中國崛起對南韓經濟的意義

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中文摘要

中國經濟快速成長和對全球經濟開放已導致韓中兩國的 經濟關係產生重大變化。中國崛起對南韓的影響可以從四方 面來看。其一,中國正崛起成爲製造王國與出口大國;其二, 中國正快速擴大進口或可彌補其競爭對手在第三國市場所蒙 受的出口損失;其三,中國正崛起成爲國際上海外直接投資 的最大接受國;其四,中國崛起成爲世界製造工廠導致更多 南韓廠商失去原有的競爭力。爲保持其競爭力,眾多南韓廠 商將渠等生產設施移至中國。此舉所造成的產業空洞化可視 爲在將來對南韓經濟最大的挑戰之一。

南韓經濟持續涉入中國似乎對其貿易成長與競爭力的改 善有所助益,同時也促進中國經濟持續成長。透過與南韓經 濟合作與自由貿易,預期中國將可以吸收更多的資本並可使 其得以生產更具附加價值的商品;這將促使中國經濟保持穩 定增長。同時更可預期南韓將會持續利用中國的低生產成 本、不斷擴大的國內消費市場與對中介產品的需求增加。然 而,南韓內部亦關注中國崛起造成南韓製造業空洞化的影響。

本文分析中國崛起對中韓雙邊貿易、境外投資、產業空 洞化三方面的衝擊。面對中國經濟的快速成長,南韓產業加 速外移,南韓經濟無可避免地必須承受某種程度的空洞化。但 仍需強調南韓產業可藉由將生產設施遷移至中國而增加其產 品在市場上的價格競爭力。本文作者建議,第一,南韓需增 加投資研發部門的經費,建立高附加價值產業,以應付中國 工業化的進展與隨之而來對高附加價值中介產物的需求;其 二,南韓需藉由自由貿易協定擴展新市場,以應付中國進口 替代政策所帶來對南韓中介產品需求的下降。



The Rise of China and its Implications for

Korean Economy

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Key words : Rising China, Korean economy, Sino-South Korea relations, the industrial hollowing-out

1. Introduction

Chinese economy has experienced dramatic changes since its adoption of economic reform in 1978. In the past 26 years, China's GDP increased at a rate of 9.4% per year and its current GDP ranks the 6th in the world. Accompanied China's economic reform is the opening up of domestic market to the world. Between 1978 and 2004, on average, China's foreign trade increased by 16.7% per year, and reached US\$ 1,154.7 billion in 2004, making China ranked 3rd in the world. The rapid economic growth and gradual open-door policy have made China become a country with attractive investment opportunities for foreign countries. The foreign direct investment (FDI) in China has increased from a negligible amount in the late 1970s to US\$ 60.6 billion in 2004, making China the second largest FDI recipient country in the world, next only to the United States.

China's rapid growth and opening up with the world economy has led to significant changes in economic relations between Korea and China. The impacts of the rising China on Korea can be examined through four aspects. First, China is growing as a large manufacturer and exporter. Second, China is rapidly raising the volume of imports, which could offset any export loss for competitors in third markets. Third, China is emerging as a competitor in absorbing the foreign direct investments, making China one of the largest recipient of FDI in the world. Fourth, China is emerging as a world manufacturing factory. making more Korean producers lose their competitiveness. In order to maintain the their competitiveness in the world market, a large number of Korean firms attempt to shift their production facilities into China, taking advantages of China's skilled and cheap labor forces. With the geographical shift of Korean production activities, the industrial hollowing-out should be regarded as one of most important challenges which the Korean economy has to confront in the near future. This paper studies the impacts of rise of China on Korea by analyzing its implications for bilateral trade, overseas investment and industrial hollowing-out of Korea. In this paper, we claim that Korean companies investing in China benefit from their production relocation by gaining price competitiveness although it is inevitable for Korean economy to suffer from the hollowing-out to a certain degree. We also suggest that, first, Korea should foster high value added industry in order to cope with advances in China's industrialization. Second, Korea is

needed to expand export market through the free trade agreement to prepare for China's import-substitution.

The remainder of this paper is organized as follows. In section 2, we describe the bilateral economic relations between Korea and China, and discuss the prospects for economic cooperation between two countries. In section 3, we examine whether the hollowing-out effect in Korea is as serious as expected with the rise of Chinese economy. Section 4 concludes.

2. Rising China and economic relations between Korea and China

2.1. Competitiveness analysis between Korea and China

As a result of its open door policy, China has been integrating in the World trade networks. As shown in Figure 2.1, China's share in world merchandise export and import increased from 2.9% and 2.5% to 6.6% and 6.0% in 2004 respectively. It is now the world's third largest trading country, following the United States and Germany. China's rise in world trade volume appears to be more dramatic when compared with Korea of which share in world trade remains stable at 2.5% during the past decade.

The rapid expansion of China's external trade implies that China has become the center of international division of labor in global market. This is reflected by the fact that currently foreign investors account for about half of China's total export, of which 55% is the export processing activities.

<Figure 2.1> Share of Korea and China in world merchandise trade



We now turn to the examination of the impacts of rising China on competitiveness of Korea and China by using the revealed comparative advantage (RCA) index and export similarity index (ESI). The RCA index provides useful information about a country's potential and prospect of export by industry: a RCA index greater (less) than unity indicates a country has a comparative advantage (disadvantage) in a particular industry. Also countries with similar RCA profiles are unlikely to have high bilateral trade intensities unless intra-industry trade is involved. According to the RCA analysis, as shown in Table 2.1, Korea appears to have comparative advantage in machinery, metal product, and textiles, while it exhibits low competitiveness in primary product, leather & paper product, and nonmetallic mineral product. In this aspect, it is evident that Korea relatively has superiority in capital intensive and high value added industry while it has inferiority in labor

intensive and low value added industry. On the other hand, RCA index of China in a world context indicates that China is relatively competitive in primary product, leather & paper, textiles & clothes, metal product, and machineries. Although China has been known to be best competitive in labor-intensive industry, it is remarkable that China is rapidly gaining comparative advantage in high value added industry like electronics and electric parts.

<Table 2-1> Revealed Comparative Advantage(RCA) of Korea and China

Industry			Korea			China				
mausuy	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
Primary product	0.2336	0.2171	0.1815	0.1491	0.1444	0.9492	0.8301	0.7681	0.6900	0.5741
Processed primary product	0.2481	0.2708	0.2524	0.2308	0.2143	0.7315	0.6977	0.6262	0.5201	0.4996
Processed mineral product	0.5380	0.5556	0.4528	0.4241	0.4893	0.4385	0.4629	0.4080	0.4034	0.3931
Chemical product	0.8623	0.8507	0.8129	0.8095	0.8043	0.6196	0.5883	0.5343	0.4927	0.4681
Leather & paper product	0.5617	0.5469	0.4565	0.4026	0.3548	1.0993	1.1214	1.0577	1.0048	0.9642
Textile & clothes	1.7400	1.6921	1.5185	1.2302	1.0226	3.8342	3.5826	3.3423	3.0800	2.9954
Nonmetallic mineral product	0.6245	0.6020	0.5223	0.7344	0.7138	0.8824	0.8191	0.8507	0.7699	0.7939
Metal product	1.1005	1.1077	1.0422	1.1012	1.0337	1.0776	0.9747	0.9224	0.9022	1.0020
Other manufacturing	1.2901	1.3040	1.3859	1.4353	1.4673	0.7845	0.8470	0.9191	1.0197	1.0826
Others	0.2225	0.2389	0.2149	0.1685	0.1315	1.5201	1.5014	1.6145	1.3486	1.1654

	<1 able 2	-2> Export S	imilarity inc	lex (ESI)	
Industry	2000	2001	2002	2003	2004
Primary product	0.0041	0.0041	0.0040	0.0033	0.0029
Processed primary product	0.0059	0.0066	0.0067	0.0058	0.0049
Processed mineral product	0.0039	0.0020	0.0091	0.0103	0.0085
Chemical product	0.0225	0.0235	0.0243	0.0239	0.0244
Leather & paper product	0.0079	0.0080	0.0075	0.0065	0.0057
Textile & clothes	0.0489	0.0500	0.0471	0.0398	0.0323
Nonmetallic mineral product	0.0051	0.0063	0.0059	0.0067	0.0059
Metal product	0.0232	0.0217	0.0217	0.0206	0.0255
Machinery	0.1944	0.2216	0.2486	0.2564	0.2652
Other manufacturing	0.0079	0.0081	0.0073	0.0064	0.0055
Total	0.3236	0.3521	0.3821	0.3796	0.3809

To capture the nature of the Korea and China's bilateral trading patterns in more detail, we examine the export similarity index (ESI) for 1995 - 2002. This index is calculated from the sum of minimum share of one country's imports from another country in a specific commodity divided by that commodity's total imports. Therefore an ESI close to unity (zero) implies the trade structure between two countries is very similar (different)

<Table 2-2> Export Similarity Index (ESI)

to each other. Table 2.2 shows ESI for bilateral trade between Korea and China between 2000 and 2004.

It turns out that the ESI for the primary industries, leather & paper, and nonmetallic minerals remain steady at low level, which implies that Korean and Chinese products in these industries are very different in nature. Meanwhile, chemicals, textile & clothes, metals, and in particular, machineries exhibit high level of ESI. The fact that machineries show the highest ESI reflects that huge amount of FDI into China's machinery sector enabled China to develop machinery industry rapidly such that Chinese machineries are similar to what Korea produces. The ESI in machineries is not only among the highest but also increasing over time.

Indisputably China is emerging as a global production base, increasing its market share dramatically in the global market in the past two decades. However, it would be impossible for China to emerge as an economic powerhouse without some contributions made by foreign-invested enterprises in China. For example, in 2004, foreign invested enterprises in China accounted for 40.9% of China's total exports. In particular, foreign-invested enterprises in China have been major players in exporting the high-tech commodities to the world market. As Table 2.3 shows, three types of foreign invested enterprises in China occupied 87.3% of the total exports of high-tech commodities in 2004, with wholly foreign-owned enterprises accounting for about 65% of total exports of the high tech commodities.

Of course RCA index has been widely used to compare the competitiveness between countries. However in an era of globalization when the relocation of productive facilities is happening more frequently than before, it is questionable whether RCA index indicates the country's competitiveness properly. Assume that a country's domestic firms are not capable of producing and exporting certain commodities, and some foreign-invested enterprises invest in this country and successfully manufacture these commodities and export overseas. If this is the case, it is difficult to conclude that the competitiveness of this country's exports has improved. Thus considering the circumstances in which foreign-invested enterprises are actually major exporters in China, it cannot be deniable that RCA index largely indicates just the competitiveness of foreign-invested enterprises in China, at least in some cases. In other words, the RCA index may indicate the competitiveness of China in absorbing the foreign direct investment

2.2 Trade and investment relationship between Korea and China

2.2.1 Trade relations

Since the establishment of diplomatic relationship, the trade between Korea and China has increased rapidly, especially after China's access to WTO in 2001. As shown in Table 2.4, the value of trade between two countries increased from US\$ 2.8 billion in 1990 to US\$ 79.3 billion in 2004. During the period, Korea's export and import with China expanded 85-fold and 13-fold respectively. In 2004, Korea exported US\$ 49.7 billion to China and imported US\$ 29.5 billion from China, realizing a trade surplus of US\$ 20.2 billion. The trade surplus of Korea has widened in the past decade with the accumulated surplus reaching US\$ 82.1 billion since 1992. On the other hand, in 2004, Japan and Germany realized the trade surplus of US\$ 20.7 billion and US\$ 6.4 billion respectively, while U.S. recorded a huge deficit of US\$ 81.2 billion with China.

Ta (20	Table 2.3 China's Exports of the high-tech commodities by ownership (2004)							
	State-own ed enterprise	Sino-Fore ign cooperati ve	Sino-Fore ign joint	Wholly foreign owned enterprise	Collective ly owned enterprise	Privately owned enterprise	others	total
Amount(\$100	140.		1446.0		26.9	42.	0.09	1655
)mil)	.1	28.3	341.1.	1076.6	9	3)3	393
Sh			87.3					[
are(%)	8.5	1.7	20.6	65.0	1.6	2.6	0.0	00.0
So	Source : http://kjs.mofcom.gov.cn							

The trade relation between Korea and China has been promoted steadily in terms of the share of bilateral trade, as growing number of Korean companies are engaged in the processing trade and international segmentation of production with China. As is evident from Figure 2.2, the share of China in Korea's foreign trade has increased from 2.1% in 1990 to 18.5% in September 2005, making China the largest trade partner of Korea. Meanwhile, the shares of the U.S., Japan and Germany decreased from 26.9%, 23.1%, 4.5% to 13.3%, 13.4%, 3.7% respectively during the same period. Currently, China is the largest buyer of Korean products as well as the third largest seller to Korea.

<Table 2.4> Recent trends of bilateral trade between Korea and China (million US\$)

Year	Exp	orts	Imp	orts	Surplus	Total trade
1990	585	(33.7)	2,268	(33.1)	-1,683	2,853
1995	9,144	(47.4)	7,401	(35.5)	1,743	16,545
2000	18,455	(34.9)	12,799	(44.3)	5,656	31,254
2001	18,190	(-1.4)	13,303	(3.9)	4,887	31,493
2002	23,754	(30.6)	17,400	(30.8)	6,354	41,154
2003	35,110	(47.8)	21,909	(25.9)	13,201	57,019
2004	49,763	(41.7)	29,585	(35.0)	20,178	79,348
2005 1-7	34,469	(23.0)	21,858	(37.7)	12,611	56,327

Source: Korea International Trade Association - KOTIS Note: Numbers in parentheses are growth rates (%) <Figure 2.2> Share of major trade partners in Korea's foreign trade



On the other hand, the share of Korea in China's foreign trade has also increased from 2.0% in 1990 to 8.0% in September 2005. Korea is now the third largest destination of China's exports and the second largest suppliers of imports.

Recent trends of bilateral trade show that Korea has realized a huge surplus in manufacturing, but continued to have a deficit in primary industry. The trade deficit of Korea in primary industry increased, from US\$ 320 million in 1995 to US\$ 1,662 million in 2004. In 2004, fisheries, cereals, and vegetables accounted for 47.1%, 22.8%, 19.2% respectively of the total deficit in the primary industry.



<Figure 2.3> Share of major trade partners in China's foreign trade

On the other hand, Korea's trade surplus in manufacturing industry has been widening, from US\$ 2,064 million in 1995 to US\$ 21,826 million in 2004. Among manufacturing industries, machinery & transport equipment such as office & automatic data processing machine, telecommunication equipment, electrical appliances, and road vehicles showed significant increase in exports. Chemical product is also a significant source of Korea's trade surplus with China, representing 33.9% of the total surplus. On the contrary, labor-intensive industries like rubber and wood products are facing downturn resulting in trade deficit. This trade pattern reflects the fact that Korea tends to export intermediate and capital goods to China, which are used not only for the domestic consumption market but also for the export-processing.

		,		(α <i>σσφ</i>				
	1995			2000			2004		
	Export	Import	Surplus	Export	Import	Surplus	Export	Import	Surplus
<manufacturing< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></manufacturing<>									
industry>	9,036	6,972	2,064	18,312	11,261	7,052	49,420	27,594	21,826
Crude materials	526	550	-24	535	624	-89	728	680	49
Mineral fuels	480	860	-380	1,855	1,158	697	2,796	2,104	692
Animal & vegetable oils	0	8	-8	4	5	-1	5	13	-8
Chemicals	2,182	616	1,565	4,114	830	3,285	9,178	1,780	7,398
Leather products	613	88	525	761	68	693	477	149	328
Rubber products	16	7	10	26	35	-9	51	78	-27
Wood products	46	43	2	52	87	-36	33	186	-154
Paper & pulp	268	8	261	372	44	328	386	82	304
Textile	1,359	1,345	14	2,115	1,100	1,015	2,227	1,224	1,004
Non-metalic mineral products	23	152	-130	134	184	-51	232	870	-639
Iron & steel	576	1,243	-667	1,220	792	427	3,452	2,756	697
Non-ferous metals	152	234	-82	382	404	-22	1,151	1,399	-248
Manufactures of Metals	234	95	138	215	175	40	617	591	25
Machinery &									
equipment	2,064	782	1,282	5,626	3,842	1,784	24,228	11,020	13,208
(Power generating machine)	36	83	-47	196	289	-93	486	429	57
(Industrial machine)	835	62	773	1,125	187	939	3,369	707	2,662

<Table 2.5> Bilateral trade between Korea and China in manufacturing industry (million US\$)

(Metalworking									
machine)	81	5	77	75	10	64	509	26	483
(Office, Automatic									
data processing)	84	108	-24	785	852	-68	5,660	2,380	3,280
(Telecommunicati									
on apparatus)	352	249	103	807	594	213	4,720	1,827	2,893
(Electrical									
appliances)	426	256	169	2,463	1,835	628	6,940	5,451	1,490
(Road vehicles)	229	14	215	169	62	107	2,107	137	1,971
	497	940	-443	902	1,913	-1,011	3,859	4,663	-805

Source: KOTIS, SITC classification

The Korean companies, moving their production facilities to China, are known to heavily depend on their raw materials and/or intermediates inputs from their home country. In fact, this trade structure between two countries has created a significant trade unbalance in favor of Korea. However, with many Korean companies localizing their production by substituting the raw materials and intermediates inputs with the domestic commodities, one would expect that current immense bilateral trade surplus of Korea will be curtailed in near future to restore the balanced trade between two countries. If this is the case, the import-substitution activity in the area of intermediate inputs is likely to cause the shrinkage in the currently huge trade surplus of Korea. At this point, it would be worthwhile to ask whether the rise of China ultimately provides the Korean companies with tremendous opportunities to explore China's huge domestic market. Considering that consumption goods account for only 10% in Korea's exports to China, Korean companies are required to make more efforts in constructing retail and wholesale networks as China's distribution sector is opening up as a result of China's WTO accession

2.2.2 Investment relations

1) Recent patterns

Korea is one of the China's most important bilateral economic partners in terms of both trade and investment. Between 1992 and 2004, on average, annual increasing rate of the contracted and realized FDI amounts to 126.0% and 125.8% respectively, with the realized FDI reaching US\$ 2.2billion in 2004. In particular, Korea's FDI into China is dramatically increased after the outbreak of the financial crisis in Korea, and accordingly, the share of Korean FDI outflows has also increased steadily since 2000.

In 2004, China attracted 38% of total Korean FDI outflows, while Korea accounted for 10.3% of total Chinese FDI inflows. In an international comparison, China ranked 1st in Korea's realized FDI outflows, followed by the United States(22.8%) and Japan(5.1%). Korea ranked 3rd in China's realized FDI inflows, following Hong Kong(31.3%) and Virgin Island(11.1%)¹.

It is also noteworthy that outflows of "contracted" FDI into China have steadily risen from 1999, suggesting that Korean firms have been registering intent to invest in China in anticipation of stable investment environment that is likely to accompany Chinese entry into the WTO.

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	Contr	racted	Rea	lized
Year	cases	amount	cases	amount
1992	269	223,113	170	141,127
1995	884	1,280,585	751	841,647
2000	914	979,895	775	686,127
2001	1,130	1,000,620	1,038	596,566
2002	1,549	2,083,399	1,375	999,137
2003	1,845	2,788,288	1,683	1,558,543
2004	2,245	3,654,288	2,153	2,217,011
2005 1-4	665	926,053	665	664,305
Total	13,912	18,864,970	12,023	11,355,420

<Table 2.6> FDI flows from Korea to China (US\$ 1,000)

Source: Korea Export Import Bank

2) Structure of Korean FDI in China

(1) Size of investment.

The main features of Korean FDI in China are that individual investment is relatively small and that most capital is concentrated in labor-intensive industries. Between 1996 and 2004, on average, the amount of individual Korean FDI in China was US\$, 0.96 million which is substantially smaller than the average individual Korean FDI outflows into the world (US\$ 2.86 million) During this period, about 42% of investments were conducted by small and medium-sized enterprises(SME).The size of individual investment ranged to a low of US\$ 0.28 million in agriculture to a high of US\$ 4.12 million in communication industry and US\$ 3.25 million in construction.

<table 2.7=""> Amount of individual</table>	Korean	FDI into	China by
industry (US\$1,000)			

2002 2003 2004 2005 1-5 1996-2004

Hong Kong and Virgin Island, however, are somewhat illusory in that much of the FDI from these regions is in reality from elsewhere; some of what is listed as Hong Kong and Virgin Island FDI is, in fact, investment by domestic Chinese or other western countries and Taiwan that invest in China via Hong Kong intermediaries.

Agriculture, Forestry and	1312	216	366	307	275
Fishing	512	210	500	507	275
Mining and Quarrying	466	1,365	238	-	574
Manufacturing	753	990	1,185	1,217	974
Construction	6,039	877	1,413	738	3,248
Wholesale and Retail Trade	356	818	957	884	777
Transport and Storage	681	4,263	332	1,709	1,471
Communication	99	1,146	139	226	4,118
Finance and Insurance	350	-	-	0	-
Restaurants and Hotels	216	185	202	261	985
Real Estate and Services	541	521	309	491	507
Total	727	926	1.030	1.034	960

Source: Korea Export Import Bank

(2) Investment by industry

The majority of Korean FDI in China went into the manufacturing sectors, some of which reflecting the relocation of manufacturing facilities from Korea to China. Between 1996 and 2004, the amount of FDI of the manufacturing sector accounted for 85.2% of the total FDI. However, given the industrial background of most Korean investors and China's reputation as the world's "assembly line", it is not surprising that over 85% of all investment went to the manufacturing sector. In other words, Korean firms tend to concentrate on export-processing activities, while recently moving toward the domestic market.

<Table 2.8> Korean FDI into China by industry (1,000 US\$,

%)	
	2003

2004	2005 1-5

1996-2004

	Amount	Ratio	Amount	Ratio	Amount	Ratio	Amount	Ratio
Agriculture, Forestry and Fishing	4,750	0.3	11,356	0.5	5,221	0.6	34,626	0.4
Mining and Quarrying	8,187	0.5	2,854	0.1	476	0.1	19,531	0.2
Manufacturing	1,384,240	88.8	1,993,440	89.9	727,477	81.2	7,453,905	85.2
Construction	10,527	0.7	33,919	1.5	12,540	1.4	217,604	2.5
Wholesale and Retail Trade	72,007	4.6	88,988	4	84,011	9.4	299,988	3.4
Transport and Storage	4,263	0.3	1,662	0.1	10,254	1.1	47,073	0.5
Communication	6,875	0.4	557	0.0	226	0.0	102,959	1.2
Finance and Insurance	0	0.0	360	0.0	0	0.0	350	0.0
Restaurants and Hotels	5,746	0.4	18,820	0.8	10,713	1.2	231,588	2.6
Real Estate and Services	61,948	4	64,555	2.9	45,170	5.0	280,104	3.2

Source: Korea Export Import Bank

Table 2.9 shows a large proportion of FDI flowed into electrical & communication equipment, textiles, chemical & fuel products and transport equipment. Between 1991 and 2004, electrical & communication equipment accounted for 25.3% of total amount of FDI, with textiles, chemical & fuel products and transport equipment accounting for 12.2%, 10.9%, and 10.6% respectively.

<Table 2.9> Korean FDI in China in manufacturing sector (1,000 US\$, %)

	2003		2004		2005 1-:	5	1991-2004	4
	Amount	Ratio	Amount	Ratio	Amount	Ratio	Amount	Ratio
Food, Beverages and Tobacco	38,849	2.7	93,638	4.6	41,279	5.7	394,748	4.3
Textile and Textile Products	114,057	8.1	243,490	12.0	62,351	8.6	1,131,158	12.2
Leather and Footwear	33,013	2.3	38,230	1.9	23,010	3.2	340,893	3.7
Wood Products	6,394	0.5	12,254	0.6	6,066	0.8	86,354	0.9
Paper Products and Printing	13,893	1.0	31,907	1.6	7,484	1.0	123,425	1.3
Chemical and Fuel Products	210,836	14.9	223,367	11.0	66,760	9.2	1,006,847	10.9
Non-Metallic Mineral Products	74,386	5.3	78,475	3.9	51,485	7.1	611,521	6.6
Basic Metals	145,905	10.3	155,783	7.7	49,049	6.7	580,392	6.3
Fabricated Metal Products	73,672	5.2	82,236	4.0	21,641	3.0	313,053	3.4
Machinery and Equipment	152,648	10.8	228,465	11.2	62,220	8.6	834,214	9.0
Electrical \$ Communication Equipment	308,578	21.8	506,873	24.9	167,202	23.0	2,346,084	25.3
Transport Equipment	181,311	12.8	240,555	11.8	128,130	17.6	985,298	10.6
Other Manufacturing	62,979	4.4	98,847	4.9	40,800	5.6	511,440	5.5
Total	1,416,521	100.0	2,034,120	100.0	727,477	100.0	9,265,427	100.0

Source: Korea Export Import Bank

On the other hand, although China has deepened its open door policy for financial, insurance, and telecommunication, the investment in service sector lagged behind ranging between 8-10%. While the service sector accounts for only 8-10%, nevertheless the gradual opening of the Chinese service market to foreign firms since China's WTO accession in late 2001 is likely to motivate more Korean firms to discover Chinese service market.

3) Incentives and obstacles to Korean investment in China

(1) Incentives

There are three main incentives that derive the Korean firms to invest in China. First, looking at the massive share of manufacturing firms among Korean investors, Korea industry has recognized the advantage of using China as low cost manufacturing site, especially if the goods produced are exported. High global competition is literally forcing Korean producers to exploit China's relatively low wage costs. Second, large Korean conglomerates tend to invest in China in an attempt to exploit the huge domestic consumption market. Third, prior to WTO accession, China's market potential could only be tapped to a very limited degree, while export-oriented investment was promoted. WTO membership now enables foreign companies to benefit from China's vast appetite for foreign products by providing better and easier access to the Chinese market.

(2) Obstacles

One of the main impediments is persistent legal uncertainties, reflected not only in a lack of intellectual property rights protection but also in quickly changing framework conditions and regulatory obstacles. Another problem is the lack of information about consumer structures and preferences as well as domestic market networking. Apart from the high cost of legal and other information costs, Korean investors also face high prices for electricity and raw materials, which makes it increasingly difficult to achieve profit margins.

Finally, with increasing attractiveness of the Chinese market, competition is rising especially in manufacturing sector, which received about two-thirds of foreign investment. With hardly enjoying market power, most Korean firms operate in the medium value segment where competition mainly comes from US, Japanese, Korean and Taiwanese companies. Moreover, Chinese firms are also emerging as the main competitors, exhibiting enormous technological progress.

2.3 Prospects for economic cooperation between Korea and China

China is expected to have benefit from economic cooperation and free trade with Korea by attracting more capitals, securing a stable source of economic growth. In addition to low manufacturing cost and huge domestic market potential, service sector liberalization and cross-border M&A will help sustain rapid growth of Korean FDI into China. Besides the positive effects of FDI on trade flows, it is also expected that Korean firms will generate positive externalities on domestic Chinese firms by helping China move towards higher value added and by generating positive inter-industry spillovers in China.

While FDI further promotes China's exports, it also expands its domestic market and demand for intermediate goods, with Korea directly benefiting by surging exports to China. Indirectly, China's cost competitiveness forces Korea to move up in the value chain by shifting to higher value added, pushing for economic as well as industrial transformation. It is also expected that, in the medium to long run, China will begin to export large amounts of capital, posting profound and lasting impacts on Korea.

On the other hand, the profitability of existing investment has in many cases yet to materialize, which gives rise to a concern about excess capacities and decreasing investment efficiency. If this is the case, in the presence of over-investment and lack of relevant market information, further economic development could then mean a trend away from greenfield investment toward M&A investment.

There is no doubt that more and more Korean firms are investing in China as China's importance as a sales market is growing. Moreover economic cooperation like FTA is likely to increase FDI flows between two countries as trade liberalization makes markets within the FTA more attractive by reducing the trade costs and improving the investment environment. Therefore, in order to promote bilateral economic relations between China and Korea, two countries need to improve framework of regulations that comply with international investment protection standards.

3. Rising China and a potential hollowing-out of the Korean manufacturing

In Korea, recently there are growing concerns over the possible industrial hollowing-out of manufacturing sector in Korea. The deterioration of business environment, such as the increasing

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uncertainty, happens to strengthen fear about the possible hollowing-out of the Korean economy. Considering that the Korean economic growth largely depended on trade of manufacturing goods and that manufacturing sector is likely to remain the important sources of the economic growth in Korea for the time being, debate over the possible industrial hollowing-out become one of the most important economic issues in recent years in Korea.

Some people observe that the shift to the overseas manufacturing is happening much more abruptly than it needed with serious relocation pains. Probably, Korea's slow economic recovery and unstable industrial relations have contributed to these trends to some extent. However it has been generally indicated, in particular journalistic and political circles, that the relocation of the productive facilities into China seems to be the most important factor to possible industrial hollowing-out in Korea. It has been argued that China will ultimately absorb resources around the region like a "black hole."

In fact, recently China is the country in which Korean business invest most frequently. It is not surprising that China is an attractive destination of the Korean investment, considering geographical proximity, cultural similarity, its potentially huge domestic market, and plenty of skilled low-waged laborers. This section reviews some researches to evaluate the industrial hollowing-out of the Korean economy. Actually there have been little researches which evaluate whether or not the rise of China directly causes the hollowing-out of the Korean manufacturing sector. So in this section, reviews are focused upon general analyses of industrial hollowing-out of the Korean manufacturing sector.

3.1 Concept of hollowing-out

In order to evaluate properly the current situation and future prospect of the industrial hollowing-out in Korea, the rigorous definition of the industrial hollowing-out is required. The industrial hollowing-out can be defined as the phenomenon that domestic production is substituted by foreign import or overseas investment because of the decline of competitiveness. If a decrease of production capacity results from the decline of demand, it is not termed industrial hollowing-out. For instance, the decline of production of black and white TVs is not called industrial hollowing-out. Therefore, the industrial hollowing out reflects the substitution of domestic production due to the decline of competitiveness.

There is a difference between the concepts of the industrial hollowing-out and the similar concept of deindustrialization. Deindustrialization has a similar meaning to industrial hollowing-out. Although they might often take place together, they are not the same phenomena. Deindustrialization designates the phenomenon that as income grows, the share of manufacturing falls and that of services rises because of the difference in demand elasticity and productivity. So deindustrialization is simply regarded as a transformation of the industrial structure as an economy grows.

3.2 Evaluation of manufacturing sector

In order to evaluate the extent of decline in the manufacturing sector, it is important to evaluate whether the declining share of manufacturing is a natural restructuring process on the road to becoming an advanced economy, or the result of shift to the

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overseas manufacturing. As mentioned above, unlike deindustrialization, hollowing-out refers to outward direct investment resulting in the decline in the manufacturing sector.

(1) Employment

The employment in the manufacturing sector accounted for 27.8% of total employment in 1989, the highest ever in case of Korea. Since then the share has continued to decline, to 19.0% in 2003. This figure is lower than the average share of EU countries (0.6%) and Japan (20.5%) in 2000, but higher than that of the US, which stood at 12.6% in 2001. Korea's industrial structure is at a similar level to that of developed countries in terms of the total employment share of the manufacturing industry. This implies that deindustrialization has progressed since the 1990's in Korea.

	ě	
	Share of manufacturing	Share of manufacturing
	in total employment	in real GDP
1985	23.4	24.8
1990	27.2	28.0
1995	23.5	29.2
2000	20.2	33.8
2001	19.8	33.4
2002	19.1	33.4
2003	19.0	33.8

Table 3.1. Shares of manufacturing in Korea (%)

As Table 3.1 shows, the manufacturing sector's ability to create jobs has declined over time, despite its ability to create value added. This unbalance between the share in GDP and in

employment illustrates the characteristics of the industrial restructuring that the Korean economy has been experiencing. During the 1990s, the transformation to capital-intensive production and improved labor productivity through technological advancements reduced the scope for job creation in the Korean manufacturing sector. In this sense, the decline in the share of employment in manufacturing sector appears to be a natural course in the process of deindustrialization. With respect to the deindustrialization, Korea faces two problems that make it more challenging to deal with than in other countries. First, the speed with which manufacturing employment declined in Korea has been much quicker than other countries. Second, the service sector in Korea has been relatively underdeveloped and the labor productivity in service sector compared to manufacturing sector is relatively low. Thus development of the service sector will be needed to make up any large shocks from job loss in manufacturing sector.

Table 3.2 presents sectoral capabilities to create employment in manufacturing sector. It turns out that Korea is more dependent on employment in light industry compared to other countries. Korea's share of light industry in total manufacturing employment reached 47.3% in 2001, which is higher than that of the US and Japan. Considering the change in employment structure experienced by developed countries, employment share in Korean manufacturing industry is expected to drop continuously with a contraction of the light industries.

Table 3.2. Shares of manufacturing in total employment by industry (%)

Korea	Japan	US (2000)
(2001)	(1998)	

Light industry	47.3	39.4	40.4
Heavy and Chemical	52.7	60.6	59.6
industry			
- Basic materials	18.6	21.7	24.7
- Assembly &	34.1	38.9	34.9
Processing			

(2) GDP

The share of manufacturing industry in real GDP has risen from 24.8% in 1985 to 33.8% in 2003, implying that Korea is yet to experience either deindustrialization or industrial hollowing-out. The increased share of the manufacturing sector in terms of real GDP means that the manufacturing sector has led Korea's economic growth up to now. This also shows that the dynamism of the manufacturing industry has underpinned Korea's economic growth until now.

The sectoral contribution to economic growth is shown in Table 3.3. As one would expect, the manufacturing sector contributed a large portion of the real GDP growth.

	1981-1990	1991-1997	1998-2002
Manufacuturing	34.0	31.9	49.1
Service	61.9	65.0	51.6
Agriculture & Mining	4.1	3.1	-0.7
Total	100.0	100.0	100.0
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1 able 3.3 Sectoral contribution to real GDP growth (

Source: Ha (2004)

Korea's share of light industry in total value added of the manufacturing industry tends to be relatively low (23.2%)

compared with the U.S (30.7%) and Japan (28.3%). This implies that Korea's industries have developed with a heavy bias toward the capital-intensive basic material industry, which resulted in lower employment creation per value added. This structure provides some explanation as to why the share of manufacturing in employment is relatively low compared to its high share of GDP.

To sum up, the manufacturing sector's ability to create job has clearly decreased in Korea, but its ability to create value added has not. As a result, the gap between manufacturing's share of value added and share of employment has widened since 1990. That is one of the characteristics of the industrial restructuring the Korean economy has been experiencing. As the economy has developed rapidly towards technology-intensive IT manufacturing, such as semiconductors and communications equipment, manufacturing sector increased its creation of value added. On the other hand, transformation to capital-intensive production and improved labor productivity from technological advancements reduced the scope for job creation. This imbalance could be a serious hurdle for the Korean economy's further development.

(3) Industrial hollowing-out index

Kang (2005) recently constructed the so-called industrial hollowing-out index to measure the progress of the industrial hollowing-out quantitatively. He basically regards the industrial hollowing-out as changes in the ratio of domestic production to total demand where total demand equals the sum of domestic production and imports. Therefore, this indicator reflects the scale of the substitution of domestic production by overseas production and/or by imports. More specifically, the index is defined as follows: the so-called industrial hollowing-out index = 100 * (historical maximum of the ratio of domestic production to total demand – the ratio of domestic production to total demand in current year) / (historical maximum of the ratio of domestic production to total demand). Table 3.4 shows the trend of the estimated hollowing-out index in Korea. It increased from 0.165 in 1994 to 3.698 in 2000, and fell to 2.078 in 2002. Judging from this data, hollowing-out of Korean manufacturing industry does not seem to be as serious a phenomenon as one would expect. The sectoral hollowing-out indices, although not shown here, also tend to rise in food, textiles, apparel, footwear, and furniture, with the indices for the steel, plastics, and non-metallic mineral products staggering around.

From this exercise, we can see that manufacturing sector's ability to create job has decreased, but its ability to create value added has not. More importantly, while the deindustrialization started in 1990s, the hollowing-out does not seem as serious as expected. One of the possible explanations for this phenomenon is as following :the hollowing-out index used here does not reflect the fact that Korea has moved up in the value chain by shifting to higher value added. For this reason, the hollowing-out index may not be able to capture the effects of rising China that motivates a large number of Korean firms to move their production facilities to China.

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Table 34	Irend	of holl	$\alpha w_{10}\sigma_{-011}$	t index	in Korea
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Domestic	3 year	Industrial
production/total	moving	hollowing-out
demand	average	index

1994	0.7903	0.7904	0.165
1995	0.7834	0.7828	1.034
1996	0.7749	0.7746	2.108
1997	0.7655	0.8051	3.296
1998	0.8750	0.8390	-
1999	0.8764	0.8370	-
2000	0.7623	0.8379	3.698
2001	0.7682	0.8023	2.954
2002	0.7751	0.7685	2.078

Source : Kang, Du Yong (2005). The years 1998 and 1999 were excluded as outliers due to the financial cirsis

4. Conclusion

With China's open-door policy, the economic relations between Korea and China have also been promoted since the establishment of diplomatic relationship. The continued involvement of Korean economy in China appears to have contributed to Korea's trade growth and competitiveness improvement, and also provided the impetus for the sustained economic growth of China. Through a economic cooperation and free trade with Korea, China is expected to attract more capitals and move towards higher value added, which will help China to maintain a stable source of economic growth. It is also anticipated that Korea will continuously take advantage of China's low production cost, expanded domestic consumption market, and increased demand for the intermediate goods. In addition to these direct effects, both countries will be able to exploit the positive externalities by carrying out technological progress and higher value added through a fierce international competition in each market.

There is no doubt that both Korea and China will benefit from a further economic involvement. However, there has been a growing concern about the rise of China from the perspective of Korea, which is mainly focused on the hollowing-out of Korean manufacturing sector. Considering the rapid growth of Chinese economy and the relocation of Korean companies into China, it appears to be inevitable for Korean economy to suffer from the hollowing-out to a certain degree. Notwithstanding it should be emphasized that Korean companies investing in China also benefit from their production relocation by gaining price competitiveness needed for exporting in the world market. We suggest that, first, Korea should foster high value added industry by increasing R&D investment in order to cope with advances in China's industrialization and resulting demand for the high valued intermediate products. Second, Korea is needed to exploit new market through the free trade agreement to prepare for China's import-substitution that will eventually decrease the demand for Korean intermediate products

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