4 to 33.8 percent, respectively. In the high tech group the largest increase took place in

[6] For this purpose we regroup trade data using the International Standard Industrial Classification (ISIC). The four technology groups are thus comprised of the following ISIC3 groups: 15~22, 36, and 37 for the low technology group; 23, 25~28 and 351for the medium-low technology group; 24 (excluding 2423), 29, 31, 34, and 35 (excluding 351and 353) for the medium-high technology group; and 353, 2423, 30, 32, and 33 for the high technology group. The non-manufacturing group consists of 01~14.

[8] Rodrik (2006) argues that although foreign investment has played a key role in upgrading industries in China the government's industrial policy of fostering domestic capabilities has also contributed to China's rapid increase in high tech exports. Gaulier, Lemoine and Ünal-Kesenci (2005) also make a similar point when they attribute changes in the commodity and geographic pattern of China's trade to its selective trade policy.

[9] This distinction was attributed to C.H. Kwan in Abe (2004).

radio, TV & communication equipments—from 8.5 to 14.5 percent—while in the medium-high tech group it was the exports of autos, the share of which more than doubling. In contrast, the shares of both low and medium-low tech products decreased with the steepest decline taking place in low tech products. Indeed, the export share of textile, apparel & footwear alone, which had been major export products up until the early 1990s, decreased from 25.4 percent in 1992 to 8.0 percent in 2003.

Japan, a global leader in the exports of high and medium-high tech products, particularly automobiles and home appliance & machinery equipments, has continued to maintain its leading position in high-tech products. Although China and Korea are apparently catching up with Japan in industrialization, as seen in their increasing share of exports in technology-intensive products, Japan has been able to maintain its position in the exports of high tech products with new technology and products.

<Table 1 here>

Changes in the export structures of China and Korea may further be elucidated with the help of the revealed comparative advantage (RCA). We take, with the usual caveat, an increasing value of a country's RCA in a product as an indication that it is gaining a comparative advantage in that product, and conversely when the RCA is decreasing.

Between 1992 and 2003, China rapidly gained a comparative advantage in ICT products (Table 2). Within this group the most significant change in RCA took place in computers & office products, which rose from 0.30 to 2.94, signifying that China managed to upgrade these industries into globally competitive ones in a decade or so. A less dramatic change in RCA took place in radio, TV & communication equipments, which rose from 1.24 to 2.18 during that period. China is yet to acquire a comparative advantage in semiconductor & electronic valves, as indicated by the value of RCA less than one. But the direction of change is clear: its RCA in those products is steadily increasing. Not surprisingly, China's RCA in the low tech group decreased from 2.43 in 1992 to 1.86 in 2003, but it still has a strong comparative advantage in a number of industries in the group such as textile, apparel, & footwear and other miscellaneous manufacturing products.

<Table 2 here>

In 1992-2003 Korea maintained a comparative advantage in all ICT products except in precision, medical & optical instruments. In particular, it gained a comparative advantage in computers & office products with RCA rising from 0.91 to 1.97. Korea's export share of medium-high tech products is small in comparison with that of Japan although it has steadily increased its RCA in these products. As of 2003, Korea had a comparative advantage in chemicals and auto industries but not in low tech products, especially in textile, apparel & footwear.

In comparing RCAs of the two countries we find that China has been gaining on Korea in some of the high tech, medium-high, and medium-low tech products. This suggests that China is following Korea in the "catching-up product cycle" development that began in Japan some years ago and was subsequently followed by Korea (Akamatsu, 1962; Yamazawa, 1990; and Kim, Kim and Lee, 2004).

With China catching up with Korea in industrialization we would expect export competition between the two to increase with exports from the former displacing those from the latter in many of the world markets, in particular in Japan and the United States, two major markets for Korea's exports. In Figure 1 we present the export shares of China and Korea in the world, Japan, the United States, and the European Union for 1992 and 2003. It is clear that China has made significant gains in the market share in Japan and the United States at the expense of Korea. This took place mostly in labor-intensive, low-tech industries—the industries in which Korea no longer holds a comparative advantage (Figure 2-1). Even in industries such as medium-low tech industries in which it still holds a comparative advantage Korea has lost some of its market share to China (Figure 2-2).

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While undergoing significant changes in its export structure since 1992, as discussed above, Korea has managed to increase its share of total world exports—from 2.1 percent in 1992 to 2.6 percent in 2003. In fact, it increased its market share in high and medium-high

tech products in spite of the fact that it was increasingly challenged by China in almost all the major markets of the world (Figures 2-3 and 2-4). This, that Korea has increased its share of total world exports especially by increasing its market share in high and medium-high tech products, suggests that it has been able to meet the challenges of the rapidly industrializing China by successfully making the necessary structural adjustment and moving up on the ladder of technology.

2. Expanding bilateral trade

While Korea has lost its market share in some of its exports to China in third markets, its bilateral trade with China has expanded. This is as to be expected since rapid economic growth in China has been accompanied with steadily increasing trade with the rest of the world, and we would expect that, other things being equal, its trade with Korea would also increase. What is thus of interest is whether for reasons yet to be investigated the China-Korea bilateral trade has increased more rapidly than their respective trade with the rest of the world. To answer this question we calculate the export- and import- intensity indices for China and Korea, respectively, for 1992 and 2003 (reported in parenthesis in Tables 3 and 4).[12]

Between 1992 and 2003, Korea's export-intensity with respect to China increased from 1.29 to 2.84 while its import-intensity also increased albeit at a more modest pace from 1.57 to 1.73. These increases in the export- and import-intensities indicate that bilateral trade between Korea and China has increased at a greater pace than their respective trade with other countries in the world.

During the same period China's export-intensity with respect to Korea increased from 1.04 to 1.6, indicating a growth rate of Chinese exports to Korea higher than that to the rest of the world and the growing importance of Korea as a destination for Chinese exports. China's import-intensity for Korean imports also increased much more rapidly from 1.24 to 3.21, indicating an increasing interdependency between the two economies.

[12] The export intensity index of country A with respect to country B is the ratio of B's share of A's total exports to B's share of world total imports. If it is greater than 1, B's share of A's exports is bigger than B's share of world imports, suggesting closer economic ties between the two. An increasing value of the index would suggest growing integration of the two economies through trade. The import intensity index is similarly calculated and would have the same implication.

[14] Jones (2001) defines international fragmentation of production processes as an activity that separates previously integrated production processes at one location into various component sub-processes across national boundaries. Obviously, international fragmentation does not have to undertaken only by a multinational corporation, as a firm may "outsource" parts production to an independent firm in another country.

<Table 3 here>
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3. Expanding production networks and growth in parts trade

The rapid increase in the export- and import-intensities discussed above, a measure of growing bilateral trade between China and Korea, may be due to the geographical proximity of the two countries. Distance alone cannot, however, account for the increase in bilateral trade, and here we consider whether expanding production networks between the two have contributed to the growth in bilateral trade. Expanding production networks, which may be a consequence of international fragmentation of production processes, imply increasing parts trade between the two countries (Gaulier, Lemoine and Ünal-Kesenci, 2005; Ando and Kimura, 2003).[14]

In Table 5 we report the destinations for parts exported from Korea and China. In 1992, China accounted for a meager 0.9 percent of Korea's total parts exports but in 2003 its share jumped up to 21.9 percent. Particularly noticeable increases took place in computers & office products; in radio, TV & communication equipment; in precision, medical & optical instruments; and in electrical machinery. These increases are a sign that China has become a major assembler of parts and components manufactured in Korea for many of its high and medium-high tech products. This contrasts with Korea's meager share of China's parts exports, which increased only slightly from 1.3 to 4.5 percent between 1992 and 2003. That is, Korea is not so an important market for China's parts exports as China is for Korea's.

In 1992, Korea imported intermediates and materials mostly from Japan, NAFTA, and Europe while importing only a miniscule amount from China (Table 6). By 2003, however, imports from the former decreased considerably while those from the latter increased significantly. The most dramatic increase occurred in computers & office products; in radio, TV & communication equipment; and in electrical machinery. These changes took place while the share of parts imports in those groups from Japan and NAFTA declined, indicating growing production networks spanning China and Korea.

<Table 5 here>

<Table 6 here>

China's parts imports from Korea also increased between 1992 and 2003, the most dramatic increase taking place in high and medium-high tech products, albeit not as large as the increase in Korea's parts imports from China. This asymmetry suggests that by 2003 Korea has become much more dependent on China for parts for its high and medium-high tech products than China has on Korea. This may be due to the fact that Korea has transferred some of the parts production to China. We explore this possibility, among other things, in the following two sections by looking into various possible linkages among foreign direct investment, bilateral trade and economic integration and the motives for and the effects of Korea's investment in China.

III. Foreign Direct Investment, Bilateral Trade and Economic Integration

FDI makes a direct contribution to economic integration of home and host countries by leading to the establishment of an affiliate or a subsidiary in a host country and thus transforming a national enterprise into a transnational one. Within this enterprise, as within any internal organization, there is a hierarchical relationship between home office and the affiliate and an up-and-down flow of information and personnel. Such exchange between home office and the affiliate is not readily quantifiable as it bypasses the market, but being an intra-firm relationship it is a closer and more intimate person-to-person relationship than the typical arm's-length relationship between independent agents across the market and thus would have a greater integrative effect on the two economies.[19]

What effect FDI has on the trade relationship between home and host countries is less clear as it can either increase or decrease bilateral trade or may even have no effect at all. It will have no effect on bilateral trade if it simply creates in the host country an "export platform" for third markets and replaces home-country exports to those markets with exports from the affiliate. This kind of investment is most likely to occur when a firm is seeking to reduce the labor cost by relocating its production site from home to a low labor-cost country. Even in this case FDI will still have a positive effect on bilateral trade if the affiliate imports parts and components from the home country.

FDI will have a positive effect on bilateral trade if it leads to "reverse importing"—the home country importing the affiliate's output and replacing what has been produced at home with the imports. This will happen when the home country is losing its comparative advantage in labor-intensive industries and transfers them through FDI to another country

[19] This integrative effect at the level of corporate organizations is well documented in a study of international production networks in Asia by Borrus, Ernst and Haggard (2000).

that has a latent comparative advantage in the same industries. In this case, seeking to reduce the labor cost is obviously the main motive for overseas investment. This kind of investment took place in Japan in the 1970s (Kojima, 1996; Lee, 1994) and also in Korea since the mid-1980s, as will be discussed below.

FDI will also have a positive effect on bilateral trade if it is for exploiting natural resources that the home country lacks. Its imports of natural resources from the host country may displace its imports of the same from a third country, but this "trade diversion" is likely to be welfare-improving for both countries since for the home country it is from a more costly to a less costly supplier of natural resources and for the host country it expands the market for its natural resources.

There is another reason why FDI may lead to growth in bilateral trade, and that is international fragmentation of production processes or cross-border production sharing that allows previously integrated production processes at one location to be separated into various component parts across national boundaries (Jones, 2001). Such fragmentation may not necessarily be the result of FDI as it can happen with "outsourcing" arrangements between two independent firms, but FDI is certainly a vehicle through which a firm may carry out intra-firm fragmentation of production processes across national boundaries. In such cases FDI will lead to the establishment of production networks, which in turn brings about an increase in bilateral trade in parts and components as the investing firm exports them to its foreign affiliate for further processing or assembling or, conversely, as parts move from the affiliate to the parent companies (Urata, 2004).

FDI will have a negative effect on bilateral trade if it leads to a partial or full displacement of home-country exports to the host country with the goods produced locally by the affiliate. This will occur if the motive for FDI is to serve host-country markets regardless of whether it is to avoid paying tariffs or to reduce the cost of serving the markets such as the cost of transportation. But even in this case FDI will not completely displace bilateral trade if the affiliate imports parts and components from its parent company or other home-country sources.

It is clear from the above discussion on the relationship between FDI and bilateral trade that we can, to some extent, infer the effect of FDI on bilateral trade from the motive of investment. If it is to take advantage of low-cost labor in the host country or exploit its natural resources the FDI is likely to have a positive effect on bilateral trade whereas if the motive is to exploit host-country markets it is likely to have a negative effect (although negligible or even positive if intermediates are supplied from the home country).

The discussion so far of the effect of FDI on bilateral trade is based on the assumption that a trade relationship has existed between two countries before firms in one

country start investing in the other. It is, however, quite possible, as happened in China after the Four Modernization reforms in the late 1970s, that FDI precedes trade; that is, foreign investment comes in first to manufacture products, which are then exported. Such investment will have a positive effect on bilateral trade as it generally leads to importing parts and components from the home country and possibly to exporting final products back to it.

The above discussion of the investment-trade nexus relates only to the direct effects of FDI on bilateral trade between home and host countries and do not take into account any indirect effect that FDI may have on bilateral trade through its effect on economic growth. As is well documented in the literature (e.g., Bende-Nabende, 2002; Blomström and Kokko, 1998; Henley, Kirkpatrick, and Wilde, 2002; OECD, 2000, Tseng and Zebregs, 2002), FDI generally has had a positive effect on the economic growth of the host country, and definitely in the case of China, as it brings in capital, advanced technology, and managerial know-how and expands employment while increasing competitive pressure on local enterprises and thus enhancing their efficiency. It is also likely to have a long-run positive effect on the home country by transferring abroad the industries in which it is losing its comparative advantage and thus facilitating structural adjustment. If these indirect positive effects of investment are taken into account FDI motivated by low-cost labor will have a positive effect on bilateral trade. If the motive of investment is, however, to serve the host-country market its effect on bilateral trade will depend on the relative magnitude of direct and indirect effects.

In addition to the investment-trade linkage there is another reason why FDI will have a positive effect on economic integration, and that is the backward linkages or supply chains created by FDI in the host country. To the extent that the affiliate purchases locally produced intermediates the local suppliers become a part of the supply chains and participate in cross-border production networks. This inclusion in production networks will have as strong an effect on economic integration of home and host countries as bilateral trade does. As will be shown below, Korea's investment in China has led to extensive local procurement and thus to the inclusion of local Chinese firms in Korean firms' production networks.[20]

IV. Korean Investment in China: Its Motives and Effects

[20] According to an article published in *The International Herald Tribune* (2/9/06), "Made in China's Labels Don't Tell Whole Story," Samsung Electronics of Korea has established 23 factories in China employing 50,000 workers while closing down its last computer notebook factory in Korea.

As noted above, Korea has invested heavily in China with the total sum amounting to $8.9 billion at yearend of 2004. What has motivated Korean firms to invest in China? How has their investment affected bilateral trade and economic integration of the two economies? To answer these questions we examine the results of two surveys on Korea's overseas direct investment—one carried out in 1996 and the other in 2003—by the Korea Institute for Industrial Economics and Trade (KIET). The 1996 survey was done on a sample of 615 Korean companies (216 large firms and 399 small and medium- sized enterprises (SMEs) and their 952 offshore affiliates. The 2003 survey replicated the earlier one with some changes in the sample size and composition—748 companies (89 large firms and 659 SMEs) and their 1,050 offshore affiliates, all in manufacturing. These two surveys provide information on the motives for overseas investment and the patterns of sales and procurement and other activities of offshore affiliates (reported by their parent companies registered officially as overseas investors).

1. Motives for investing in China

In the 2003 survey the sample firms were asked to pick the most important motive for investing overseas—natural resource or raw materials, low-cost labor, market access, high technology, and "others." Out of 706 firms with investment in China, 42.6 percent reported low-cost labor and 33.0 percent the market access as the most important reason for investing in China. These motives are quite different from those for investing in North America and Europe, which, according to the survey, are the market access.[21]

<Table 7 here>

According to the 2003 survey, the most important motive for overseas investment in textiles & apparel and footwear & leather industries, which are labor-intensive, was, not

[21] Kim and Lee (2003) found that for the large firms the market access is the most important reason for investing in China whereas for SMEs it is the low-cost labor that is the most important reason for investing in China. They also report that Korea's FDI in China in 1993-97 was concentrated in the coastal areas and the areas with a high concentration of ethnic Koreans such as Jilin, Heilongjiang, and Liaoning provinces. These three provinces received a significant amount of investment from SMEs in Korea but a negligible amount from other countries. Kim and Lee attribute this difference to the importance of a common language and common culture in reducing transactions cost of overseas investment for SMEs.

[25] This survey results are consistent with the result of an econometric study (Fung, Iizaka, and Paker, 2002) that shows that FDI from Hong Kong and Taiwan tend to use China as a platform to manufacture labor-intensive goods and export them to industrialized countries.

surprisingly, the low-cost labor in host countries.[25] The textiles & apparel and footwear & leather industries had been two of Korea's major export industries until the mid-1980s when it began to lose its comparative advantage in labor-intensive industries due in part to rapid increases in labor cost in Korea. Korean firms in those industries had already established international sales networks and thus could capitalize on them in marketing the products from their affiliates in China. In such cases the exports from the Korean affiliates in China would be displacing exports from Korea in third markets and some would even be shipped back to Korea as "reverse imports." Parts imported from Korea would also increase in such cases, leading to expansion in bilateral trade.

Low-cost labor in China was an important factor in Korean firms' decision to invest even in certain capital-intensive, heavy industries such as machinery and equipment, electronics & telecommunications equipment, and fabricated metals (Table 8). This apparent contradiction with the theory of comparative advantage (i.e., to invest in sectors in which China does not have a comparative advantage) can readily be explained, however, if the investment is for labor-intensive parts of production as would happen in international fragmentation of production processes or production sharing.

<Table 8 here>

Production processes in heavy industries involve, relative to light manufacturing industries, a large number of separable sub-processes with different requirements for technology and factor intensity — some sub-processes requiring high-tech materials and component parts and others requiring an intensive use of low-cost labor. A firm in such an industry can minimize the unit cost of output by producing high-tech components in the home country where there is a high technological capability and assembling them in China where there is an ample supply of low-cost labor. Indeed, many Korean firms in heavy industries have made such production arrangements since the late 1980s by establishing assembly plants in China. International fragmentation thus makes it possible for a labor-abundant developing country to become a site for producing some parts of a previously wholly integrated process in a capital-intensive industry or for assembling parts manufactured in other countries.

The Korean affiliates in heavy industries in China may be serving as export platforms for their parent companies. Even though, in that case, the affiliates' exports from China are displacing exports from Korea, cross-border production sharing has a positive effect on bilateral trade if parts and components are shipped from parent to affiliate firms or conversely.

2. Trade patterns of Korean affiliates in China

Here we examine the procurement and sales patterns of affiliates, as reported in the KIET surveys, in order to find out how Korea's FDI in China has affected the bilateral trade. As seen in Table 9, which reports the sources of procurement by Korean affiliates by region, between 1996 and 2003 the share of parts and components imported by the affiliates in China from Korea decreased from 64.7 to 36.9 percent while the share of local procurement increased from 26.5 to 45.6 percent, suggesting an increasing localization of parts supplies. The share of imports from third countries in total procurement also increased from 8.8 to 17.5 percent.

The survey results indicate that Korean investment in China has had a positive effect on their bilateral trade although the share of parts imported from Korea in total procurement by the affiliates in China has declined. They also point to the fact that FDI has created extensive backward local linkages, contributing to the economic integration of the two economies.

<Table 9 here>

Table 10 reports the procurement patterns of Korean affiliates in China by industries. Between 1996 and 2003 the share of imports from Korea in total procurement decreased for most of industries except for food & beverage, paper & printing, basic metals, and motors & freight. Particularly, electronics and telecommunication equipment decreased from 86.0 percent in 1996 to 36.3 percent in 2003. Except for machine & equipment industry, the industries that experienced a decrease in the share of imports from Korea inversely experienced an increase in the share of local procurement between 1996 and 2003. This indicates strong local backward linkages created by Korean affiliates in China.

<Table 10 here>

Table 11 reports the sales and exports of Korean affiliates by region. Between 1996 and 2003, overall local sales in China by the affiliates increased whereas their exports to Korea decreased. Indeed, the share of local sales increased from 22.6 percent to 34.2 percent while the share of exports of the affiliates in China to Korea decreased from 25.8 percent to 17.8 percent.

<Table 11 here>

Sales destinations of the output produced by Korean affiliates in China vary widely from industry to industry (Table 12). According to the 2003 survey, in paper & printing, petroleum & chemical, basic metals, and motors & freight more than a half of the affiliate output was sent to local markets. In contrast, in textiles & apparel, footwear & leather, fabricated metals, machine & equipment, and electronics and telecommunication equipment more than 60 percent of output was exported. Reverse imports—exports back to Korea—accounted for 17.8 percent of the entire manufacturing output and was especially large in footwear & leather and in both non-metallic minerals and basic metals. Exports to third markets were especially large—at least as much as a half of total output—in textiles & apparel, footwear & leather, machine & equipment, and electronics & telecommunication equipment. These are industries that are either labor-intensive or assemblers of parts imported from Korea.

<Table 12 here>

Reverse imports resulting from overseas investment clearly add to bilateral trade between home and host countries and reflect a changing comparative advantage between the two. One of the factors that motivated Korean firms to invest in China was a rapidly increasing gap in labor cost between the two countries. Such a gap would have caused a contraction in labor-intensive industries in Korea and an expansion in the same in China even without the transfer of those industries to China through FDI and would have led Korea to import labor-intensive products from China. What Korea's investment in China has done is to bring about a more rapid and a less costly adjustment of the international division of labor to changing comparative advantage and a greater expansion of bilateral trade between Korea and China than would have occurred otherwise (Ogawa and Lee, 1996).[26]

V. Concluding Remarks

Rapid industrialization in China since the late 1970s has had both a positive and a negative effect on the Korean economy. It has made China's export structure increasingly similar to that of Korea, turning it into Korea's major competitor in many of the world markets for manufactured exports. It has at the same time turned China into a major market for Korean exports and an important source of its imports. Now, bilateral trade between the two is

[26] Ahn *et al*. (2005) show in an econometric study based on manufacturing micro-data from 1990 to 2003 that Korea's FDI led to a decrease in exports from Korea's low-tech and medium low-tech industries; that an industry with a high growth rate of FDI tends to experience a high growth rate in employment; and that an industry with a high share of FDI in China tends to have a slow rate of growth in employment.

highly significant, having increased much more rapidly than their respective trade with the rest of the world. Parts trade between the two, especially parts exported from Korea to China, has increased significantly—a sign of expanding production networks between the two economies.

While losing some of its market shares in labor-intensive, low tech products Korea has managed to increase its world export share from 2.1 percent in 1992 to 2.6 percent in 2003. This is a sign that Korea has successfully been making the necessary structural adjustment in the face of the challenges coming from China's emergence and moving up on the technology ladder. The recent change in manufacturing employment in Korea supports such a conclusion: in both 1992-96 and 2001-03 employment grew at positive rates in the high tech, medium-high tech, and medium-low tech sectors while decreasing by 4.1 and 2.1 percent in those two periods, respectively, in the low tech sector (Table 13).[27]

<Table 13 here>

If by economic integration we mean increasing cross-border production sharing as well as increasing mobility of the factors of production and goods and services between countries, Korea's investment in China certainly has had a positive effect on the economic integration of the two economies. It probably has had an additional integrative effect by promoting information and personnel exchange between the two countries and by inducing them to abide by contracts and realize the importance of cross-border harmonization of rules and regulations relating to trade and investment. These are the effects of FDI that are rarely quantified or quantifiable and seldom discussed in the literature but perhaps are as important for economic integration as its effect on bilateral trade.

Korea and China are not yet part of a formal regional grouping like the EU and NAFTA, and it may take many years before the two may become members of such a grouping. For various economic, historical and political reasons unique to the region the

[27] The years 2001-03 are chosen to minimize the negative effect of the Asian financial crisis of 1997-98 on employment and the subsequent rapid recovery in employment in Korea.

[30] Lee (2001) made a proposal for creating a regional economic cooperation body for China, Japan and Korea—the Council for Northeast Asian Economic Cooperation. According to him, such a body would perform useful functions such as strengthening the voice of the three countries in the international arena and pave the way to future formal economic integration in the region.

prospects for such formal regional machinery being established in the near future appear poor (Chung, 2005; Lee, 2003; Schott and Goodrich, 2001; Seliger, 2002). These are not, however, insurmountable barriers to creating organizations such as policy coordinating bodies charged to promote trade and investment and contribute to the creation of a strong regional identity.[30] This paper has demonstrated that the process of economic integration between China and Korea has already begun, paving the way toward building formal regional machinery in Northeast Asia in the foreseeable future.

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<Table 1> Distribution of Total Exports by Technological Category (Share in total exports, %)

	China			Korea			Japan		
	1992	1997	2003	1992	1997	2003	1992	1997	2003
Total Exports	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Manufacturing									
High technology	**10.9**	**16.6**	**31.8**	**25.8**	**30.0**	**37.9**	**29.6**	**30.6**	**28.0**
-Aircraft and spacecraft	0.5	0.2	0.1	0.9	0.7	0.3	0.2	0.5	0.5
-Pharmaceuticals	1.3	1.1	0.9	0.4	0.5	0.4	0.6	0.7	0.9
-Computers and Office products	1.3	5.1	14.4	4.0	5.0	9.9	9.0	9.1	5.2
-Semiconductor, Electronic Valves	0.8	1.8	3.3	10.6	16.0	11.2	6.0	9.5	9.0
-Radio, TV, Communication Equipments	4.5	5.6	10.4	8.5	6.0	14.5	9.0	5.6	6.5
-Precision, Medical, Optical Instruments	2.6	2.8	2.6	1.3	1.7	1.7	4.7	5.3	6.0
Medium-High technology	**12.4**	**15.7**	**19.1**	**20.4**	**30.0**	**33.8**	**50.9**	**50.4**	**52.4**
-Electrical Machinery	3.3	4.9	5.7	2.2	2.8	3.0	5.4	6.2	5.7
-Chemical Products	4.1	4.7	3.8	7.2	9.7	9.8	6.7	8.1	8.6
-Motor vehicle and Trailer	0.8	1.0	1.7	5.8	9.9	12.6	23.4	19.7	22.8
-Other Transport Equipment	0.7	0.7	1.1	0.2	0.3	0.2	1.6	1.4	1.4
-Home Appliance and Machinery Equipments	3.5	4.4	6.8	5.0	7.2	8.3	13.9	15.0	14.1
Medium-Low technology	**10.7**	**13.5**	**11.0**	**18.7**	**19.1**	**16.2**	**12.1**	**11.4**	**11.2**
-Shipbuilding and repairing	0.6	0.9	0.7	5.4	5.1	6.1	2.3	2.4	2.1
-Coke, Petroleum products	0.9	0.8	0.5	0.2	0.1	0.2	0.1	0.1	0.1
-Rubber and plastic products	2.0	2.8	2.6	2.8	2.6	2.5	2.0	2.2	2.5
-Non-metallic mineral products	1.9	2.1	1.7	0.8	0.5	0.6	1.2	1.2	1.1
-Basic metal and Fabricated metal products	5.3	6.8	5.5	9.7	10.8	6.9	6.4	5.4	5.3
Low technology	**53.4**	**47.1**	**34.4**	**31.6**	**20.2**	**11.4**	**5.3**	**4.4**	**3.5**
-Textile, Apparel, Footwear	37.5	32.2	23.0	25.4	15.0	8.0	2.2	1.6	1.4
-Food, Beverages, Tobacco	6.4	4.8	2.9	2.1	1.9	1.2	0.5	0.5	0.5
-Wood and Paper products	2.0	1.9	1.7	1.0	1.4	0.7	0.9	0.7	0.6
-Other Miscellaneous Manufacturing Product	7.5	8.1	6.8	3.2	1.8	1.5	1.7	1.5	1.1
Non-manufacturing products	**11.2**	**6.3**	**3.4**	**1.5**	**0.7**	**0.4**	**0.2**	**0.2**	**0.2**

Source: Yangseon Kim (2004)

<Table 2> Revealed Comparative Advantage (RCA) by Technology Group

	China			Korea			Japan		
	1992	1997	2003	1992	1997	2003	1992	1997	2003
Manufacturing									
High technology	**0.56**	**0.76**	**1.37**	**1.33**	**1.34**	**1.60**	**1.53**	**1.40**	**1.21**
-Aircraft and spacecraft	0.14	0.07	0.05	0.28	0.26	0.12	0.07	0.18	0.20
-Pharmaceuticals	0.74	0.61	0.30	0.26	0.28	0.12	0.37	0.39	0.30
-Computers and Office products	0.30	0.95	2.94	0.91	0.91	1.97	2.03	1.69	1.06
-Semiconductor, Electronic Valves	0.26	0.39	0.74	3.62	3.46	2.48	2.06	2.09	2.04
-Radio, TV, Communication Equipments	1.24	1.36	2.18	2.31	1.41	2.97	2.45	1.34	1.35
-Precision, Medical, Optical Instruments	0.75	0.83	0.74	0.39	0.50	0.46	1.38	1.55	1.69
Medium High technology	**0.36**	**0.48**	**0.57**	**0.60**	**0.89**	**0.99**	**1.50**	**1.53**	**1.57**
-Electrical Machinery	0.87	1.14	1.32	0.59	0.63	0.68	1.42	1.42	1.30
-Chemical Products	0.56	0.63	0.50	0.99	1.29	1.27	0.91	1.09	1.13
-Motor vehicle and Trailer	0.07	0.10	0.15	0.50	0.93	1.07	2.04	1.90	1.96
-Other Transport Equipment	1.26	1.47	1.99	0.35	0.62	0.29	2.76	2.82	2.58
-Home Appliance and Machinery Equipments	0.32	0.43	0.73	0.46	0.69	0.87	1.29	1.46	1.51
Medium Low technology	**0.83**	**1.12**	**0.96**	**1.45**	**1.55**	**1.38**	**0.93**	**0.94**	**0.97**
-Shipbuilding and repairing	0.61	1.19	0.87	5.77	6.54	7.41	2.52	3.12	2.64
-Coke, Petroleum products	1.30	1.30	0.96	0.30	0.20	0.32	0.21	0.21	0.21
-Rubber and plastic products	0.83	1.15	1.01	1.15	1.03	0.94	0.82	0.88	0.97
-Non-metallic mineral products	1.31	1.54	1.29	0.52	0.32	0.42	0.81	0.88	0.85
-Basic metal and Fabricated metal products	0.71	1.00	0.88	1.30	1.56	1.08	0.86	0.80	0.85
Low technology	**2.43**	**2.29**	**1.86**	**1.44**	**0.95**	**0.60**	**0.24**	**0.21**	**0.19**
-Textile, Apparel, Footwear	4.42	4.14	3.32	2.99	1.88	1.13	0.25	0.21	0.19
-Food, Beverages, Tobacco	1.08	0.87	0.58	0.35	0.33	0.23	0.09	0.09	0.09
-Wood and Paper products	0.45	0.46	0.48	0.22	0.33	0.19	0.20	0.17	0.17
-Other Miscellaneous Manufacturing Products	2.43	2.62	2.21	1.03	0.58	0.47	0.55	0.50	0.35
Non-manufacturing products	**1.34**	**0.74**	**0.38**	**0.18**	**0.08**	**0.05**	**0.02**	**0.02**	**0.03**

Source: Yangseon Kim (2004)

<Table 3> Exports by Destination (share in total exports, %) and Export Intensity (in parenthesis)

China's Exports	**Destination**							
	Korea	**Japan**	**HK**	**ASEAN**	**NAFTA**	**Other America**	**Europe**	**Oceania**
1992	2.8% (1.04)	13.7% (1.78)	44.2% (10.45)	5.5% (0.84)	11.1% (0.45)	1.1% (0.38)	13.1% (0.22)	0.9% (0.56)
1997	5.0% (1.56)	17.4% (2.32)	24.0% (5.08)	7.0% (0.86)	19.2% (0.72)	2.3% (0.53)	15.7% (0.31)	1.3% (0.77)
2003	4.6% (1.60)	13.6% (2.21)	17.4% (4.66)	7.1% (1.38)	23.2% (0.84)	1.9% (0.89)	20.1% (0.40)	1.7% (0.96)
Korea's Exports	**China**	**Japan**	**HK**	**ASEAN**	**NAFTA**	**Other America**	**Europe**	**Oceania**
1992	3.5% (1.29)	15.1% (1.96)	7.7% (1.82)	11.8% (1.80)	27.0% (1.10)	5.2% (1.86)	14.7% (0.25)	1.8% (1.05)
1997	10.0% (3.17)	10.8% (1.45)	8.6% (1.83)	15.0% (1.84)	18.2% (0.68)	5.1% (1.19)	17.3% (0.34)	2.0% (1.15)
2003	18.1% (2.84)	8.9% (1.51)	7.6% (2.10)	10.4% (2.11)	20.4% (0.77)	3.2% (1.51)	15.6% (0.32)	2.5% (1.51)

Source: Yangseon Kim (2004)

<Table 4> Imports by Origin (share in total imports, %) and Import Intensity (in parenthesis)

China's Imports	**Origin**							
	Korea	**Japan**	**HK**	**ASEAN**	**NAFTA**	**Other America**	**Europe**	**Oceania**
1992	3.3% (1.24)	17.0% (1.46)	25.5% (6.23)	5.5% (0.87)	13.6% (0.63)	2.2% (0.71)	19.7% (0.34)	2.6% (1.43)
1997	10.5% (3.38)	20.4% (2.12)	4.9% (1.15)	8.7% (1.09)	13.0% (0.56)	2.5% (0.66)	17.6% (0.32)	2.6% (1.47)
2003	10.4% (3.21)	18.0% (2.27)	2.7% (0.70)	11.5% (1.73)	9.7% (0.50)	3.2% (1.17)	16.9% (0.30)	2.1% (1.37)
Korea's imports	**China**	**Japan**	**HK**	**ASEAN**	**NAFTA**	**Other America**	**Europe**	**Oceania**
1992	4.6% (1.57)	23.8% (2.06)	1.0% (0.24)	8.7% (1.39)	24.5% (1.15)	2.8% (0.91)	14.8% (0.25)	4.7% (2.61)
1997	7.0% (1.70)	19.3% (2.03)	0.6% (0.15)	8.7% (1.09)	22.9% (1.00)	2.6% (0.68)	16.3% (0.30)	4.7% (2.72)
2003	12.3% (1.73)	20.3% (2.67)	1.5% (0.41)	10.3% (1.62)	15.2% (0.81)	2.3% (0.88)	13.8% (0.26)	3.8% (2.59)

Source: Yangseon Kim (2004)

<Table 5> Parts Exports by Destination (share in the parts exports to the world, %)

Korea's Parts Exports	Destination															
	China		Japan		HK		ASEAN		NAFTA		Other America		Europe		Oceania	
	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003
Total parts	0.9	2 1.9	10.5	10.4	7.1	8.5	21.4	15.1	34.4	16.3	1.7	1.7	13.5	12.7	0.9	0.7
-Parts for Aircrafts	0.0	0.4	0.3	4.3	0.0	0.2	3.0	11.3	75.6	62.9	0.0	0.1	19.7	15.6	0.1	0.2
-Parts for Computers and Office products	1.5	26.3	11.2	5.7	3.2	7.8	13.8	13.8	42.1	18.1	0.1	0.6	26.6	16.5	0.7	0.2
-Parts for Semiconductor, Electronic Valves	0.8	14.0	9.3	14.8	10.5	13.9	30.2	22.0	33.1	13.7	0.5	0.6	8.0	8.8	0.1	0.0
-Parts for Radio, TV, Communication Equipments	1.0	39.6	17.4	5.7	2.8	5.9	14	9.6	31.5	9.5	5.4	5.2	18.4	15.4	0.9	0.7
-Parts for Precision, Medical, Optical Instrument	0.9	64.9	18.4	10.9	3.0	4.2	4.0	2.5	59.3	7.9	0.4	0.1	9.9	3.8	0.3	0.3
-Parts for Electrical Machinery	1.8	30.1	16.8	10.9	7.8	8.5	11.4	12.6	22	15.6	3.6	1.4	18	6.6	2.1	1.6
-Parts for Motor Vehicles and Trailers	0.9	21.8	20.2	7.2	1.7	0.3	5.8	5.5	31.8	20.6	3.1	2.5	19.4	14.0	3.5	1.8
-Parts for Home Appliance and Machinery Equip.	1.9	24.0	15.7	12.4	3.7	1.3	14.5	12.4	29.7	20.9	2.2	1.4	17.2	13.6	1.4	1.0
China's Parts Exports	**Korea**		**Japan**		**HK**		**ASEAN**		**NAFTA**		**Other America**		**Europe**		**Oceania**	
	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003
Total parts	1.3	4.5	7.2	12.2	54.7	26.8	5.9	11.7	9.4	17.8	1.6	1.5	7.2	16.0	0.5	0.7
-Parts for Aircrafts	0.0	1.2	0.2	14.4	1.7	17.6	2.2	4.8	31.2	31.2	1.3	0.0	6.4	23.9	0.1	0.3
-Parts for Computers and Office products	1.6	1.8	2.6	7.9	73.4	33.5	0.6	13.9	10.6	20.0	0.0	0.5	10.8	18.0	0.0	0.4
-Parts for Semiconductor, Electronic Valves	0.6	7.0	4.2	8.6	80.0	43.1	3.6	17.7	4.5	7.7	0.1	0.4	3.3	7.2	0.1	0.1
-Parts for Radio, TV, Communication Equipments	2.1	7.1	13.2	19.1	73.7	27.8	2.6	8.4	2.9	11.8	0.1	1.8	1.9	18.9	0.0	0.3
-Parts for Precision, Medical, Optical Instrument	2.3	2.8	11.9	26.3	53.8	25.9	2.2	4.3	13.7	19.8	0.3	0.7	9.2	12.5	0.2	0.4
-Parts for Electrical Machinery	0.6	5.3	11.1	14.9	53.7	24.3	5.5	7.6	4.0	18.6	1.0	2.2	5.9	15.4	0.2	0.8
-Parts for Motor Vehicles and Trailers	1.5	2.0	6.6	14.4	11.0	1.8	17.8	9.4	28.5	41.0	2.5	1.6	14.1	12.0	0.7	1.7
-Parts for Home Appliance and Machinery Equip.	1.7	3.9	6.2	13.7	30.7	5.8	10.7	9.1	18.0	23.4	3.2	2.1	12.3	22.9	1.3	1.9

Source: Yangseon Kim (2004)

<Table 6> Parts Imports by Origin (share in the parts imports from the world, %)

Parts Imports of Korea	Origin															
	China		Japan		HK		ASEAN		NAFTA		Other America		Europe		Oceania	
	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003
Total parts	0.4	10.2	40.3	29.2	3.9	2.0	8.6	14.5	30.4	21.6	0.1	0.2	12.9	12.6	0.3	0.7
-Parts for Aircrafts	0.0	0.4	0.4	3.1	0.1	0.1	2.4	2.7	88.6	78.9	0.1	0.0	8.2	10.5	0.1	0.2
-Parts for Computers and Office products	2.7	35.9	46.5	13.5	2.8	3.6	3.0	14.5	34.6	13.9	0.2	0.3	3.8	4.1	0.2	0.1
-Parts for Semiconductor, Electronic Valves	0.2	5.6	35.9	25.2	8.7	2.6	18.5	22.5	28.3	24.1	0.1	0.3	4.7	6.3	0.0	0.1
-Parts for Radio, TV, Communication Equip.	1.1	19.1	65.4	45.9	1.8	1.9	3.7	8.1	13.0	13.2	0.3	0.2	9.6	9.2	0.1	0.1
-Parts for Precision, Medical, Optical Instru.	0.2	2.6	39.8	40.3	0.2	0.5	0.9	2.9	38.6	24.7	0.0	0.0	19.1	25.3	0.1	0.2
-Parts for Electrical Machinery	0.5	28.3	53.2	38.8	0.8	1.6	2.6	3.9	22.8	10.9	0.1	0.1	16.9	12.8	0.2	0.1
-Parts for Motor Vehicles and Trailers	0.3	1.5	62.9	39.8	0.0	0.0	0.2	1.2	16.0	14.1	0.6	0.1	16.1	32.7	3.1	9.7
-Parts for Home Appliance and Machinery Equip.	0.4	6.2	39.4	32.7	0.1	0.2	1.1	1.8	31.6	24.6	0.1	0.1	25.2	32.2	0.2	0.3
Parts Imports of China	**Korea**		**Japan**		**HK**		**ASEAN**		**NAFTA**		**Other America**		**Europe**		**Oceania**	
	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003	1992	2003
Total parts	1.7	10.5	22.3	23.1	33.8	3.5	0.8	15.5	11.3	6.8	0.1	0.8	23.4	14.0	0.1	0.1
-Parts for Aircrafts	0.0	0.1	0.1	0.6	0.9	0.1	0.3	1.7	58.0	44.7	0.0	0.4	40.7	52.1	0.1	0.0
-Parts for Computers and Office products	1.5	7.0	32.9	18.2	49.8	2.4	0.6	18.5	7.5	7.0	0.0	0.3	3.1	2.2	0.0	0.0
-Parts for Semiconductor, Electronic Valves	4.7	12.0	19.6	21.1	60.5	4.1	1.0	24.8	2.6	4.8	0.0	0.9	4.1	3.4	0.0	0.0
-Parts for Radio, TV, Communication Equip.	2.3	16.4	15.2	22.9	53.9	5.8	0.7	6.4	5.2	6.6	0.0	0.1	15.7	12.1	0.3	0.1
-Parts for Precision, Medical, Optical Instru.	0.1	5.6	26.2	35.8	28.0	3.5	0.3	4.7	19.7	11.9	0.0	0.0	13.0	12.9	0.2	0.1
-Parts for Electrical Machinery	0.7	7.6	18.0	30.3	42.4	4.2	0.7	3.5	8.4	6.9	0.0	0.2	22.4	23.8	0.2	0.2
-Parts for Motor Vehicles and Trailers	0.2	10.2	46.6	31.1	1.0	0.0	0.5	0.7	6.2	7.3	0.1	3.7	43.9	42.5	0.0	0.3
-Parts for Home Appliance and Machinery Equip.	1.1	6.5	23.4	26.8	14.8	1.3	1.2	4.0	15.4	11.3	0.2	0.5	37.1	40.4	0.2	0.4

Source: Yangseon Kim (2004)

<Table 7> Motives for Korea's ODI in Manufacturing by Region (2003 KIET Survey)

(Unit: %)

	Natural resource or Raw materials	Low-cost labor	Market Access or Export Expansion	Others	Total (number of sample)
Asia	3.2	43.0	31.7	22.1	100 (945)
China	3.4	42.6	33.0	21.0	100 (706)
North America	0.0	7.1	71.4	21.5	100 (42)
Europe	0.0	3.7	55.6	40.7	100 (27)
Latin America	0.0	46.2	38.5	15.3	100 (26)
All regions	3.1	40.2	34.5	22.2	100 (1,050)

Note: The figures are the percentage of the firms indicating the most important motive for investing abroad in the total number of surveyed firms.

Source: KIET and MOCIE (2004)

<Table 8> Motives for Korea's FDI in China by Industry (2003)

(Unit: %)

	Natural resource or Raw materials	Low-cost labor	Market Access	Others	Total (number of firms)
Manufacturing	**3.4**	**42.6**	**33.0**	**21.0**	**100 (706)**
Food and Beverage	16.1	12.9	51.6	19.4	100 (31)
Textiles and Apparel	2.5	62.2	16.8	18.5	100 (119)
Footwear and Leather	4.1	63.3	20.4	12.2	100 (49)
Paper and Printing	0.0	37.5	37.5	25.0	100 (8)
Petroleum and Chemical	2.4	25.0	53.6	19.0	100 (84)
Non-metallic minerals	15.4	50.0	19.2	15.4	100 (26)
Basic metals	4.3	43.5	43.5	8.7	100 (23)
Fabricated metals	0.0	46.7	33.3	20.0	100 (30)
Machine and equipment	2.7	27.0	47.3	23.0	100 (74)
Electronics and telecomm equipment	0.6	46.3	23.8	29.3	100 (160)
Motors and Freight	3.7	16.7	46.3	33.3	100 (54)
Other manufacturing	4.2	58.3	33.3	4.2	100 (48)

Note: The figures are the percentage of the firms indicating the most important motive for investing abroad in total number of surveyed firms.
Source: KIET and MOCIE (2004)

<Table 9> Sources of Procurement by Korean Offshore Affiliates by Region: all industries

(Unit: % of total procurement)

	Local Procurement		Imports from			
			Korea		Third Countries	
	1996	2003	1996	2003	1996	2003
Asia	37.4	40.9	52.3	41.1	10.3	18.0
China	26.5	45.6	64.7	36.9	8.8	17.5
North America	34.6	13.4	64.8	30.2	0.5	56.4
Europe	19.6	42.1	80.1	23.3	0.3	34.7
Latin America	12.6	20.7	85.9	43.7	1.5	35.6

Note: The figures in the 2003 KIET survey for all regions and those in the 1996 KIET survey for China are for the manufacturing sector only.

Source: Ha and Hong (1998), KIET and MOCIE (2004).

<Table 10> Sources of Procurement by Korean Affiliates in China by Industry

(Unit: % of total procurement)

	Local Procurement		Imports from			
			Korea		Third Countries	
	1996	2003	1996	2003	1996	2003
Manufacturing	**26.5**	**45.6**	**64.7**	**36.9**	**8.8**	**17.5**
Food and Beverage	78.3	59.6	19.2	21.9	2.6	18.4
Textiles and Apparel	46.0	63.3	53.8	25.7	0.2	11.0
Footwear and Leather	2.6	18.2	94.9	65.6	2.5	16.1
Paper and Printing	91.8	51.5	8.2	31.7	0.0	16.8
Petroleum and Chemical	1.0	37.1	62.9	47.3	36.1	15.6
Non-metallic minerals	49.0	93.0	51.0	3.2	0.0	3.8
Basic metals	88.6	9.0	11.4	90.8	0.0	0.2
Fabricated metals	0.5	41.7	99.5	56.9	0.0	1.4
Machine and equipment	40.9	28.9	49.4	8.9	9.8	62.2
Electronics and telecomm equipment	13.9	56.5	86.0	36.3	0.1	7.2
Motors and Freight	78.8	40.8	21.2	59.2	0.0	0.0

Source: Ha and Hong (1998), KIET and MOCIE (2004).

<Table 11> Sales Destination of Korean Offshore Affiliates by Region: all industries

(Unit: % of total sales)

	Local Sales		Exports to			
			Korea		Third Countries	
	1996	2003	1996	2003	1996	2003
Asia	64.5	38.4	14.2	17.4	21.3	44.2
China	22.6	34.2	25.8	17.8	51.6	48.1
North America	93.9	63.6	3.6	3.3	2.5	33.2
Europe	69.9	27.7	1.4	5.3	28.7	67.0
Latin America	58.0	30.1	10.9	8.0	31.1	61.8

Note: The figures in the 2003 KIET survey for all regions and those in the 1996 KIET survey for China are for the manufacturing sector only.

Source: Ha and Hong (1998), KIET and MOCIE (2004).

<Table 12> Sales Destination of Korean Affiliates in China by Industry

(Unit: % of total sales)

	Local Sales		Exports to			
			Korea		Third Countries	
	1996	2003	1996	2003	1996	2003
Manufacturing	22.6	34.2	25.8	17.8	51.6	48.1
Food and Beverage	51.2	43.4	27.4	35.3	21.5	21.2
Textiles and Apparel	47.5	22.4	8.2	28.4	44.4	49.2
Footwear and Leather	1.2	8.7	29.5	31.5	69.3	59.8
Paper and Printing	13.1	97.3	51.2	0.0	35.7	2.7
Petroleum and Chemical	0.6	78.4	46.6	10.4	52.8	11.3
Non-metallic minerals	40.0	49.6	57.8	46.4	2.2	4.0
Basic metals	51.3	62.8	23.1	35.3	25.6	1.9
Fabricated metals	3.5	36.6	25.7	17.4	70.7	46.0
Machine and equipment	51.6	16.1	47.0	6.4	1.4	77.5
Electronics and telecomm equipment	30.5	32.1	**60.7**	**12.8**	8.9	55.1
Motors and Freight	0.5	93.4	3.7	6.4	95.8	0.3

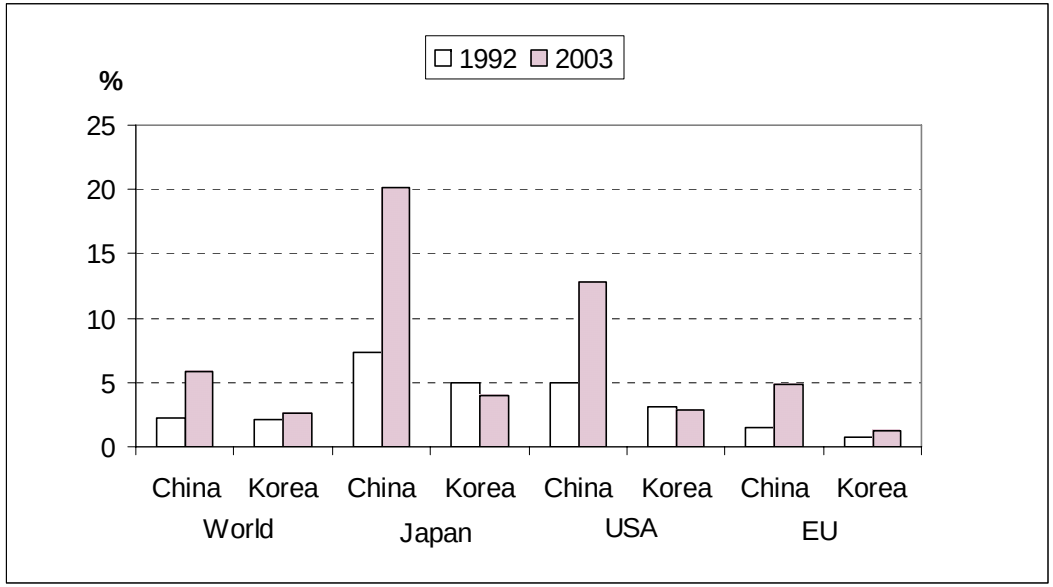
Source: Ha and Hong (1998), KIET and MOCIE (2004).

<Table 13> Annual Average Growth Rate in Employment (%) by Industry

		1992-96	2001-03
High Tech	Total	0.8	1.7
	Large firms	0.4	-2.1
	SMEs	1.5	5.5
Medium-high Tech	Total	3.3	2.1
	Large firms	1.3	-2.5
	SMEs	4.7	3.9
Medium-low Tech	Total	2.5	3.4
	Large firms	-1.0	-1.7
	SMEs	4.3	5.0
Low Tech	Total	-4.1	-2.1
	Large firms	-12.3	-7.2
	SMEs	-1.3	-1.3

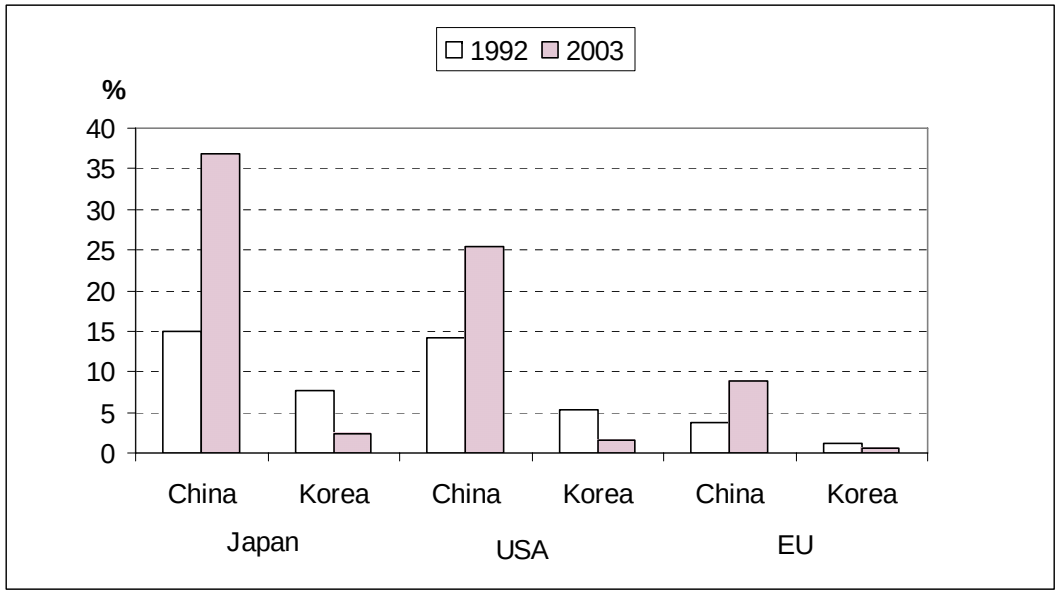
Source: Korea National Statistical Office, Mining and Manufacturing Survey, various years

<Figure 1> Export Share of China and Korea in Major Markets



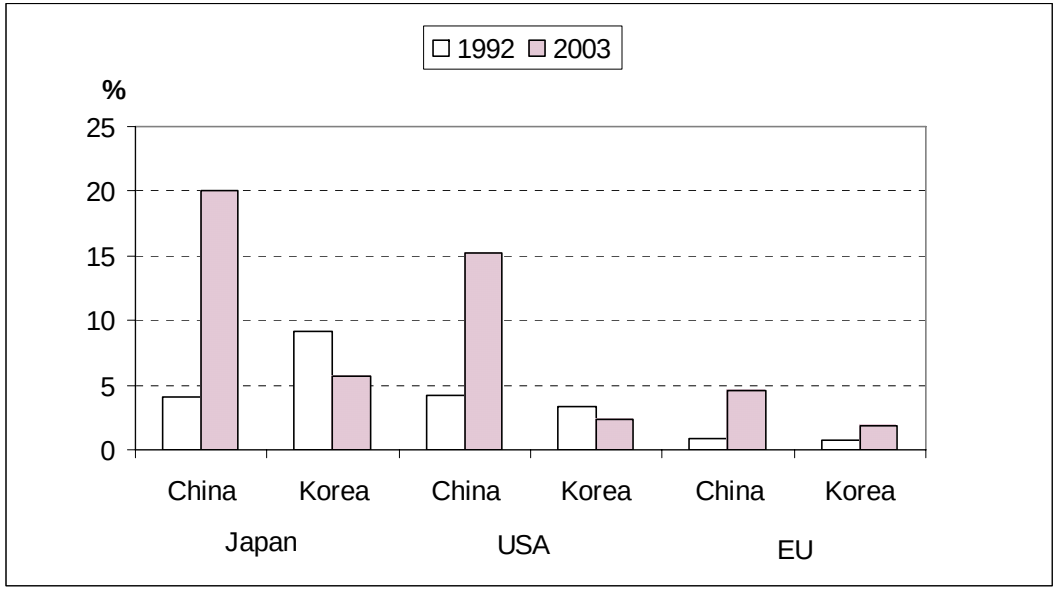
Source: Yangseon Kim (2004)

<Figure 2-1> Export Share of China and Korea in Major Markets: Low Technology Industry



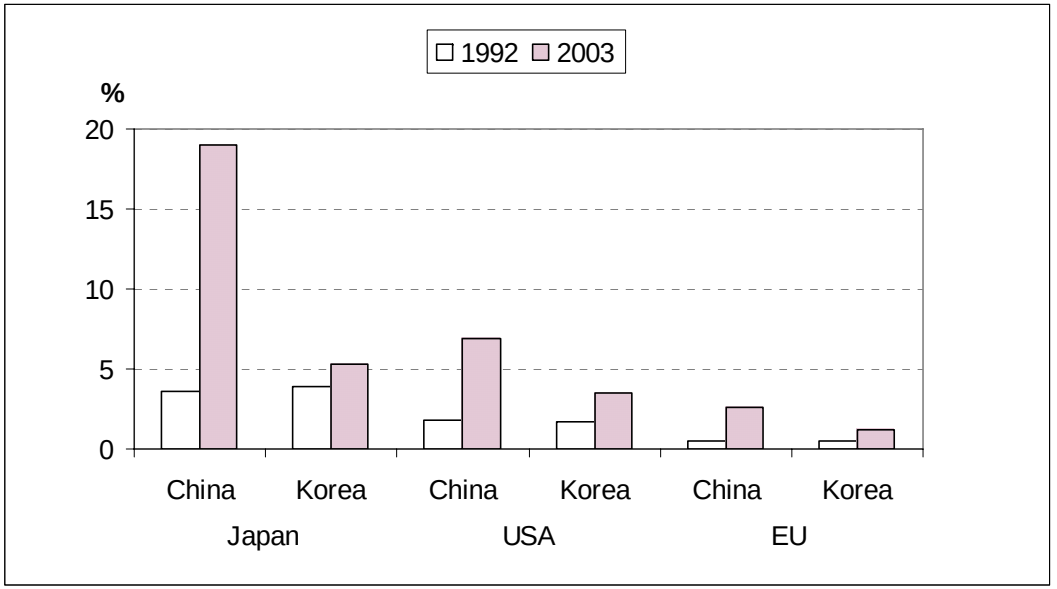
Source: Yangseon Kim (2004)

<Figure 2-2> Export Share of China and Korea in Major Markets: Medium-Low Technology Industry



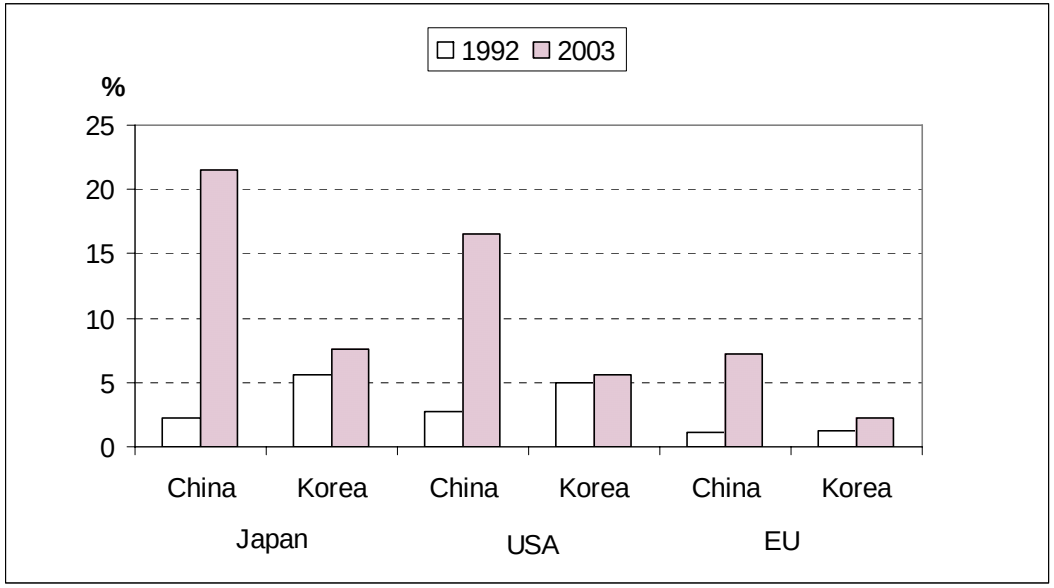
Source: Yangseon Kim (2004)

<Figure 2-3> Export Share of China and Korea in Major Markets: Medium-High Technology Industry



Source: Yangseon Kim (2004)

<Figure 2-4> Export Share of China and Korea in Major Markets: High Technology Industry



Source: Yangseon Kim (2004)

Endnotes