Working Paper No. 242

India-Korea Trade and Investment Relations

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December 2009

INDIAN COUNCIL FOR RESEARCH ON INTERNATIONAL ECONOMIC RELATIONS

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Foreword

India and South Korea are the third and fourth largest economies in Asia. Though the Asian growth story mainly revolves around India and China, South Korea has remained a key player for these countries as one of their major trading and investment partners. India and Korea have shared a close relationship since the establishment of formal diplomatic ties in 1973. The last three and a half decades have seen high-level exchanges and the signing of several crucial agreements that have led to continued strengthening of bilateral economic relations. However, the size of trade and investment is relatively low compared to the size and structural complementarities of the two economies. This is due to several tariff and non-tariff barriers imposed by both the countries. As part of its "Look East Policy", India has been making efforts to intensify its economic relations with East Asian economies. On the other hand, Korea is looking beyond its traditional trading partners like the US and China to sustain its trade and economic progress. Against this backdrop, and given the fact that there is hardly any comprehensive study on India-Korea economic relations, the present study attempts to investigate bilateral trade and investment flows, and highlights the barriers/obstacles that hamper such flows between the two sides. The findings of this paper, it is hoped, will help scholars and policy makers in understanding and improving India-Korea economic relations. However, this study needs to be supported further by a disaggregated analysis, sector wise. ICRIER is planning to take up such research in the future.

(Rajiv Kumar)
Director & Chief Executive

December 22, 2009

Abstract

Though economic relations between India and Korea have been strengthening, the current size of trade and investment between the two countries is relatively low compared to the size and structural complementarities of the two economies. In this context, the present paper analyses trade and investment relations and explores future areas of potential co-operation between India and Korea. We find that the increase in merchandise trade between the two countries has been mainly because of the changing demand structure and comparative advantages of both the economies in complementary sectors in recent years. The Revealed Comparative Advantage (RCA) analysis, at both the aggregated and disaggregated levels, shows that while Korea has been specialising in a few, high value-added manufacturing products, India's exports have been more diversified. The analysis also indicates that both the countries have comparative advantages in different products in the same industry, revealing the opportunity for intra-industry trade (IIT). Moreover, the increasing trade complementarity index (TCI) shows that Indian and Korean trade gradually has become more compatible over time, indicating that any agreement between the two countries is likely to enhance trade flows. The trade intensities between the two countries reveal that Korea is doing much better and there is scope for India to improve its export intensity with Korea. The study also suggests the areas where there is huge scope for increased investment and technological collaboration between the two countries. Further, there is huge potential for trade in services in areas such as information technology, science and technology, pharmaceutical industry, broadcasting, tourism, healthcare and human resource development. Removal of tariff and non-tariff barriers, especially sector specific barriers, will give a major boost to bilateral trade and investment relations.

Key words: *India, Korea, Trade, Investment and Barriers*
JEL classifications: *F 13, F 15, F 59*

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1. Introduction

Asia has become the growth centre of the world economy in recent years. Within the region, India and South Korea are the third and fourth largest economies after China and Japan.[2] Though the Asian growth story mainly revolves around India and China, South Korea has remained a key player for these countries as one of their major trading and investment partners. South Korea adopted outward-oriented economic policies with the beginning of its first five-year economic development plan in 1962 which resulted in high growth and the integration of the Korean economy with the rest of the world. Subsequently, high and consistent economic growth made South Korea one of the high-income economies in Asia. Korea is still growing at a faster rate compared to other developed economies.

India, on the other hand, adopted an import-substitution policy since its independence until the early 1990s. Since 1991, India has introduced wide-ranging economic policy reforms and is moving towards a market-driven economy. This has resulted in consistent high economic growth over the last one and a half decades, making India the 10th largest economy in the world. At present, India is the second fastest growing economy in the world. Both India and Korea have been getting integrated with the world economy, enhancing their role in the international economic order.

India and Korea have shared a close relationship since the establishment of formal diplomatic ties in 1973. The last three and a half decades have seen high-level exchanges and the signing of several crucial agreements[3] leading to a continuous strengthening of bilateral economic relations. However, this strengthening of economic relations between the two countries gained momentum after the beginning of the liberalisation of the Indian economy in 1991. The greater openness of the Indian economy has not only enhanced market access for Korean goods but has also provided investment opportunities for internationally competitive Korean companies. This is evident from the fact that bilateral merchandise trade increased from $0.55 billion[4] in 1991 to $8.86 billion in 2007.[5] Korea has also emerged as an important source of FDI for India. However, because of several tariff and non-tariff barriers in both economies, the current size of trade and investment is very low compared to the size and structural complementarities of the two economies. There is immense potential to enhance economic co-operation between the two sides.

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[2] World Bank, 2008.

[3] Such as Agreement on Trade Promotion and Economic and Technological Co-operation in 1974; Agreement on Co-operation in Science & Technology in 1976; Convention on Double Taxation Avoidance in 1985; Bilateral Investment Promotion/ Protection Agreement in 1996 etc.

[4] All $ figures are in US dollars.

[5] UNCOMTRADE, 2008.

The increasing scale of globalisation is both posing opportunities for and challenges to the two countries. There is potential not only for greater co-operation at various multilateral forums like the WTO, IMF etc., but also immense scope at the regional level to strengthen bilateral ties given the slow progress of negotiations on the Doha round in the WTO (Sahoo, 2008). As a part of its "Look East Policy", India has been making efforts to intensify its economic relations with East Asian economies. Consequently, East Asia has become one of India's largest trading partners in recent years. Korea too is looking beyond its traditional trading partners like US and China to sustain its trade and economic progress.

Realising the need for greater economic co-operation, both countries agreed in 2005 to establish a Joint Study Group (JSG) to comprehensively evaluate their economic relations and the feasibility of an India-Korea Comprehensive Economic Partnership Agreement (CEPA). After several rounds of negotiations, the CEPA was finally signed on August 7, 2009.[6] It is India's second comprehensive deal with any country, the first being with Singapore in 2005. This is also India's first free trade agreement (FTA) with an Organisation for Economic Co-operation and Development (OECD) country. The CEPA is more than a free trade agreement as it covers not only trade in goods but also investments, services and bilateral co-operation in other areas of common interest.

Against this backdrop and given the fact that there is hardly any comprehensive study on India-Korea economic relations, the present study attempts to investigate the trends, nature and composition of bilateral trade and investment flows, and the future areas of co-operation in various sectors. Further, the study highlights barriers/obstacles that hamper trade and investment flows between the two countries. Section 2 gives a comparative picture of the macro-economic features of both the countries. Section 3 discusses the trade policy of both the countries and Section 4 deals with bilateral trade flows. Section 5 analyses investment flows and section 6 investigates the barriers to trade and investment flows in both the economies. Section 7 presents areas of future co-operation. Finally, section 8 contains the conclusions and the policy implications.

2. Economic Profiles of India and Korea

India: Since 1990-91, the structure of the Indian economy has changed substantially (Table Ia and Table Ib, Appendix). Higher growth during the past decade and a half was accompanied by a substantial growth of the services sector and a marginal improvement in the manufacturing sector. During the last five years, the share of services in total GDP has increased by more than 10 per cent to 54.6 per cent whereas the share of industry increased marginally from about 26 per cent to 28 per cent. Services have performed well with an annual average growth rate of more than 10 per cent during the last five years. However, agricultural growth has been low and its share has declined by more than 12 per cent from 29.6 to 17.5 per cent during the same period. In terms of overall growth performance, the last five years (2002-03 to 2007-08) have been the golden period for the economy according to some experts, with the annual growth rate hovering around 9 per cent.[7] The economy has joined the 'trillion dollar-economies-club' both at the official exchange rate ($1.09 trillion 2007 est.) and on a PPP basis ($2.965 trillion 2007 estimate). On a per capita basis, however, India ranks among the poorest countries of the world. According to the WDI 2008, India had a GDP per capita of $634 in 2006. This is despite a sharp acceleration in the annual per capita income growth rate which almost doubled from a yearly 3.1 and 3.7 per cent during the

[6] Ministry of Commerce and Industry, Government of India.
[7] See Acharya, 2008 for the India's macroeconomic performance for the period 2002-03 to 2007-08.

eighties and nineties to a yearly average of 7.2 per cent for the period 2003-04 to 2007-08. Most importantly, the Indian economy experienced stable growth with a relatively moderate annual inflation rate (consumer prices) of between 3.77 and 5.80 per cent during 2002-06.

In the post-reform period, the country's external sector showed vast improvement with considerable growth in exports and foreign exchange reserves and an improvement in the overall balance of payments position (See Table Ib, Appendix). The overall balance of payments also showed a surplus after 2000 because of surplus in the current account and large inflow of foreign capital in the capital account.

However, a growing deficiency of infrastructural facilities, increasing labour cost, rising income and regional inequalities and slow agricultural growth are some of the challenges that threaten to slow down the growth momentum the Indian economy achieved in the past five years.

South Korea: South Korea is the 11th largest economy in the world[8] and is considered one of the most dynamic economies. South Korea joined the trillion dollar club of world economies in 2007 (WDI, 2008) with an estimated GDP of $1.206 trillion (PPP). In 2006, South Korea's GDP per capita was roughly equivalent to some of the developed economies. The growing economic prowess of Korea saw it enter the OECD on December 12, 1996. The rapid economic growth changed the structure of the economy, making it one of the most advanced countries in Asia after Japan (See Table Ib, Appendix). The industrial and services sector account for a major part of Korea's GDP. Industry accounts for about 40 per cent of GDP while the share of the services sector rose steeply from 49.49 per cent in 1991 to 57.2 per cent in 2006. There has been a concomitant decline in the contribution of agriculture – from 7.64 per cent in 1991 to 3.3 per cent in 2006.

After the 1997-98 Asian financial crisis, South Korea moved away from a centrally planned, government-directed investment model and introduced extensive structural reforms in four main sectors – the corporate, financial, labour and public sectors. The government also reformed the regulatory and foreign investment regimes to create a business friendly environment and recover growth momentum. However, the restructuring of Korean conglomerates, privatising banks, and creating a more liberalised economy with an exit mechanism for bankrupt firms remain among the most important, unfinished reform tasks.
For Korea, the challenges to sustaining its high growth rate will come from the decrease in her current account surplus[9] because of a rapid increase in the negative balance in services, an ageing population that could result in a labour shortage and necessitate higher public expenditure on pensions and health care, the rapid shift of labour from the manufacturing to the services sector where productivity is low and increasing income inequalities (Schiff, 2007).

3. Trade Policy of India and South Korea

India: Trade policy reform has formed a major part of India's economic reforms agenda and has contributed significantly to the impressive performance of the economy's external sector. Export-import policies have seen progressive liberalisation and its tariff regime has been

[8] http://www.nytimes.com/2007/04/03/business/worldbusiness/03trade.html?_r=1&oref=slogin
[9] The current account balance has decreased from $11,950 million in 2003 to $6092 million in 2006. However, Korea's international reserves are continuously increasing and reached $238,956 million in 2006 compared to $155,355 million in 2003.

continuously rationalised. (Table II, Appendix). The average tariff rates have been brought down substantially in recent years from 32.3 per cent in 2001-02 to 15.8 per cent in 2006-07. Although India has been a strong supporter of the multilateral trading system, it started taking a keen interest in the increasing regionalism around the world in recent past. This is mainly due to the failure of different rounds of multilateral trade negotiations and the slow progress of negotiation at the WTO. Currently, India is among the top most countries having RTAs/FTAs either in place or under negotiation. The total cumulative number of India's proposed or existing RTAs/FTAs is 31 of which 21 are with countries in Asia and the Pacific region. Among the first preferential trading agreements in Asia was the Bangkok Agreement of 1975 of which India and Korea, among other countries, were founding members. Thereafter, India has joined various other regional trading arrangements[10] (Table III, Appendix), including the India-Korea CEPA concluded in August 2009.

Korea: Korea has continuously (more so in recent years) liberalised its trade and investment policies and business related regulations to enhance and sustain her economic development. Since the Korean economy is highly dependent on the external sector and export has been identified as a growth engine to double its per capita income by 2010, the main objective of Korean trade policy has always been to promote structural reform and efficiency. Expansion of high-technology industries, high value-added exports and making Korea a northeast Asian business and financial hub are the main priorities. Though Korea actively participates[11] in the multilateral trading system, like India, she has increasingly focused on regional and bilateral trading arrangements after the Asian financial crisis. In response to the growing trend of regionalism, Korea considers these agreements as a means to liberalise its trade and investment regimes to rejuvenate the economy, secure export markets and promote regional integration. Korea's first such agreement was with Chile, which came into effect from April 2004. Other important countries and blocs with whom Korea has agreements are Singapore, Peru, EFTA, the US and ASEAN. Korea is also in the process of negotiating several other trade agreements with other countries/blocs such as Canada, Mexico, EU, MERCOSUR, China, Gulf Co-operation Council (GCC) and Japan (Table IV, Appendix).

4. India-Korea Trade

Korea is well-integrated with the global economy with a trade/GDP ratio of more than 85 per cent in 2006. The Korean economy has followed an export-led growth strategy with exports contributing 43 per cent of GDP in 2006. Comparatively, India is far less integrated, despite the increasing openness of her economy since 1991, with a trade/GDP ratio of around 45 per cent in 2006. Korea also has a higher share in total world merchandise trade as compared to India. She is also a major importer of services (Table V, Appendix) while India has emerged since 2001 as a significant exporter of services. In 2007, India ranked 26th and 18th and South Korea ranked 11th and 13th among merchandise exporters and importers respectively in the world. Korean exports to the rest of the world in the year 2007 stood at $371.5 billion, showing a 14 per cent growth over the previous year while her imports increased to $356.8

[10] These include agreements such as the India-Sri Lanka FTA, SAFTA, India-Thailand FTA, and India-Singapore CECA. Currently, India is in the process of negotiating several other regional and bilateral trade agreements such as India-ASEAN CECA, BIMSTEC FTA, and India-GCC framework agreement on economic co-operation, India-Australia Trade and Economic framework agreement, India-Israel PTA, India-Chile PTA India-Japan CECA/CEPA and India-Korea CECA etc. Apart from these, India has set up various joint study groups to see the feasibility of economic co-operation with several countries like China, Malaysia, Indonesia, etc.

[11] It took part in the extended GATS negotiations on financial services and basic telecommunications, and is a member and observer of the plurilateral Agreements on Government Procurement and Trade in Civil Aircraft, respectively. It resolves trade disagreements using the WTO dispute settlement system, and has complied on time with the Dispute Settlement Body (DSB) findings in cases brought against it since its last review.

billion, having grown by 15 per cent over the previous year. India's exports to world were $145.3 billion in the same year (a 20 per cent increase over her exports the previous year). India's imports stood at $216.6 billion, an increase of 24 per cent over the previous year (WTO, 2007).

4.1 Merchandise Trade between India and Korea

The increasing liberalisation of the Indian economy has significantly increased trade and investment flows between the two countries. Indian economic reforms were considered timely by Korean companies that were looking for alternative destinations for trade and investments. During 1991 to 2007, the value of Indian exports to Korea increased from a mere $0.24 billion to $2.46 billion while Indian imports from Korea increased from $0.314 billion to $5.4 billion during the same period (UNCOMTRADE, 2008). At present, India ranks 11th among export destinations and 16th among sources of imports for the Korean economy. The share of both countries in their respective exports and imports has increased over the years**.** In 1990, Korea's share in Indian exports and imports was 1.01 and 1.28 per cent respectively. These increased to 1.69 and 2.69 per cent in 2007 (Figure1A, Appendix)**.** Korea's share in Indian imports touched a peak in 2003 and declined thereafter whereas Korea's share in India's total exports remained almost stable till 2000 but increased to around 2 per cent in 2006[12]. During the same period, India's share in total Korean exports and imports rose from 0.67 and 0.41 per cent in 1990 to 1.70 and 1.15 per cent respectively in 2007 (Figure 1B, Appendix). An important feature of India-Korea trade relations is that the trade balance has always been in favour of South Korea and has continuously increased over the period 1990-2007. In fact, between 1991 and 2007, India's exports to South Korea increased 10 times while imports rose more than 17 times, resulting in an increase in the trade deficit (Figure 1C, Appendix). Indian exports and imports had average growth rate of around 10 and 14 per cent annually during 1991 to 2007. Therefore, both volumes and share in exports and imports between the two countries have increased during the last one and half decades.

The increase in merchandise trade between the two countries has been attributed to the changing demand structures and comparative advantages of both the economies in different sectors (Sahoo, 2009). The Indian export basket has traditionally consisted of a few low value-added products (Table VI, Appendix). For instance, in 1990, the ores, slag and ash product group alone constituted more than 40 per cent of Indian exports to Korea followed by cotton and other product groups. However, the composition of India's export to Korea has undergone significant changes post-2000. In 2006, the Indian export basket consisted of a wider range of industrial products including mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes, ores, slag and ash, cotton, organic chemicals, residues and waste from the food industries, prepared animal fodder, iron and steel, natural or cultured pearls, precious or semiprecious stones etc. The share of these top ten products in total exports to Korea was more than 85 per cent. Mineral fuels, oils and products of their distillation group has now become an important exporting group, having a 35 per cent share in total exports in 2006, followed by ores, slag and ash; cotton and other product groups. However, some conventional export commodity groups such as cotton have lost their dominant position from a 17.4 per cent share in total Indian exports in 1990 to 8.7 per cent in 2006. Other products that lost their weight substantially in India's export basket are ores, slag and ash, cereals, aluminium and articles thereof, etc.

[12] However, it has significantly gone down in 2007 compare to 2006.

Similarly, India's import basket from Korea has undergone changes over time. The top ten major product groups that constituted more than 79 per cent of Indian imports from Korea in 1990 were industrial products (Table VII, Appendix). In 2006, the Indian import basket consisted mainly of relatively high value-added products such as electrical machinery and equipment, nuclear reactors, boilers, machinery and mechanical appliances, iron and steel, transport equipment, mineral fuels and their products, organic chemicals, etc. The top ten commodity groups constituted more than 85 per cent of total imports from Korea in 2006.

4.1.1 Revealed Comparative Advantage (RCA) of India and Korea

In order to analyse the comparative advantage of Indian and Korean exports in the world market, we have calculated International Revealed Comparative Advantage (IRCA) for both India and Korea by using the Balassa index. This index measures the share of a commodity in the total exports of a given country, divided by the share of the same commodity in total world exports. The higher the ratio is above one, the stronger is that economy's comparative advantage in a particular commodity[13]. Likewise, the lower the RCA below one, the weaker is that economy's comparative advantage in that commodity. When RCA equals one, the country's specialisation in a commodity is identical with the world specialisation in that commodity. The Balassa index is calculated as follows:

$$RCA_{ij} = (x_{ij}/X_{it}) / (x_{wj}/X_{wt}) \quad \ldots\ldots(1)$$

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

Based on similar logic, we also propose to calculate RCA between two countries (RCA) i.e. India and Korea. It is a modified form of RCA looking at bi-lateral comparative advantage between countries. This index will reflect the competitiveness of both countries in each other's market in comparison to the rest of the world. The RCA of India and Korea in each other's market can be calculated as follows:

$$\text{India's RCA in Korea (RCAijk)} = (x_{ijk}/X_{itk}) / (x_{wjk}/X_{wtk}) \quad \ldots\ldots(2)$$
$$\text{Korea's RCA in India (RCAkji)} = (xk_{ji}/Xk_{ti}) / (x_{wji}/X_{wti}) \quad \ldots\ldots(3)$$

where x_{ijk} and X_{itk} are India's export of commodity j to Korea and total exports of India to Korea respectively and x_{wjk} and X_{wtk} are world's export of commodity j to Korea and total exports of world to Korea respectively. xk_{ji} and Xk_{ti} are Korea's export of commodity j to India and total exports of Korea to India respectively and x_{wji} and X_{wti} are world's export of commodity j to India and total exports of world to India respectively.

(i) Summary of IRCA: Table-1 below presents a summary of the comparative advantage that Indian and Korean products have in the world market at the HS 2, 4 and 6-digit levels of classification for the triennium ending (TE) 1998[14], 2003 and 2007. Table-1 shows that for India, at the HS 2 digit level of classification, the number of products having an RCA value more than 1 has remained almost constant between TE 1998 and TE 2007. However, the share of these commodities in total exports has gone down from 72.82 per cent in TE 1998 to

[13] Several factors contribute to the movements of RCA such as structural change in the economy, improved world demand and trade specialisation etc.

[14] Triennium Ending (TE) 1998, 2003 and 2007 refer to average RCA for three years 1996-1998, 2001-2003 and 2005-2007 respectively`.

67.34 per cent in TE 2007. This might be due to the fact that India may be exporting products whose RCA is low but share in total exports is significant. This has been happening since India started export of mineral related products after 2001. At the 4-digit level, although the number of commodities having RCA>1 has increased from 385 in TE 1998 to 440 in TE 2007, the share of these commodities has remained almost the same during the period. At the HS 6-digit level, both the number of commodities having RCA>1 and their share in total exports have increased substantially between TE 1998 and 2007. The RCA analysis of India shows that due to structural changes and changing global demand, the composition of Indian exports has changed and become more diversified, both at the horizontal and vertical levels, especially since TE 2003.

On the contrary, Korea has shown a different trend in its RCA. Between TE 1998 and 2006,[15] the number of products being exported at the 2, 4 and 6-digit levels has been decreasing. However, the share of products having RCA>1 in Korea's total export to

Table 1: Number and share (in total exports) of the products with RCA>1

Year		India			Korea		
		TE 1998	*TE 2003*	*TE 2007*	*TE 1998*	*TE 2003*	*TE 2006*
Number of products	2 digit	41 (72.82)	39 (74.65)	42 (67.34)	26 (65.1)	20 (80.66)	20 (70.71)
	4 digit	384 (81.35)	311 (81.48)	440 (82.06)	246 (80.28)	240 (80.85)	205 (83.59)
	6 digit	1524 (84.12)	1224 (86.86)	2024 (93.41)	870 (82.87)	849 (81.82)	797 (86.32)

Source: WITS Database
Note: Figures in parentheses show share in total merchandise exports.

the world has been increasing. This indicates that Korea is specialising in a few sectors and products. It can also be interpreted as an indication that Korea is losing its competitiveness in some sectors/products in which it had traditionally been competitive in the world market. This may be due to the fact that Korea is losing its international competitiveness to new emerging countries, especially to China, in several products.[16] A noteworthy point about the trends in competitiveness/RCA of India and Korea is that both countries have been improving their share and competitiveness in certain similar commodity groups like mineral fuels etc.

(a) IRCA of India

Here we look at the movements in the IRCA values of top export commodities from India. The average share of the top 10 commodities exported from India to the world at 2-digit level has increased to 58 per cent in TE 2007 from 53 per cent in TE 1998. In TE 1998, the top 10 products were mainly low value-added products such as stones and metals (HS 71), articles of apparel and clothing accessories (HS 62), cotton (HS 52) etc (Table VIII, Appendix). India enjoyed a strong comparative advantage in the world market in all the top 10 commodities exported except two groups of products such as nuclear reactors, boilers, machinery (HS 84) and electrical machinery equipments and parts thereof (HS 85). In TE 2007, some new product groups like mineral fuels (HS 27) and vehicles (HS 87) have become part of the top

[15] The analysis for Korea is up to 2006 instead of 2007 due to unavailability of data for some products for 2007.
[16] http://www.hani.co.kr/arti/english_edition/e_business/144265.html

commodities exported from India. Though these products do not exhibit comparative advantages in the world market, they are becoming important segments of the Indian export basket. Due to changing global demand and supply environment, and substantial addition to refining capacity in the country, mineral fuel has become the most prominent commodity export from India (from 5.32 per cent in 2003 to 14.22 per cent in 2007). The other product group that has demonstrated increase in both its RCA and share between TE 1998 and 2007 is organic chemicals. Though apparel and clothing apparel has improved its share and RCA from TE 1998 to TE 2003, it slowed down in TE 2007. It is important to note that India's competitiveness in cotton is declining, which has resulted in its share in total exports declining.

The RCA analysis of India's top export commodities at both the 4 and 6-digit level of classifications show almost similar trends. At the 4 digit level, the top 10 exports in TE 1998 have high comparative advantages (Table IX, Appendix). Rice (HS 1006) exhibited the highest RCA among these products followed by cotton yarn (HS 5205), diamonds (HS 7102), men's shirts (HS 6205), women's shirts (HS 6206) etc. Overall, India was found to be very competitive in sectors like cotton and textiles, products related to diamond and pearls and rice during TE 1998. Between TEs 1998 and 2007, the composition of top 10 commodities exported has partially changed. In TE 2007, the petroleum products group (HS 2710), with a relatively higher value of RCA of 3.16, had become an important export item. Articles related to diamonds and jewellery, rice, women's and men's wear etc have retained their importance in the Indian export basket. Most importantly, India has become very competitive in some new products after TE 2003 such as iron ore and concentrates (HS 2601), other organic compounds (HS 2942) etc. In contrast, cotton yarn export is losing its place in terms of export share though its competitiveness improved between TE 1998 and 2007. In some products, such as rice, there is deterioration in both the value of RCA and share in total Indian exports.

Analysis at 6-digit level (Table X, Appendix) shows that in TE 1998, within the category of 'diamonds, whether or not worked, but not mounted or set', the sub-category, 'the non-industrial: other' (HS 710239) remained the top export commodity from India till TE 2003. Milled rice (HS 100630), in which India was very competitive, ranked second. Frozen shrimps and prawns (HS 030613) also appeared amongst India's top exports with a high RCA value. Other prominent products were cotton products (HS 620520), products of precious metals (HS 711319), oil-cake and other solid residues (HS 230400), articles of apparel (HS 420310) and iron ores and concentrates (HS 260111). All these products also exhibit high comparative advantage. However, as reflected in 2 and 4-digit levels of classifications, in TE 2007, petroleum (HS 271000) had become the top export commodity with RCA value of 3.25 which was higher than TE 2003. In some of the products such as iron ores and concentrates (HS 260111), non-industrial (HS 710239), and men's or boy's shirts of cotton (HS 620520), both the RCA value and hence share in its total exports have increased between TE 1998 and 2007.

(b) IRCA of Korea

Korean exports to the world are more concentrated on some product groups compared to India with the top ten exports (2-digit) in TE 1998 accounting for around 74 per cent of total Korean exports. Except four product groups, most of the products have comparative advantage (Table XI, Appendix). Electrical machinery equipment parts (HS 85) was the top most export that constituted more than one fourth of total Korean exports. The other top commodity groups were nuclear reactors and related machinery (HS 84) and vehicles (HS

87), even though Korea does not have comparative advantage in these industries. Other groups of products which have comparative advantage and figure among the top 10 exported items are man-made filaments (HS 54), ships, boats and floating structures (HS 89), natural/cultured pearls and precious stones (HS 71), plastics and their articles (HS 39) and iron and steel (HS 72). Exports of organic chemicals (HS 29) and mineral fuels (HS 27) are significant though Korea does not have a comparative advantage in these products. In TE 2007, the composition of top 10 exported commodity groups remained almost the same. However, there is an improvement in Korean competitiveness and hence, in the share of the top four exported commodities in total exports. This indicates the increasing specialisation of Korean companies in certain groups of products. Some new product groups like optical, photographic, cinematographic products, (HS 90) etc have also gained importance in the Korean export basket with high RCA value of 1.5.

At the 4-digit level also, in TE 1998, products related to electrical equipment (HS 85) such as electronic integrated circuits (HS 8542), thermionic, cold cathode or photo-c (HS 8540) and reception apparatus for television (HS 8528) figured among the top 10 exports from Korea (Table XII, Appendix). In all these product groups, Korean competitiveness was quite high. Electronic integrated circuits were the top export with a share of more than 11 per cent and an RCA value of 4.16. The next important group was motor cars and other motor vehicles (HS 8703) with a share of 6.77 per cent and RCA value of 1.21. This was followed by cruise ships, excursion boats, ferry (HS 8901), gold (including gold plated) (HS 7108), automatic data processing machines (HS 8471), woven fabrics of synthetic filament (HS 5407), petroleum oils and oils (HS 2710) with high share and RCA value. However, since TE 2003, Korean competitiveness and share in total exports has improved significantly for the category 'motor cars and motor vehicles', pushing electronic integrated circuits to second position. A new entry into the top 10 exports has been that of transmission apparatus for radio and television (HS 8525) since TE 2003. During TE 1998 and 2006, although the share of petroleum oils and oils obtained from bituminous minerals (excluding crude) (HS 2710), has been increasing in total exports, there is a marginal deterioration in the RCA value over the period.

Korea's RCA analysis at the 6-digit level shows that in TE 1998, all the top 10 exports belonged to a few categories from top export items at 2 and 4-digit levels (Table XIII, Appendix). Korea exhibited the highest comparative advantages in monolithic digital integrated circuits, other woven fabrics, tanker and other vessels for transport. In TE 2006, although the share of monolithic digital integrated circuits remained the highest, it has substantially declined as has Korea's competitiveness in this product. Its share and value of RCA have declined from 11.32 per cent and 20.30 respectively in 1996-98 to 6.54 per cent and 3.85 respectively in TE 2006. At the same time, Korea has been able to enhance its competitiveness in some products like transmission apparatus incorporation (HS 852520) since TE 2003. This product has become the second most important export item from Korea. The petroleum oils, oils obtained from bituminous minerals, preparations thereof group has continuously improved its share in the Korean export basket and Korea's competitiveness in this product group has been maintained. With an increase in the RCA value of the product category 'other vehicles with spark ignition', its share has risen in Korea's exports. Other devices, appliances and instruments (HS 901380) have also become important in the Korean export basket with a high RCA value. All this indicates that the policy emphasis of the Korean government on specialising in high value products has resulted in an upward trend in share and RCA of high-end products in the Korean export basket.

(ii) RCAs of India and Korea in Each Other's Markets

The patterns of India's RCA in Korea are different from its RCA in the world market. Contrary to its RCA in the world market, where India's exports are getting diversified, its RCA in Korean market shows that there is a decline in the number of commodities having RCA greater than one at all digit levels of classification. As can be seen from Table-2, the number of products, having RCA>1 at all three levels, 2, 4 and 6 digits, has gone down between TE 1998 and 2006. Since Indian exports to Korea have been increasing over the period and the share of Korea in India's total exports is increasing, a decrease in the number of products being exported to Korea is an indication of the fact that India is getting specialised in certain products. However, the nature of specialisation needs to be investigated. The same trend is found for Korea as well. The number of products having RCA>1 has decreased over the period, particularly at 4 and 6 digit levels, but their share has been increasing.

Table 2: Number and share (in total exports to each other Market) of the products with RCA>1

Year		**India in Korea**			**Korea in India**		
		TE 1998	*TE 2003*	*TE 2006*	*TE 1998*	*TE 2003*	*TE 2006*
Number of Products	2 digit	27 (86.61)	20 (82.01)	26 (89.89)	23 (63.43)	30 (86.01)	24 (85.75)
	4 digit	227 (93.76)	267 (90.83)	182 (90.22)	221 (86.08)	226 (86.86)	196 (87.78)
	6 digit	673 (96.65)	533 (88.05)	668 (94.44)	707 (91.83)	743 (89.94)	655 (92.09)

Source: WITS Database
Note: Figures in parentheses show share in total merchandise exports.

(a) ***India's RCA in Korea:*** The RCA analysis of India's top 10 export commodity groups (at the 2-digit level) to Korea shows that cotton (HS 52) had been the top most commodity group in the Indian export basket to Korea till 2003 (Table XIV, Appendix). With a very high value of RCA, its share has been more than a quarter of total exports to Korea in TE 1998. The second most important export product group was residues and waste from the food industry (HS 23), followed by organic chemicals (HS 23), ores, slag and ash (HS 26), iron and steel (HS 72) etc. However, in TE 2006, India has become less competitive in two of its traditionally important exports to the Korean markets viz. cotton and residues and waste from the food industry as both their share in total exports and their RCA value have gone down. Now, mineral fuels and related products (HS 27) have become very prominent in India's export to Korea. The product group 'ore, slag and ash (HS 26) has become the second most important export item from India as its share has increased from 8.18 per cent in 1996-98 to 12.99 per cent in 2005-06. This has happened despite the fact that India's competitiveness for this group has marginally deteriorated. Except pharmaceutical products, all other product groups have remained among the top 10 exports to Korea. Pharmaceutical products have lost both their share in total exports and RCA value during the period 1996-2006, which can be a disturbing phenomenon since it has been a good performing sector in the recent past.

The RCA of India's top 10 export commodity groups (at the 4-digit level) to Korea shows that in TE 1998, cotton yarn (HS 5205), with a share of more than 19 per cent, was the top commodity export at the 4 digit level (Table XV, Appendix). India exhibited high

competitiveness in cotton yarn (HS 5207) where its RCA value was more than 194. Other products that were highly competitive (among these 10) include other organic compounds, oil-cake and other solid residues, sulphonated and nitrated goods etc. An almost similar composition of products was found in 2003 but in most of the items, India's competitiveness was found to have declined when compared to TE 1998. In TE 2006, India's composition of top exported items was partially changed and it has become competitive in some new products with impressive RCA values. Now, petroleum oils have become the top export commodity with an RCA value of around 19 and an almost one-third share in total Indian exports to Korea. Other new commodities that have become part of the top 10 export items with impressive competitiveness from India to Korea were motor parts and accessories, waste and scrap of precious metals and cyclic hydrocarbon.

The RCA of India's top 10 commodity exports (at 6 digit) to Korea shows that in TE 1998, oil-cake and other solid residues (HS 230400) was the top export item with very strong competitiveness (Table XVI, Appendix). Among these top ten products, most of the cotton-related goods, such as 'multiple or cabled yarn' and 'single yarn of uncombed fibres' etc have shown the highest RCA. This was followed by products under the broad category of "residues and waste" including "of rape or colza seeds" and "oil-cake and solid residues". Items from the broad category of cotton have remained significantly competitive till TE 2003, although in most of them India's competitiveness has been deteriorating in the Korean market. However, as reflected at broader levels of classification (at 2 and 4 digit of classifications), India's competitiveness has increased sharply in petroleum products as both the RCA value and share in total Indian export to Korea have increased significantly. With significant value of RCAs, products related to iron ore have become the second most important items of exports from India. Among these, zinc ores and concentrates (HS 260800) and iron ores and concentrates (HS 260111) are the chief ones. The next most important items are from the broad category of "residues and waste" including oil cake and solid residues (HS 230400) where India's comparative advantages increased significantly. Although, India remained quite competitive in some cotton related products like single yarn of combed (HS 520521) and uncombed fibres (HS 520511), their share has significantly declined over the period.

(b) ***Korea's RCA in India*****:** If one looks at the RCA values of the top 10 commodities exported from Korea to India at the 2-digit level, nuclear reactors, boilers and machinery (HS 84) was the top commodity group, accounting for more than a fifth of total export to India in TE 1998 (Table XVII, Appendix). This was despite the fact that Korea was less competitive in the Indian market (RCA value was 0.9) compared to the rest of the world. Except 'electrical machinery equipment and parts thereof' group (HS 85) and nuclear reactors, boilers and machinery (HS 84), Korea was competitive in all the top 10 export commodity groups. Korea was found very competitive in certain product groups like ships, boats and floating structures, man-made filaments, plastic and plastic articles, and vehicles other than railway or tramway rolling-stock. Between TE 1998 and 2006, Korea's export structure changed. An increase in the RCA value of electrical machinery equipment and parts thereof (HS 85) resulted in an impressive increase in its share of total exports. Its share rose to almost a third of Korea's total exports to India and its RCA reached 2.98 in the same year. Korea has also significantly improved its competitiveness in product groups such as nuclear reactors, boilers, machinery (HS 84), vehicles, rail/tram roll-stock (HS 87), iron and steel (HS 72), etc. However, it has been losing its competitiveness in certain product groups like plastic and articles thereof (HS 39), ships, boats and floating structures (HS 89) and man-made filaments (HS 54).

At the 4-digit level, Korea was very competitive in all the top ten export commodities in TE 1998 (Table XVIII, Appendix). With a RCA value of 4.5, machines and mechanical appliances (HS 8479) were the top export commodity group in TE 1998. In terms of competitiveness, Korea was very competitive in commodity groups like light-vessels, fire-floats (HS 8905), cruise ships, excursion boats, ferry (HS 8901), copper wire (HS 7408), policorboxilic acid (HS 2917), polymers of propylene (HS 3902), motor cars and other motor vehicles (HS 8703) etc. Since TE 2003, Korea has developed competitiveness in some new product groups such as transmission apparatus for radiotelephony etc, television cameras cordless telephones (HS 8525), motor parts and accessories (HS 8708), parts for television, radio and radar apparatus (HS 8529), petroleum oil and oils obtained from bituminous minerals (excluding crude) (HS 2710), flat-rolled products of iron (HS 7209), newsprint in rolls or sheets (HS 4801) etc.

At the 6-digit level also, the analysis of the top 10 exports from Korea to India shows that Korea was very competitive in all 10 commodities (Table XIX, Appendix). The top export in TE 1998 was other machines and mechanical appliances (HS 847989) followed by polypropylene (HS 390210), aromatic policorboxilic acids etc. The competitive structure of Korean exports has changed after TE 2003; now transmission apparatus incorporation (HS 852520) and other parts and accessories (HS 870899) under motor parts and accessories have become the top exports from Korea to India with quite impressive RCAs of 8.89 and 12.03 respectively in TE 2006. Petroleum oils and oils obtained from bituminous minerals, preparations thereof (HS 271000) have become the third most important export commodity to India from Korea and exhibited a high level of competitiveness in comparison to previous years. It is interesting to note that the same product, petroleum oils and oils obtained from bituminous minerals, preparations thereof (HS 271000), has become the top commodity export from India to Korea during the same period. India is far more competitive in this product group as compared to Korea. This indicates the possibility of intra-industry trade between the two countries in this industry. Although, tankers (HS 890120) have remained an important item in export to India, both its share and competitiveness have decreased compared to TE 2003.

4.1.1.2 Intra-Industry Trade between India and Korea

In this section, the Intra-Industry Trade (IIT) index is computed, which shows the gains derived from international trade over and above those associated with comparative advantage. This is because IIT allows a country to take advantage of larger markets. IIT refers to simultaneous exports and imports of products within the same product category. The Grubel-Lloyd (G-L) index is the most commonly used index to measure intra-industry trade. It computes the ratio of net exports in a product category to its total trade that takes values from 0 to 1 or from 0 to 100 if multiplied by 100. The G-L index takes a value of 0 if there are no exports or imports of a particular product group, i.e. no IIT in that particular product category. If exports exactly match imports, both being positive, the G-L index value equals 100. IIT is driven by economies of scale and productivity gains. By being engaged in IIT, a country can reduce the number of similar products it produces and benefit from scale economies and specialisation. A higher IIT value suggests that these sources of gains are being exploited. It also indicates that the adjustment cost would be lower when compared to inter-industry trade in the process of trade expansion.

Based on the Grubel-Lloyd (G-L) formula, the IIT index between India and Korea can be calculated as follows:

$$IITi_k = 1 - \{| X_{jik} - M_{jik} | / (X_{jik} + M_{jik})\} \text{ or } \{X_{jik} + M_{jik} - | X_{jik} - M_{jik} |\}/ X_{jik} + M_{jik} \quad ...(4)$$

where X_{jik} and M_{jik} represent exports and imports of products from industry j in country i(India) to and from country k(Korea).

Since there are significant differences in the economic structures and the level of development, the possibility of intra-industry trade between the two countries is not very high. However, the opening up of the Indian economy and the continuous increase in per capita income over the past one and a half decades makes an upturn in intra-industry trade between the two economies a possibility. Table-3 below highlights the changes in value of intra-industry trade index during TE 1998 to TE 2007. In TE 2007, sectors with high value of intra-industry trade include mineral products, chemical products, wood and wood products, textiles and textile articles, articles of stone, plaster, cement, asbestos, pearls, precious or semi-precious stones, metals, base metals and articles thereof, and miscellaneous products.

Table 3: Intra Industry Trade (IIT) between India and Korea in different Sectors

Sectors	**IIT**			**Share in trade in TE 2007**
	TE 1998	*TE 2003*	*TE 2007*	
Animal and Animal products	0.03	0.02	0.03	0.25
Vegetable products	0.15	0.22	0.09	0.58
Animal/veg fats & oils & their clea	0.12	0.46	0.02	0.08
Prepared foodstuff	0.01	0.06	0.03	2.56
Mineral products	0.73	0.04	0.50	18.25
Chemical products	0.60	0.90	0.96	7.31
Plastic and rubber	0.02	0.07	0.07	5.42
Hides and skins	0.64	0.26	0.13	0.51
Wood and wood products	0.87	0.59	0.54	0.03
Wood and pulp products	0.02	0.07	0.03	1.26
Textiles and textile articles	0.73	0.70	0.56	4.68
Footwear, headwear	0.28	0.15	0.26	0.02
Articles of stones, plaster, cement, asbestos	0.86	0.99	0.49	0.39
Pearls, precious or semi-precious stones, metals	0.70	0.60	0.44	1.59
Base metals and articles thereof	0.41	0.54	0.42	16.87
Machinery and mechanical appliances	0.12	0.05	0.08	31.83
Transportation equipments	0.10	0.04	0.19	6.71
Instruments- measuring, musical	0.14	0.09	0.20	1.47
Arms and ammunition; parts and acc	0.00	-	0.02	0.00
Miscellaneous	0.66	0.59	0.38	0.18
Works of art, collectors' pieces an	0.00	0.04	0.12	0.01

Source: WITS Database

Intra-industry trade in products with the highest share in bilateral trade between the two countries is presented in Table-4. In TE 1998, intra-industry trade was very minimal for the top traded commodities except one product group (iron and steel) with a value of 0.54. However in TE 2007, the overall intra-industry trade had increased for all the top traded product groups such as organic chemicals (HS 29), mineral fuels, oils and products (HS 27), iron and steel (HS 72), articles of iron or steel (HS73), vehicles rail/tram roll-stock (HS 87) etc. Intra-industry trade in other top traded product groups is very low and offer a huge

opportunity for intra-industry trade if sector specific barriers, along with general barriers, are removed. These products include electrical machinery, equipment and parts thereof (HS 85), ores, slag and ash. (HS 26), plastics and articles thereof (HS 39), cotton (HS 52) etc.

Table 4: Value of Intra-Industry Trade of top 10 traded products

TE 1998				**TE 2007**			
HS Code	*Product*	*IIT*	*Share*	*HS Code*	*Product*	*IIT*	*Share*
29	Organic chemicals.	0.48	14.88	85	Electrical mchy equip parts thereof	0.03	18.44
84	Nuclear reactors, boilers, mchy & m	0.11	13.13	27	Mineral fuels, oils, waxes and bituminous	0.63	13.95
39	Plastics and articles thereof.	0.02	8.81	84	Nuclear reactors, boilers, mchy & m	0.15	13.39
52	Cotton.	0.02	7.98	72	Iron and steel.	0.42	10.37
72	Iron and steel.	0.54	7.35	87	Vehicles o/t railw/tramw roll-stock	0.22	5.65
85	Electrical mchy equip parts thereof	0.14	7.11	29	Organic chemicals.	0.97	4.77
23	Residues & waste from the food indu	0.01	6.32	26	Ores, slag and ash.	0.05	4.21
26	Ores, slag and ash.	0.08	2.68	39	Plastics and articles thereof.	0.06	3.79
87	Vehicles o/t railw/tramw roll-stock	0.06	2.64	52	Cotton.	0.05	2.96
74	Copper and articles thereof.	0.01	2.60	73	Articles of iron or steel.	0.37	2.55

Source: WITS Database

Table 5 highlights the top 10 product categories that have the highest value of intra-industry trade. As can be observed from the table, between TE 1998 and TE 2007, the composition of product categories having high value of intra-industry trade has significantly changed. Only a few product groups like miscellaneous chemical products (HS 38), miscellaneous manufactured articles (HS 96), silk (HS 50) and pharmaceutical products (HS 30), have remained in the group in TE 2007. New groups of products that have become part of the group with high value of intra-industry trade include copper and articles thereof (HS 74), ceramic products (HS 69), preparations of cereal, flour, starch/milk (HS 19), organic chemicals (HS 29), aircraft, spacecraft, and parts (HS 88), etc. This is an indication of the fact that there is potential for higher trade in these products which would reduce cost and enhance the benefits for both the countries.

Table 5: Products with Highest value of Intra-Industry Trade

TE 1998				TE 2007			
HS Code	*Product*	*IIT*	*Share*	*HS Code*	*Product*	*IIT*	*Share*
76	Aluminium and articles thereof.	0.88		74	Copper and articles thereof.	0.99	
44	Wood and articles of wood; wood ch	0.86		69	Ceramic products.	0.98	
38	Miscellaneous chemical products.	0.80		19	Prep. of cereal, flour, starch/milk;	0.97	
96	Miscellaneous manufactured articles	0.80		29	Organic chemicals.	0.97	
51	Wool, fine/coarse animal hair, hors	0.79		88	Aircraft, spacecraft, and parts the	0.93	
50	Silk.	0.73		50	Silk.	0.90	
30	Pharmaceutical products.	0.72		68	Art of stone, plaster, cement, asbestos	0.88	
71	Natural/cultured pearls, precious stones	0.70		38	Miscellaneous chemical products.	0.86	
41	Raw hides and skins (other than fu	0.62		30	Pharmaceutical products.	0.83	
34	Soap, organic surface-active agents	0.61		96	Miscellaneous manufactured articles	0.75	

Source: WITS database

4.1.1.3 Trade Complementarity between India and Korea

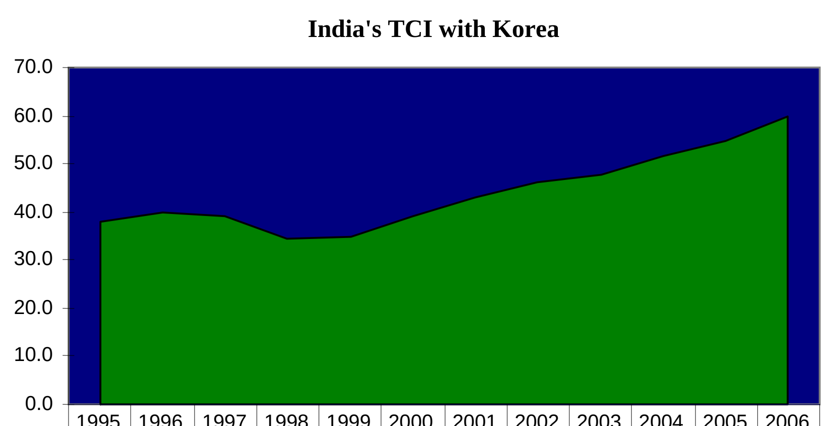
The trade complementarity index (TCI) provides useful insights on prospects for trade and shows how well the structures of the two countries' imports and exports match. The TCI measures the degree to which the export pattern of one country matches the import pattern of its trading partner. A high degree of complementarity indicates more favourable prospects for a successful trade arrangement. A change in the TCI over time indicates whether the trade profiles of two countries are becoming more or less compatible. To measure India's trade complementarity with Korea, we have used the UNESCAP formula which is explained below:

$$\text{TCI}=\left(1-\left(\sum\left|\frac{\sum_w m_{iwd}}{\sum_w M_{wd}}-\frac{\sum_w x_{isw}}{\sum_w X_{sw}}\right|\right)\div 2\right)\times 100 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{(1)}$$

Where d = importing country of interest
s = exporting country of interest
w = set of all countries in the world
i= set of industries
x = commodity export flow
X = total export flow
m = commodity import flow
M =the total import flow.

In this study, overall TCI of India is calculated for the period 1995-2006. Figure-1 shows trends in overall trade complementarity index for India over the period. As Figure-1 shows, trade complementarity of India has increased from 37.9 in 1995 to 59.8 in 2006. This indicates that Indian export pattern is becoming more compatible with Korea's import pattern. In 1995, India's trade complementarity was around 38 per cent. It touched 40 in 1996 but it decreased in subsequent years to reach 34.3 per cent in 1998. However, after 1998, India's trade complementarity index has continuously increased and reached around 60 in 2006. This signals that any agreement between the two countries is likely to enhance trade and investment flows.

Figure 1: India's Overall TCI with respect to Korea (1995-2006)



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
TCI	37.9	40.0	39.3	34.3	34.7	39.2	43.1	46.3	47.7	51.6	54.6	59.8

Source: WITS Database

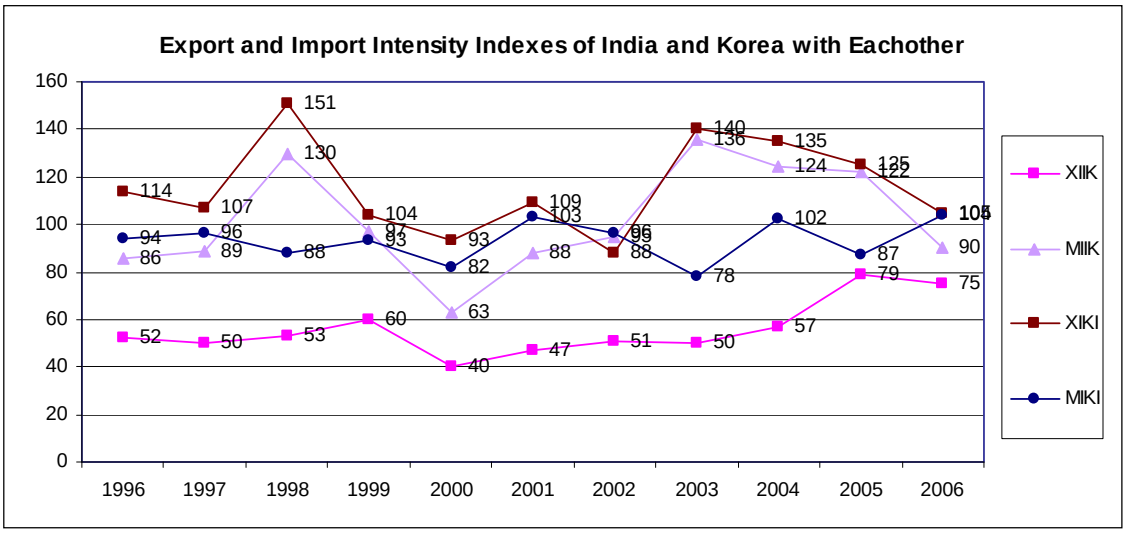
4.1.1.4 Trade Intensity between India and Korea

We have measured the intensity of trade between the two countries to identify trade potential. The trade intensity index is used to determine whether the value of trade between two countries is greater or smaller than would be expected on the basis of their importance in world trade. This index simply explains whether or not a country exports/imports more to/from a given destination than the world does on average. Trade intensity index is defined as a ratio of the share of one country's trade with another country to the other country's share of the world trade (Kaliranjan and Bhattacharya, 2007). When multiplied by 100, the index value ranges from 0 to 100. Zero indicates no trade, and if it is more (or less) than 100, it implies that India (I) is trading more (or less) with Korea (K) than might be expected from India's share in total world trade. Trade intensity of a country is calculated in terms of export and import intensity indices (see Appendix-3P for details).

Figure 2 below highlights changing trends in the export and import intensities of India and Korea during 1996-2006. Though India's export intensity has improved from 52 to 80 during 1996 and 2006 with Korea, it has always been below one indicating that Indian exports to Korea have been much below the world on average. Contrary to India's export intensity, Korea's export intensity has been greater than unity in most of the years since 1996, indicating Korean exports to India have been greater than its exports to the world on average. Although there is a decline in the last few years, it still remains higher than Indian export intensity to Korea.

During 1996-2006, Indian import intensity has varied widely. In 1996, the value was around 90. It touched 130 in 1998 but has since then continuously declined to reach 60 in 2000. Subsequently, it started to increase up to 2003 but after that, it again declined in successive years. On the other hand, Korean import intensity has been quite stable during this period and its value has been around unity. This shows that Korean imports from India have been equivalent to its average imports from the rest of the world.

Figure 2: Trade Intensity of India and Korea



Source: WITS Database

4.2 Trade in Services

Unlike in the case of merchandise trade where Korea ranks ahead of India, India has been performing slightly better than Korea in services. India's exports of commercial services have been increasing by more than 20 per cent annually in the last five years. India's export of commercial services has grown steadily and increased by more than five times from $16 billion in 2000 to $89.7 billion in 2007. Korea, on the other hand, has witnessed fluctuations in its exports of services though it has grown steadily after 2002. In 2007, annual growth of Korea's services export was higher than that of India. The total value of Korea's exports of commercial services in 2000 was $29.7 billion, which fell consecutively over the next two years to $27.3 billion in 2002. But since then, it has been increasing continuously and touched $61.5 billion in 2007.[17]

In 2007, India's share in world exports and imports of commercial services was 2.7 per cent and 2.5 per cent respectively as compared to Korea's shares of 1.9 per cent and 2.7 per cent.[18] Moreover, India has the highest share of commercial services in total exports (both goods and services) – even more than high-income countries. In 2006, the share of commercial services in total exports from India was around 36 per cent whereas it was 13 per cent for Korea.

During the last one and a half decades, the structure of service exports from India has undergone changes. The export basket was largely dominated by travel and transport services before 1995 but thereafter, the share of transport and travel services declined. Both the absolute amount and share of other services has grown impressively over the period. Some of the services which have shown phenomenal growth in the last few years are computer and information services, insurance services and other business services. According to the Economic Survey (2007-08), a significant feature of India's services sector is India's emergence as a world leader in IT and BPO services. India accounted for 65 per cent of the global market in offshore IT services and 46 per cent of the global BPO market in 2004-05. The export structure of Korea has also changed during the last 15 years. This change is different from changes that have taken place in the export structure of the world and India. Contrary to world experience, the share of transport services in total services export has increased faster than that of other services in the case of Korea. This has been mainly due to the rapid increase of goods export from Korea during the same period. Among the other services, although exports of 'other business services' have increased, the total export and the share in total services export of communication and computer and information services have increased slower than that of India.[19]

As far as bilateral trade in services between India and Korea is concerned, there is lack of data, but it is believed that trade in services between the two countries is increasing rapidly, at least in some sub-sectors especially in IT/software services and travel services. According to the Electronic and Computer Software Export Council (ESC), software exports from India to South Korea in 2001-02 were $27.53 million compared to $8.67 million in 2000-01. According to industry sources, Korea is not only a market for Indian software companies, it can also be utilised as a platform to establish a stronger presence in the APEC region.

[17] WTO: International Trade Statistics, 2008
[18] Ibid
[19] UNCTAD, Handbook of Statistics, 2008

5. India-Korea Investment Relations

5.1 Korean Investment in India

Economic reforms, started in the early 1990s in India, offered a conducive investment environment for potential foreign investors, including Korean companies. Many Korean companies started entering the Indian market aggressively and, within a short period of time, many of them became household names in the country. At present, many Korean enterprises such as LG, Samsung, Hyundai etc., have not only established their presence but have been able to diversify their businesses to various sectors in the economy. The share of Korea in total actual cumulative FDI received and approved by India were 3.56 and 5.18 respectively during 1991 and 1999. However, after 2000, the share of Korea has been declining not only in actual FDI inflow but also in terms of approvals. This can be observed from table 6.

Table 6: Year wise FDI inflow (Actual and Approved) in India (US $ million)

Year (Jan-Dec)	**Actual Inflow**			**Approvals**		
	From S. Korea	*From all countries*	*Share of Korea in total investment (%)*	*From S. Korea*	*From all countries*	*Share of Korea in total investment (%)*
August 1991-Dec 1999	571.7	16019.7	3.56	2605.4	53245.7	5.18
2000	17.7	2873.0	0.61	9.6	4008.6	0.24
2001	4.5	3728.4	0.12	14.8	4653.3	0.32
2002	37.8	3790.7	0.99	6.0	2303.8	0.26
2003	24.5	2525.5	0.97	13.4	1177.5	1.4
2004	26.7	3753.4	0.71	3.5	1900.3	0.66
2005	66.0	4360.2	1.51	15.3	1795.4	0.85
2006	64.7	11108.4	0.58	23.1	5,111.2	0.45
2007	67.95	19309.892	0.35	15.7	4772.8	0.32

Source: Directorate of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India

The major sectors for which approvals were given for FDI (Table 7) from South Korea were transport, fuels (power and oil refinery), electrical equipment (including computer software and electronics) etc. In terms of actual inflows (Table 8), sectors like electrical equipment (including computer software and electronics), metallurgy, food processing etc. have attracted the maximum investment.

Table 7: Share of top sectors in FDI approvals
(From August 1991 to June 2006, Amount in million)

Rank	Sector	No of FDI approvals	Amount of FDI approved (US$)	% age with FDI approved for Korea
1.	Transportation Industry	69	995.7	38.17
2.	Fuels (power & oil refinery)	8	832.3	32.46
3.	Electrical Equipments (including Computer software & electronics)	72	303.6	10.62
4.	Chemicals (other than fertilizer)	32	175.4	6.07
5.	Commercial Office & House Hold Equipments	11	110.1	3.94
Total of above		**192**	**2,417.1**	**91.26**

Source: DIPP

Table 8: Share of top sectors attracting FDI inflows from South Korea
(From January 2000 to June 2006, Amount in million)

Ranks	Sector	Amount of FDI inflows In US$	Percentage in Total FDI inflows from Korea
1.	Electrical Equipments (including computer software & electronics)	78.7	41.49
2.	Metallurgical Industries	51.0	26.13
3.	Food Processing Industries	18.7	9.81
4.	Transportation Industry	12.8	6.69
5.	Industrial Machinery	3.2	1.68
Total of the above		**164.4**	**85.8**

Source: DIPP
Note:

1. *Amount includes the inflows received through FIPB/SIA route, acquisition of existing shares and RBI's automatic route only.*
2. *The amount and sector specific FDI inflows are not provided by RBI, Mumbai prior to January 2000.*

5.2. Indian Investment in Korea

Contrary to its trade performance, South Korea does not fare well in terms of attracting foreign investment into the country. Compared to other East Asian economies, Korean policy makers gave preference to loan-based investments over direct investment. Between 1962 and 1986, total cumulative long-term foreign capital inflows into Korea amounted to $49 billion. Of this amount, commercial loans and borrowings from development agencies represented 65 per cent and 32 per cent, respectively while FDI accounted for a mere 3.9 per cent. The

shares of FDI inflows in its gross fixed capital formation and in its GDP have been substantially lower than in the rest of the world and in most of the other emerging economies (Table 9). For instance, Korea's inward FDI as a proportion of its gross fixed capital formation was a mere 0.9 per cent in 2007, whereas for Malaysia and Singapore, it was 26.6 per cent and 60.0 per cent respectively. Although Korea has switched to a more pro-active FDI regime after the Asian financial crisis, the ratio of inward FDI stock to GDP is still one of the lowest in the world, far lower, in fact, than the global average or that of developing economies.

Table 9: International Comparison of Inbound FDI (%)

Region	**Inflow of FDI as % of Gross Fixed Capital Formation**			**Inward Stock of FDI as a Percentage of GDP**		
	2005	*2006*	*2007*	*1990*	*2000*	*2007*
World	9.7	12.6	14.8	9.1	18.1	27.9
Developed Economies	8.9	12.8	15.6	8.1	16.2	27.2
Developing Economies	11.4	12.5	12.6	13.6	25.2	29.8
EU	18.2	18.6	22.6	10.6	25.9	40.9
Africa	16.3	21.4	21.3	11.5	25.2	31.0
Asia	10.0	11.0	10.6	15.9	25.5	28.6
South and Central America	14.5	11.0	15.4	9.6	21.7	28.6
U.S.A.	4.3	9.1	9.0	6.8	12.8	15.1
UK	46.2	34.6	44.8	20.6	30.4	48.6
Germany	8.6	10.5	8.3	6.5	14.3	19.0
France	20.1	17.0	29.4	7.9	19.6	40.1
Japan	0.3	-0.6	2.2	0.3	1.1	3.0
India	3.0	6.6	5.8	0.5	3.7	3.7
China	7.7	6.4	5.9	5.1	16.2	10.1
Hong Kong	90.4	108.6	142.8	262.3	269.3	573.0
Malaysia	14.0	18.5	26.6	23.4	56.2	41.1
South Korea	3.0	1.9	0.9	2.0	7.4	12.3
Singapore	53.7	79.9	60.0	82.6	121.5	154.7
Thailand	15.7	15.3	14.6	9.7	24.4	34.9

Source: World Investment Report 2008.

However, Korean policy makers have realised the importance of foreign investment in economic growth and enacted a new foreign investment promotion act in 1998. This was to provide foreign investors lucrative incentives which include tax exemptions and reductions, financial support for employment and training, cash grants for research and development (R&D) projects, and exemptions or reductions of land leasing costs for factories and business operations for a specified period. Korea has also created several new institutions such as Invest KOREA and the Office of the Foreign Investment Ombudsman to facilitate foreign investment in the country.[20] Since 1998, Korea has had a liberal FDI regime, under which all kinds of FDI including establishment, stock acquisitions, mergers, and long-term loans are

[20] Ahn, Choong Yong, 2008

allowed.[21] Further, investment incentives are being extended, including through the creation of free economic zones (FEZs). FDI restrictions on most of the sectors have been relaxed except in the case of radio and television broadcasting and rice and barley cultivation which are completely closed to FDI in the country. Some of the infrastructure sectors are also partially closed and have foreign equity limits. A negotiable cash rebate was also introduced for foreign investors in 2004. Although all these measures induced foreign investment in Korea in the last few years, FDI inflows, both as a percentage of gross fixed capital formation and in absolute amounts, have decreased. On the other hand, outward FDI both as a percentage of gross fixed capital formation and in absolute amounts has increased during 2005-2007 (Table 10).

The largest source of FDI inflows in Korea has been the European Union followed by US and Japan. In fact, these three regions/countries account for more than 80 per cent of total FDI inflow to Korea (Ahn, Choong Yong, 2008).

Table 10: FDI flows into Korea and World

Country/ Region		**Flow (in Billions of dollars)**				**As percentage of gross fixed capital formation**			
		1990-2000 (Annual Average)	*2005*	*2006*	*2007*	*1990-2000 (Annual Average)*	*2005*	*2006*	*2007*
Korea	Inward	3.06	7.05	4.88	2.63	2.2	3.0	1.9	0.9
	Outward	3.1	4.29	8.13	15.27	2.1	1.9	3.2	5.5
World	Inward	495.39	958.69	1411.02	1833.32	7.8	9.7	12.9	14.8
	Outward	492.62	880.81	1323.15	1996.51	7.9	9.0	12.2	16.2

Source: World Investment Report 2008

Although Indian investment in South Korea is almost negligible and India does not figure among major investors in the country, due to the growing prowess of Indian companies and their eagerness to expand their global presence, many Indian companies have begun to invest in Korea through different means including mergers and acquisition (M&A). For instance, in February 2004, Tata Motors signed an agreement for acquiring Daewoo Commercial Vehicles, Kunsan (South Korea) at a cost of $102 million.[22] The Indian IT industry sees a lot of opportunities in South Korea and, according to industry sources, Korea is seen as a stable plank for those looking to establish stronger presence in the APEC region. Some of the IT companies, such as Aptech, have already set up their centres in Korea.[23]

5.3. Technical Collaborations:

Technological collaboration between the developed and developing world has been a major source of technology acquisition for companies in developing countries. In the case of India-

[21] WTO, TPR on South Korea, 2004
[22] FICCI
[23] http://www.expresscomputeronline.com/20021216/newsan1.shtml

South Korea trade relations, Korea has been a major partner of India for technological collaborations. According to DIPP, 228 technical collaborations have been approved from South Korea which accounts for 2.93 per cent of the total collaborations approved between August 1991 and June 2006. The highest number of technical collaborations (Table 11) has been in the transportation industry followed by electrical equipment (including computer software and electronics) and chemicals (other than fertilisers).

Table 11: Share of top five sectors attracting technology transfer
(from August 1991 to June 2006, No. of approvals)

Rank	Sector	No. of technical Collaboration approved	% of tech collaborations approved for Korea
1.	Transportation Industry	55	24.12
2.	Electrical Equipment (incld cmptr sftwr & elctrncs)	48	21.05
3.	Chemicals (other than fertilizer)	19	8.33
4.	Misc. Mechanical & Engg.	14	6.14
5.	Metallurgical Industries	13	5.70

Source: DIPP

There is significant potential for small and medium-sized (SMEs) Korean companies to synergise with Indian SMEs in the areas of semi-conductors, plastics, auto parts, agricultural instruments, textiles, multi-media, ceramic products, software etc. Korean participation can also be invited in the special economic zones (SEZs) in India. Since the development of infrastructure in India is a priority and requires both advanced technology and huge investment, there is tremendous scope for Korean companies to participate and collaborate in the infrastructure sectors such as power, ports, telecommunications etc. Opportunities are also there in ship-building and ship repair, petrochemicals, automobile ancillaries, electrical and electronics, office equipment, banking and financial services, software and iron and steel[24].

6. Trade and Investment Barriers

As has been highlighted in the trade analysis part of this paper, trade flows between India and Korea, though on the rise in last few years, remains much below potential. Apart from natural and structural factors like distance and difference in economic structures, the non-realisation of potential is mainly due to various barriers/problems that exist in both the countries. These barriers exist for merchandise and services trade as well as investment.

6.1. Barriers in India:

Since the early 1990s, tariff rates on most non-agricultural commodities have been significantly reduced in India. However, India has bound only 70 per cent of its non-

[24] In recent years, the participation of Korean companies in the infrastructure sector in India has increased substantially. Out of 44 contracts awarded for national highway development projects, 9 have been won by Korean companies, either in collaboration with Indian companies or independently. Recently, Hyundai Heavy Industries have won two mega projects, including one pipeline project worth $600 million.

agriculture tariff lines. According to WTO, India's average bound tariff rate is 34.9 per cent, which is well above its average applied tariff rate (16.4 per cent in 2005). In agriculture, India's WTO bound tariff is among the highest in world with an average bound tariff of 114 per cent. Although Korea is not very competitive in a majority of agricultural products, it is competitive in certain products, like cuttle fish.

India's tariff rates are very high on some of the product categories which constitute a major proportion of Korea's exports. For instance, in 2007, the weighted average of the MFN tariff rate on vehicles, rail/tram rolling stock, and access group, is 18.8 per cent with a maximum rate of 100 per cent. Tariff rates are also high on products in which Korea is competitive. For example, Korea has high RCA values for the iron and steel group but the weighted average of MFN tariff rate in India is 20 per cent which is equal to the maximum tariff.

One problem that has generally been felt by exporters to India is the lack of an official publication or a searchable database setting forth applied tariff and other customs duty rates. India's customs valuation methodologies do not reflect actual transaction values and sometimes increase the effective tariff rates. Also, due to a complex tariff structure and multiple exemptions, Indian customs require extensive documentation, which leads to frequent processing delay and inhibits the free flow of trade.[25] Non-transparency and unpredictability in unofficial policy of the government have also been highlighted as constraints in exporting to India[26].

The importation of automotive products is subject to certain custom procedures which are cumbersome for importers. For example, motor vehicles can be imported only through a limited number of ports and only from the country of manufacture.[27]

Apart from these tariff-related barriers, there are several non-tariff barriers that exist in India. These include poor infrastructure, the hiring, management and dispute settlement mechanism in the case of labour, high production cost, credit retrieval, local financing and binding system, relatively limited demand, high competitiveness, government intervention, customs and clearance procedures and visa related problems.[28] Issues related to the Indian government's development, adoption, and implementation of technical regulations, standards and conformity assessment procedures have not been very conducive for trade in several products[29]. There are also concerns regarding India's notification process for amendments of certain regulations[30].

Imports of certain products, like electrical appliances, where Korea is very competitive, are subject to license from the Bureau of Indian Standards (BIS). For this, BIS needs to first inspect the production facility and then issue a license to the exporter. According to some foreign companies, licensing and inspection costs imposed on foreign companies are very high. Some proposed regulations are also considered a hindrance to trade flows. For instance, the proposed "Drugs and Cosmetics (Amendment) Rules, 2007" will make registration costly

[25] USTR 2008
[26] For instance, unofficial policies of revising edible oil reference prices once every two weeks and maintaining a reference price system for soybean oil to address alleged under invoicing.
[27] USTR, 2008.
[28] From presentation of Mr. By Soon C. Lee, PhD.
[29] For instance, currently the US is raising its concerns in the WTO about India's 2007 implementation of the BIS protocols on tyres.
[30] For instance, India has amended its "Plant Quarantine (Regulation of Import into India) Order, 2003" many times without providing an opportunity for prior public comment, as required by WTO obligations.

for certain drugs and cosmetic products. In the case of copyright, proposed amendments in copyright laws have some major deficiencies like the lack of a clear path towards implementation of the world intellectual property organisation internet treaties. Another related issue is the weak enforcement efforts against copyright piracy in India. Cable piracy has been a significant problem in India. The criminal IPR enforcement regime is considered weak.[31]

Other issues that have come up in United States Trade Representative(USTR) 2008 are lack of an efficient regulatory device regime, India's failure to notify sanitary and phytosanitary (SPS) measures to the WTO, excessive regulation and restriction on certain forest and food products, non-transparency and bias in government procurement practices and procedures, lack of clarity on tax holidays for export-oriented units and exporters in special economic zones (SEZs) and ambiguity in India's patent law regarding the scope of patentable inventions.

In services, the barriers are regulatory in nature. These barriers include limitation on foreign ownership, excessive regulation, nationality or residency requirements, bias in award of projects, compulsory registration with local, specific, service provider associations, etc. Cumbersome bureaucratic procedures, the lack of fear of government action and a clogged judicial system where cases can linger on for several years, visa related problems etc have been the most cited barriers to trade in services.

Foreign companies also face a number of problems in investing in India. Along with ownership restrictions, the Indian government's stringent and non-transparent regulations and procedures governing local shareholding hinder investment inflow and raise the risk for new entrants. Some of the important issues include acquisition of land, political interventions, credit retrieval, local financing and binding system, labour disputes, high competitiveness, government intervention, customs and clearance procedure etc.

In some sectors, price control regulations have undermined the incentives for foreign investors to increase their equity holdings in India[32].

6.2. Barriers in South Korea:

Trade and investment barriers exist in Korea too, despite the continuous rationalisation of its tariff structure and other external sector reforms. Korea's average MFN applied tariff rate, in 2006, was 12.1 per cent for all products (47.8 per cent for agricultural products and 6.6 per cent for industrial products). Korea maintains high tariffs on several agricultural and fishery products, which are of interest to India. It imposes a 30 per cent or higher tariff rate on most fruits and nuts, many fresh vegetables, peanuts, peanut butter, various vegetable oils, dairy products etc. Korea has established tariff rate quotas (TRQs) in a bid to minimise access to previously closed markets to maintain pre-Uruguay round access. In-quota tariff rates may be very low or zero but over-quota tariff rates are very high and prohibitive[33]. Another tariff related problem in Korea is the use of adjustment tariffs and compound taxes on some agricultural, fishery and plywood products, which raise the applied tariff rates in the country.

[31] USTR 2008

[32] For instance, some companies report that they are forced to renegotiate their contracts in the power sector as a result of ruling government changes at the central and state levels.

[33] For instance barley is subject to an over-quota tariff rate of 324 per cent; malted barley, 513 per cent; potatoes and potato preparations more than 304 per cent, etc (USTR, 2008).

Another sector of interest to India is textile and apparel products. Bound tariffs on these products in Korea is significantly high at 30 per cent on several man-made fibres and yarns, many fabrics and most made-up and miscellaneous goods like pillow cases and floor coverings and 35 per cent on most apparel items.[34] Also, Korean tariff rates are very high on some products where India exhibits maximum RCA. For example, lac, gums, resins and other vegetable group of products is among the groups with the highest RCA for India but the weighted average bound tariff rate in Korea is as high as 142.83 per cent while the MFN rate is 136.63.

South Korea maintains some standards, technical regulations and conformity assessment procedures that are burdensome. These barriers mainly restrict the export of food items that are of interest to India. For instance, the Korean Food and Drug Administration (KFDA) define product categories narrowly for specific food additives making it difficult to obtain approval. According to Korean rules and regulations, safety and certification have to be conducted by a designated certification body that must be a "domestic, non-profit making organisation with suitable testing equipments and qualified testing personnel".[35] Another related problem faced by exporters is that Korea has non-transparent and onerous labelling requirements, with frequent changes for health foods which create a lot of difficulty and enhance the cost of compliance.

In Korea, all imported cosmetics are subject to an import review process by the Korean Pharmaceutical Trade Association (KPTA). This procedure delays market entry of the products and since KPTA's membership includes competitor manufacturers, the process raises concerns about the ability of KPTA to protect sensitive information which is required to be disclosed as part of the import review process.

Foreign companies face a number of trade barriers in exporting services to Korea. A relatively high threshold level is maintained/imposed for procurement of construction services by sub-central and government enterprises. Korea imposes several restrictions on the film and broadcast industry. For instance, it has a quota for the screening and broadcasting of domestic films, restrictions on voice-overs (dubbing) and local advertising on foreign re-transmission channels and licensing requirements for any form of legal advice in Korea. The lack of transparency in the regulatory system, the lack of a mechanism to raise concerns regarding these and market access issues in the financial sector are major concerns in the financial services.

In the telecommunication sector, where Indian companies may be interested, Korea imposes a number of restrictions on foreign service providers. There is prohibition on foreign satellite service providers from selling services directly to end users, lack of transparency in investment-related regulatory decisions, limits on foreign shareholding of facilities-based telecommunication operators, restriction on foreign investment in terrestrial broadcast television operations, etc.

Other barriers faced by foreign suppliers in the Korean market include government assistance to targeted domestic industries like the semiconductor industry, weak legal regime to protect intellectual property, lack of data protection, issues related to its copyright act, protection of temporary copies and technological protection measures, sale of pirated audio-visual DVDs

[34] USTR, Korea, 2008
[35] USTR, Korea, 2008

by unlicensed vendors and burdensome and detailed product information requirements to get registration and certification.

7. Areas of Future Co-operation

As discussed in previous sections, there are complementarities between the two countries in terms of economic structures and future outlook. Any future agreement should not only focus on increasing trade and investment flows between the two economies by removing the existing barriers on both sides but should also emphasise co-operation and technical collaboration in various sectors. Co-operation is needed especially in those sectors in which trade complementarity is high. And this should be done through both government and private initiatives. The following areas can be identified for future co-operation between the two sides.

7.1. Co-operation in the IT sector

The Korean electronic and hardware industry is well recognised all over the world. Similarly, the Indian software industry has proved its mettle and is today considered to be among the most competitive in the world market. So there is complementarity in the sector in both the countries and scope for future co-operation. If both countries come together and combine their efforts, it is possible for them to achieve joint leadership in this sector. This is possible especially in embedded technology which involves integration of both software and hardware. Since the cost of production and competition for Korean companies has been increasing and India has become an attractive destination for outsourcing services, there is greater scope for outsourcing/subcontracting from Korea to India, both in IT products and services. Another area of co-operation in the IT sector is IT education and training. Indian companies are endowed with a wide network of world class training institutions. Korean strength lies in manufacturing, product development and marketing. If this is combined with India's strength in related services, it would be advantageous for both the countries.

7.2. Science and Technology

Science and technology (S&T) is an area which both countries are already co-operating in. Although there exists an India-Korea Joint committee on S&T which held their meeting in 2005 in Seoul, it is imperative to intensify the co-operation between various institutions based in the two countries. India is endowed with well educated S&T personnel and Korea has the financial resources; coming together will benefit both.

7.3. Pharmaceutical Industry

From being a major importer of pharmaceutical products, the Indian pharmaceutical industry has today become a net exporter of these products. Indian export destinations not only include developing countries in Asia and Africa but also developed countries such as the US, Canada and European countries. This proves the strength and overall competitiveness of the industry. India has both R&D facilities and human capital to leverage. Since Korea is focusing on R&D in pharmaceutical-related areas, there is scope for co-operation between the two countries in the areas of clinical trials, vaccines, biotech goods, traditional medicinal products etc.

7.4. Broadcasting

Broadcasting is a growing industry in both the countries and since there are complementarities in the industry, there is potential for future co-operation is significant. India is well-recognised among Asian countries for its content. Korea on the other hand, specialises in dramas and digital and mobile broadcasting technologies. Hence, it would be in the interest of both countries to initiate co-operation in the broadcasting industry.

7.5. Tourism

Due to the strong, ancient historical and cultural linkages between the two countries, there is huge potential for enhancing tourism-related trade and investment flows. If a conducive and facilitative environment is created, there are possibilities that tourist inflows from Korea to India would not only increase, there could also be a substantial inflow of investment in the development of various Buddhist sites spread across India.

7.5. Healthcare

Due to liberalisation and the growing interest of the Indian private sector in healthcare services, the size and capability of the healthcare industry in India has grown rapidly in the recent past. The strength of the Indian healthcare industry lies in its quality health professionals who are well-recognised all over the world. India has also been gaining in importance as a health related tourism services destination not only among the developing countries but also in developed countries. Korea's healthcare system has significantly improved in the recent past due to the remarkable progress in medical sciences, quality professionals and appropriate government policies. However, there have been concerns about a glut of health professionals in Korea. Given the complementarities in the healthcare industry, enhanced co-operation will help both countries realise the vast opportunities in this sector.

7.6. Construction and Related Services

In last few years, the construction sector has been one of the fastest growing sectors in India. Given the growing infrastructural demand, the sector is likely to continue its growth momentum in the coming future. However, because of the Indian construction industry's limited capability and exposure to various kinds of construction requirements, the government is very keen to enhance the participation of foreign players. This is expected to not only enhance the industry's capacity to deliver high quality projects within tight timelines but also provide opportunities to Indian companies to acquire new construction techniques/know-how. Korean companies are well endowed with technological capability and their global exposure is also high. Hence there is tremendous scope for co-operation in the construction industry.

7.7. Scope for co-operation in Human Resource Development

The importance of knowledge in the world economy has been growing in the recent past. The backbone of the knowledge economy is the supply of quality human resources. However, due to differences in their demographic stage and investment in human resources, developing countries differ significantly in their human resource endowments. Though India has a vast workforce, due to rapid economic growth in the past few years, many industries face a

shortage of skilled manpower. Korea, on the other hand, because of its different demographics and development stage, faces a shortage of overall manpower. Korea has long experience in certain industries, such as electronics, construction and engineering etc., and hence is better endowed with skills in these industries. And these are the industries, as mentioned earlier, where the growth rate has been quite impressive in the last few years in India. Therefore if co-operation is enhanced in this segment, it would be beneficial for both the countries.

8. Conclusion

Bilateral economic relations between India-Korea have strengthened over the years, particularly since 1991. However, the current size of trade and investment between the two countries is low compared to the size and structural complementarities of the two economies. In this context, the present paper analyses trade and investment relations and future areas of co-operation between India and Korea. The increase in merchandise trade between the two countries has been mainly because of the changing demand structures and comparative advantages of both economies in complementary sectors. While India's exports mainly constitute low value-added and industrial products, India's imports from Korea largely consists of relatively high value-added products. The analysis of revealed comparative advantage at both the aggregated and disaggregated levels shows that Korea has been specialising in a few products which are highly competitive as India's exports have been more diversified. Moreover, India shows declining comparative advantage in cotton and textiles, rice and other primary products. The analysis at the disaggregated level shows that there are some industries where both countries have comparative advantage in different products, pointing to opportunities for intra-industry trade. The intra-industry trade (IIT) analysis shows that IIT is low in the top traded product groups and high in some products where trading is low. This offers huge opportunity for intra-industry trade if sector-specific barriers are removed along with general barriers.

Further, the increasing trade complementarity index (TCI) shows that Indian and Korean trade gradually became more compatible over the period under review. This indicates that any agreement between the two countries is likely to enhance trade flows. The trade intensities between the two countries show that Korea is doing much better and there is scope for India to improve its export intensity with Korea.

Though foreign investment from Korea has increased over the years, the share in total FDI inflows to India has declined. Further, Korean investment is concentrated in a few sectors such as the electrical equipment and metallurgical industries. There are opportunities for small and medium-sized Korean companies to synergise with Indian SMEs in the areas of semi-conductors, plastics, auto parts, agricultural instruments, textiles, multi-media, ceramic products, software etc. Since, development of infrastructure in India is a priority and requires both advanced technology and huge investment, there is tremendous scope for Korean companies to participate and collaborate in the infrastructure and construction sectors. Further, there is tremendous scope for improving trade in services between the two countries, particularly for India. There are areas such as information technology, science and technology, pharmaceuticals, broadcasting, tourism, healthcare, construction and related services and human resource development where collaborative relations can be further strengthened. The analysis also shows that there exist both tariff and non-tariff barriers and both countries need to remove sector-specific barriers to improve trade and investment relations.

In this context, the successful conclusion of the CEPA is timely and supported by increasing trade complementarity index (TCI) index, which shows Indian and Korean trade has gradually become more compatible over the period. Therefore, CEPA provisions to reduce and eliminate tariffs and non-tariff barriers on a large number of product categories would make their exports competitive in each others' markets. The CEPA provisions of national treatment, minimum standard of treatment ensuring fair and equitable treatment, abolition performance requirements and transparency in laws and regulations are likely to induce investment flows between the two countries. The CEPA also provides opportunities for Korean industries to enter the manufacturing sector in a big way by eliminating tariff and non-tariff barriers. The agreement, which proposes bilateral economic co-operation in 13 important areas, will strengthen economic co-operation and both the countries would benefit immensely. Apart from increase in trade and investment, the outflow of professionals from India to Korea is expected in large numbers.

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Appendix

Table Ia: Macroeconomic Trends in India and Korea

Sector	Korea				India			
	Growth Rates				Growth Rates			
	1990-99 (CAGR)*	2000-04 (CAGR)	2005	2006	1990-99 (CAGR)	2000-04 (CAGR)	2005	2006
GDP	5.22	3.70	3.9	4.9	5.04	5.08	9.2	9.2
GDP per capita	4.34	3.23	3.74	4.72	3.35	3.81	7.75	7.70
Agriculture	1.64	0.18	-0.1	-2.6	2.77	1.63	6.0	2.7
Industry	5.28	4.85	5.6	4.9	4.88	5.32	9.6	10.6
Manufacturing	6.40	5.20	7.07	8.39	5.01	4.88	9.09	12.32
Services	5.14	3.19	3.0	4.16	6.73	6.46	9.8	11.2

Source: WDI, 2008
*Note: * CAGR implies compound average growth rate per annum.*

Table Ib: Major Trend of Major Macroeconomic Indicators of Korea and India

As percentage of GDP												
	Korea						India					
	1991	*2002*	*2003*	*2004*	*2005*	*2006*	*1991*	*2002*	*2003*	*2004*	*2005*	*2006*
Agriculture	7.9	4.1	3.4	3.8	3.8	3.3	29.6	20.9	20.9	18.8	18.3	17.5
Industry	42.6	38.5	40.3	39.1	40.7	39.6	25.7	26.4	26.2	27.5	27.6	27.9
Manufacturing	27.39	27.6	26.9	28.4	26.4	28.6	15.7	15.3	15.3	15.9	16.0	16.3
Services	49.43	56.3	57.5	56.3	57.2	55.6	44.5	52.7	52.9	53.7	54.1	54.6
Gross domestic saving	37.0	30.5	32.3	34.6	32.4	30.9	21.9	24.6	26.2	29.2	30.4	31.1
Gross capital formation	39.73	29.1	30.0	30.4	30.1	29.8	21.9	25.6	27.5	31.0	33.4	33.9
FDI (net inflow)	0.38	0.4	0.6	1.4	0.8	0.4	0.03	1.1	0.7	0.8	0.8	1.9
Exports (goods & services)	26.33	35.3	37.9	44.0	42.3	43.2	8.59	14.5	14.7	18.2	20.3	23.0
Imports (goods & services)	28.99	33.9	35.6	39.7	39.9	42.1	8.59	15.5	16.0	20.0	23.3	25.8

Source: WDI, 2008

Table II: Tariff structures of India and Korea
(figures in percentages)

		India			Korea		
	Years	*Total*	*Agricul.*	*Non-Agricul.*	*Total*	*Agricul.*	*Non-Agricul.*
Simple Average final Bound		50.2	114.2	36.2	17.0	59.3	10.2
Simple Average MFN Applied	2007	14.5	34.4	11.5	12.2	49.0	6.6
Trade Weighted Average	2006	8.0	41.9	6.5	7.0	91.6	3.6

Source: WTO World Tariff Profiles, 2008.

Table III: India's Engagements in Regional Trading Agreements

Partner country/countries	**Type of RTA**	**Status**
ASEAN, BIMTEC, GCCl, Thailand	FTA	Under Negotiation
Asia-Pacific Agreement	Trade Agreement	Under Implementation
China, Australia, New Zealand	FTA	Under consultation and study
Afghanistan, Chile, MERCOSUR	PTA	Signed
Columbia, Israel, Uruguay, Venezuela	PTA	Under Consultation and Study
Egypt, Southern African Customs Union (SACU)	PTA	Under Negotiation
European Union	Trade and Investment Agreement (TIA)	Under Negotiation
Indonesia	Comprehensive Economic Co-operation	Under Consultation and Study
Korea, Japan	Comprehensive Economic partnership Agreement(CEPA)	Under Negotiation
Mauritius	Comprehensive Economic Co-operation and partnership Agreement	Under Negotiation
Russia	Federation Comprehensive Economic Co-operation Agreement	Under Consultation and Study
Singapore	CECA	Under Implementation
Sri Lanka, South Asia	FTA	Under Implementation
Nepal	Treaty of Trade	Under Implementation
Malaysia	CECA	Under Consultation and Study

Source: Department of Commerce, Ministry of Commerce and Industry, Government of India

Table IV: Korea's Multi-track Free Trade Agreements

Nations	Status	Effectiveness
Chile	April 2004, Effectuation	Assuming that accumulation must occur by both domestic and foreign investors
Singapore	March 2006, Effectuation	
ASEAN 10	May 2006, Liberalised manufacturing sector service industry to be concluded in 2007	
EFTA (Switzerland, Norway, Ireland, Liechtenstein)	September 2006, Effective	
Japan	Negotiations suspended	
Canada, Mexico, India	M to conclude within 1-2 years	
EU	Six rounds of negotiations completed	
USA	Concluded on April 2, 2007	Assuming that inward FDI will rise to US$ 23-32 billion over 10 years

Source: Ministry of Foreign Affairs and Trade, Korea, Taken from Ahn, Choong Yong, 2008.

Table V: Trade Integration of India and Korea with world

Indicators	India					South Korea				
	1991	*2001*	*2005*	*2006*	*2007*	*1991*	*2001*	*2005*	*2006*	*2007*
Share in World Merchandise Exports	0.5	0.7	1.0	1.0	1.1	2.1	2.4	2.7	2.7	2.7
Share in World Merchandise Imports	0.6	0.8	1.3	1.4	1.5	2.3	2.2	2.4	2.5	2.5
Share in World Services Exports	0.6	1.1	2.2	2.7	2.5 (1)	1.1	1.9	1.8	1.8	1.9 (1)
Share in World Services Imports	0.7	1.3	2.0	2.3	1.5 (1)	1.3	2.1	2.4	2.6	2.8 (1)

Source: WDI 2008. Note: (1) Estimated figures

Table VI: India's Top 10 Export commodities to Korea

Rank	2006	2005	2000	1995	1990
1	Mineral fuels, oils & product of their distillation (34.59)	Mineral fuels, oils & product of their distillation (27.06)	Cotton (28.65)	Cotton (20.51)	Ores, slag and ash (40.07)
2	Ores, slag and ash (12.07)	Ores, slag and ash (14.14)	Residues & waste from the food industries (10.22)	Residues & waste from the food industries (18.97)	Cotton (17.40)
3	Cotton (8.70)	Cotton (11.93)	Organic chemicals (7.82)	Ores, slag and ash (10.84)	Organic chemicals (7.66)
4	Organic chemicals (6.56)	Residues & waste from the food industries (7.52)	Ores, slag and ash (6.97)	Organic chemicals (10.20)	Aluminium and Aluminium articles (4.39)
5	Residues & waste from the food industries (6.42)	Organic chemicals (7.32)	Iron and steel (5.53)	Iron and steel (6.66)	Tanning/dyeing extract; tannins & derives (3.90)
6	Iron and steel.(6.28)	Iron and steel.(6.93)	Cereals(5.28)	Cereals(3.61)	Iron and steel.(3.82)
7	Natural/cultured pearls, precious stones & metals, co (4.82)	Vehicles o/t rail/tram roll-stock, pts & acc (2.80)	Raw hides and skins (other than fur skins) and (3.47)	Tanning/dyeing extract; tannins & derives (3.34)	Raw hides and skins (other than fur skins) and (3.45)
8	Nuclear reactors, boilers, machinery & mechanical appliance (2.95)	Copper and articles thereof (2.51)	Aluminium and articles thereof (2.53)	Electrical machinery equipment parts and sound recording (2.03)	Salt; sulphur; earth & stone; plastering materials (3.05)
9	Vehicles o/t rail/tram roll-stock, pts & access (1.84)	Nuclear reactors, boilers, machinery & mechanical appliances (2.21)	Tanning/dyeing extract; tannins & derives (2.31)	Nuclear reactors, boilers, machinery & mechanical appliances (1.63)	Beverages, spirits and vinegar (2.48)
10	Raw hides and skins (other than fur skins) and lea (1.41)	Raw hides and skins (other than fur skins) and (1.85)	Electrical machinery equipment parts thereof; sound rec (2.29)	Miscellaneous chemical products (1.61)	Electrical machinery equipment parts and sound recording (1.76)

Source: WITS Database. Note: Figures in parentheses show per cent of total

Table VII: India's top 10 Import commodities from Korea

Rank	2006	2005	2000	1995	1990
1	Electrical machinery equipment parts and sound recording (24.084)	Electrical machinery equipment parts and sound recording (40.82)	Nuclear reactors, boilers, machinery and & mechanical appliances (18.39)	Plastics and articles thereof (17.90)	Plastics and articles thereof (17.91)
2	Nuclear reactors, boilers, machinery and & mechanical appliances (18.565)	Nuclear reactors, machinery and & mechanical appliances (14.02)	Electrical machinery equipment parts and sound recording (16.69)	Organic chemicals (15.27)	Iron and steel (16.48)
3	Iron and steel (11.720)	Iron and steel (8.72)	99 (14.48)	Nuclear reactors, boilers, machinery and & mechanical appliances (12.07)	Man-made filaments (8.89)
4	Mineral fuels, oils & product of their distillation (10.191)	Vehicles o/t rail/tra roll-stock (6.17)	Iron and steel (7.43)	Miscellaneous goods (8.79)	Nuclear reactors, boilers, machinery and & mechanical appliances (8.84)
5	Vehicles o/t rail/tram roll-stock, pts & acc (6.546)	Plastics and articles thereof (6.12)	Plastics and articles thereof (7.28)	Electrical machinery equipment parts and sound recording (7.76)	Electrical machinery equipment parts and sound recording (7.01)
6	Plastics and articles thereof (4.878)	Ships, boats and floating structures (3.24)	Organic chemicals (5.66)	Iron and steel (5.93)	Organic chemicals (5.83)
7	Organic chemicals (3.037)	Organic chemicals (2.98)	Man-made filaments (3.79)	Copper and articles thereof (5.01)	Man-made staple fibres (4.31)
8	Rubber and articles thereof (2.211)	Optical, photo, cine, meas, checking, precision (1.75)	Optical, photo, cine, meas, checking, precision (2.99)	Man-made staple fibres (4.47)	Articles of iron or steel (3.70)
9	Articles of iron or steel (2.196)	Rubber and articles thereof (1.70)	Paper & paperboard; art of paper pulp, paper (2.47)	Vehicles o/t rail/tram roll-stock (4.33)	Zinc and Zinc articles (3.17)
10	Paper & paperboard; art of paper pulp, paper (2.164)	Articles of iron or steel (1.64)	Rubber and articles thereof (1.81)	Man-made filaments (2.54)	Wool, fine/coarse animal hair, horsehair yarn (2.98)

Source: WITS Database. Note: Figures in parentheses show per cent of total

Table VIII: India's IRCA (at 2 digit) for top 10 Export commodities (In terms of Volume)

TE 1998				TE 2003				TE 2007			
HS Code	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp.**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp.**	**Average RCA**
71	Natural/cultured pearls, prec stone	15.66	7.99	71	Natural/cultured pearls, prec stone	16.94	8.67	27	Mineral fuels, oils & product of th	14.22	0.99
62	Art of apparel & clothing access, n	8.56	4.85	62	Art of apparel & clothing access, n	6.36	3.81	71	Natural/cultured pearls, prec stone	13.71	6.02
52	Cotton.	7.36	11.43	27	Mineral fuels, oils & product of th	5.32	0.58	29	Organic chemicals.	4.57	1.92
10	Cereals	3.47	4.51	61	Art of apparel & clothing access,	4.34	3.17	62	Art of apparel & clothing access, n	4.35	3.01
29	Organic chemicals.	3.30	1.29	52	Cotton.	4.20	7.59	84	Nuclear reactors, boilers, mchy & m	4.10	0.34
03	Fish & crustacean, mollusc & other	3.29	5.28	29	Organic chemicals.	4.03	1.52	72	Iron and steel.	4.08	1.30
61	Art of apparel & clothing access,	3.27	2.46	84	Nuclear reactors, boilers, mchy & m	3.59	0.24	26	Ores, slag and ash.	4.07	4.32
84	Nuclear reactors, boilers, mchy & m	3.12	0.20	72	Iron and steel.	3.28	1.56	85	Electrical mchy equip parts thereof	3.05	0.19
85	Electrical mchy equip parts thereof	2.52	0.18	85	Electrical mchy equip parts thereof	2.87	0.20	52	Cotton.	3.01	5.80
42	Articles of leather; saddlery/harne	2.51	5.85	10	Cereals	2.54	4.52	87	Vehicles o/t railw/tramw roll-stock	2.99	0.41

Source: WITS Database

Table IX: India's IRCA (at 4 digit) for top 10 Export commodities (in terms of volume)

TE 1998				TE 2003				TE2007			
HS Code	**Product Description**	**Ave. Share in total exp.**	**Ave. RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Ave. RCA**	**HS Code**	**Product Description**	**Average Share in total exp.**	**Ave. RCA**
7102	Diamonds, whether or not worked, bu	12.98	17.48	7102	Diamonds, whether or not worked, bu	13.52	16.49	2710	Petroleum oils and oils obtained fr	13.75	3.16
5205	Cotton yarn (other than sewing thre	3.29	28.99	2710	Petroleum oils and oils obtained fr	5.00	2.15	7102	Diamonds, whether or not worked, bu	9.61	10.42
1006	Rice.	3.25	33.94	7113	Articles of jewellery and parts the	2.79	8.35	7113	Articles of jewellery and parts the	3.50	9.03
6204	Women's or girls' suits, ensembles,	2.60	5.44	3004	Medicaments (excluding goods of hea	1.91	1.02	2601	Iron ores and concentrates, includi	3.31	9.87
0306	Crustaceans, whether in shell or no	2.29	14.67	1006	Rice.	1.75	17.42	3004	Medicaments (excluding goods of hea	2.08	2.43
6205	Men's or boys' shirts.	2.24	15.05	0306	Crustaceans, whether in shell or no	1.72	9.23	2942	Other organic compounds.	1.48	52.44
7113	Articles of jewellery and parts the	2.05	6.06	6204	Women's or girls' suits, ensembles,	1.73	3.46	6204	Women's or girls' suits, ensembles,	1.46	3.25
6206	Women's or girls' blouses, shirts a	2.03	15.19	2601	Iron ores and concentrates, includi	1.46	9.07	1006	Rice.	1.40	11.14
2304	Oil-cake and other solid residues,	1.88	12.63	6206	Women's or girls' blouses, shirts a	1.48	13.21	7210	Flat-rolled products of iron or non	1.19	3.54
3004	Medicaments (excluding goods of hea	1.63	1.46	6109	T-shirts, singlets and other vests,	1.42	5.51	6109	T-shirts, singlets and other vests,	1.14	4.11

Source: WITS Database

Table X: India's IRCA (at 6 digit) for top 10 Export commodities (in terms of volume)

TE 1998				TE 2003				TE2007			
HS Code	**Product Description**	**Ave Share in total exp**	**Ave RCA**	**HS Code**	**Product Description**	**Ave Share in total exp**	**Ave RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Ave. RCA**
710239	Non-industrial :-- Other	12.91	29.66	710239	Non-industrial :-- Other	9.15	27.76	271000	Petroleum oils and oils obtained fr	13.75	3.20
100630	Semi-milled or wholly milled rice,	3.23	43.20	271000	Petroleum oils and oils obtained fr	3.18	2.66	710239	Non-industrial :-- Other	9.21	15.91
030613	Frozen :-- Shrimps and prawns	2.21	21.83	711319	Of precious metal whether or not pl	1.66	8.78	711319	Of precious metal whether or not pl	3.43	9.77
620520	Of cotton	2.08	18.78	100630	Semi-milled or wholly milled rice,	1.26	22.09	260111	Iron ores and concentrates, other t	3.16	13.36
711319	Of precious metal whether or not pl	1.98	6.17	030613	Frozen :-- Shrimps and prawns	1.17	13.29	294200	Other organic compounds.	1.48	52.45
230400	Oil-cake and other solid residues,	1.88	12.63	260111	Iron ores and concentrates, other t	0.83	12.70	300490	Other	1.41	2.20
620630	Of cotton	1.49	34.53	610910	Of cotton	0.90	7.09	100630	Semi-milled or wholly milled rice,	1.35	12.51
520521	Single yarn, of combed fibres :-- M	1.45	120.25	300490	Other	0.83	0.89	740311	Refined copper :-- Cathodes and sec	1.05	2.64
420310	Articles of apparel	1.21	16.29	294200	Other organic compounds.	0.73	78.61	610910	Of cotton	1.06	5.08
260111	Iron ores and concentrates, other t	1.17	11.81	620630	Of cotton	0.83	23.23	520100	Cotton, not carded or combed.	0.93	8.85

Source: WITS Database

Table XI: Korea's IRCA (at 2 digit) for top 10 Export commodities (in terms of volume)

TE 1998				TE 2003				TE 2006			
HS Code	**Product Description**	**Average Share in total exp**	**Ave RCA**	**HS Code**	**Product Description**	**Ave Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Ave Share in total exp**	**Ave RCA**
85	Electrical mchy equip parts thereof	25.37	1.85	85	Electrical mchy equip parts thereof	26.86	1.84	85	Electrical mchy equip parts thereof	27.30	1.92
84	Nuclear reactors, boilers, mchy & m	10.26	0.64	84	Nuclear reactors, boilers, mchy & m	16.37	1.09	84	Nuclear reactors, boilers, mchy & m	13.28	0.95
87	Vehicles o/t railw/tramw roll-stock	8.91	0.86	87	Vehicles o/t railw/tramw roll-stock	10.91	1.11	87	Vehicles o/t railw/tramw roll-stock	13.14	1.46
89	Ships, boats and floating structure	5.45	6.96	89	Ships, boats and floating structure	6.25	8.36	89	Ships, boats and floating structure	6.33	8.82
71	Natural/cultured pearls, prec stone	5.15	2.63	39	Plastics and articles thereof.	4.51	1.38	27	Mineral fuels, oils & product of th	5.98	0.45
54	Man-made filaments.	4.40	7.27	27	Mineral fuels, oils & product of th	4.31	0.47	90	Optical, photo, cine, meas, checking	4.94	1.51
39	Plastics and articles thereof.	4.13	1.25	72	Iron and steel.	3.40	1.64	39	Plastics and articles thereof.	4.87	1.44
72	Iron and steel.	4.01	1.73	29	Organic chemicals.	2.87	1.08	72	Iron and steel.	4.40	1.55
27	Mineral fuels, oils & product of th	3.46	0.66	54	Man-made filaments.	2.21	4.49	29	Organic chemicals.	3.81	1.43
29	Organic chemicals.	2.43	0.95	60	Knitted or crocheted fabrics.	1.58	6.21	73	Articles of iron or steel.	1.68	0.94

Source: WITS Database

Table XII: Korea's IRCA (at 4 digit) for top 10 Export commodities (in terms of volume)

TE 1998				TE 2003				TE 2006			
HS Code	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**
8542	Electronic integrated circuits and	11.68	4.16	8703	Motor cars and other motor vehicles	8.44	1.54	8703	Motor cars and other motor vehicles	9.49	1.98
8703	Motor cars and other motor vehicles	6.77	1.21	8542	Electronic integrated circuits and	7.67	2.29	8542	Electronic integrated circuits and	8.22	2.69
8901	Cruise ships, excursion boats, ferr	5.13	8.83	8525	Transmission apparatus for radio-tel	6.60	4.37	8525	Transmission apparatus for radio-tel	6.34	3.26
7108	Gold (including gold plated with pl	4.56	8.89	8901	Cruise ships, excursion boats, ferr	5.54	10.67	2710	Petroleum oils and oils obtained fr	5.72	1.55
8471	Automatic data processing machines	3.65	1.24	8471	Automatic data processing machines	4.96	1.64	8901	Cruise ships, excursion boats, ferr	5.66	11.40
5407	Woven fabrics of synthetic filament	3.31	11.52	8473	Parts and accessories (other than c	4.30	1.86	8529	Parts suitable for use solely or pr	3.95	4.32
2710	Petroleum oils and oils obtained fr	3.29	2.11	2710	Petroleum oils and oils obtained fr	4.10	1.76	9013	Liquid crystal devices not constitu	3.72	8.29
8540	Thermionic, cold cathode or photo-c	1.83	4.89	8529	Parts suitable for use solely or pr	1.99	2.92	8471	Automatic data processing machines	2.93	1.09
8528	Reception apparatus for television,	1.23	2.86	8540	Thermionic, cold cathode or photo-c	1.68	6.85	8708	Parts and accessories of the motor	2.81	1.26
7208	Flat-rolled products of iron or non	1.06	3.18	8708	Parts and accessories of the motor	1.52	0.64	8473	Parts and accessories (other than c	2.76	1.43

Source: WITS Database

Table XIII: Korea's IRCA (at 6 digit) for top 10 Export commodities (in terms of volume)

TE 1998				TE 2003				TE 2006			
HS Code	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**
854219	Monolithic digital integrated circu	11.32	20.30	852520	Transmission apparatus incorporatin	6.13	6.05	854213	Monolithic digital integrated circu	6.54	3.85
890190	Other vessels for the transport of	3.25	9.67	870323	Other vehicles, with spark-ignition	5.00	2.28	852520	Transmission apparatus incorporatin	6.08	3.91
870323	Other vehicles, with spark-ignition	3.07	1.16	854213	Monolithic digital integrated circu	4.55	3.92	271000	Petroleum oils and oils obtained fr	5.72	1.58
870322	Other vehicles, with spark-ignition	2.80	3.57	847330	Parts and accessories of the machin	4.29	2.06	870323	Other vehicles, with spark-ignition	4.61	2.55
710812	Non-monetary :-- Other unwrought fo	2.60	8.25	271000	Petroleum oils and oils obtained fr	4.10	1.49	852990	Other	3.88	4.61
847160	Input or output units, whether or n	2.43	3.19	847160	Input or output units, whether or n	2.96	3.66	890190	Other vessels for the transport of	2.85	10.19
271000	Petroleum oils and oils obtained fr	2.19	4.56	890120	Tankers	2.79	16.85	901380	Other devices, appliances and instr	2.76	16.40
710813	Non-monetary :-- Other semi-manufac	1.96	8.76	890190	Other vessels for the transport of	2.66	8.46	890120	Tankers	2.74	1.50
890120	Tankers	1.88	11.96	854219	Monolithic digital integrated circu	2.40	0.00	847330	Parts and accessories of the machin	2.71	8.14
540761	Other woven fabrics, containing 85	1.22	15.09	852990	Other	1.92	3.73	870899	Other parts and accessories :-- Oth	2.31	2.63

Source: WITS Database

Table XIV: India's RCA (at 2 digit) for top 10 Export commodities to Korea (in terms of volume)

TE 1998				TE 2003				TE 2006			
HS Code	**Product Description**	**Ave Share in total exp**	**Ave RCA**	**HS Code**	**Product Description**	**Ave Share in total exp**	**Ave RCA**	**HS Code**	**Product Description**	**Ave Share in total exp**	**Av RCA**
52	Cotton.	25.04	33.81	52	Cotton.	28.43	38.25	27	Mineral fuels, oils & product of th	31.55	1.72
23	Residues & waste from the food indu	20.02	51.48	72	Iron and steel.	8.38	1.94	26	Ores, slag and ash.	12.99	5.60
29	Organic chemicals.	11.30	2.92	23	Residues & waste from the food indu	8.29	23.97	52	Cotton.	10.10	20.69
26	Ores, slag and ash.	8.18	6.48	26	Ores, slag and ash.	8.14	5.76	23	Residues & waste from the food indu	6.91	23.10
72	Iron and steel.	6.30	1.38	29	Organic chemicals.	7.60	2.12	29	Organic chemicals.	6.90	1.76
32	Tanning/dyeing extract; tannins &	3.89	4.85	27	Mineral fuels, oils & product of th	4.67	0.40	72	Iron and steel.	6.57	1.05
84	Nuclear reactors, boilers, mchy & m	2.28	0.13	41	Raw hides and skins (other than fu	4.16	5.14	71	Natural/cultured pearls, prec stone	3.21	3.96
76	Aluminium and articles thereof.	1.79	1.40	84	Nuclear reactors, boilers, mchy & m	2.46	0.18	84	Nuclear reactors, boilers, mchy & m	2.65	0.21
85	Electrical mchy equip parts thereof	1.56	0.08	10	Cereals	2.41	2.40	87	Vehicles o/t railw/tramw roll-stock	2.26	1.10
30	Pharmaceutical products.	1.50	3.39	32	Tanning/dyeing extract; tannins &	2.19	2.69	74	Copper and articles thereof.	1.77	1.00

Source: WITS Database

Table XV: India's RCA (at 4 digit) for top 10 Export commodities to Korea (in terms of volume)

TE 1998				TE 2003				TE 2006			
HS Code	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**
5205	Cotton yarn (other than sewing thre	19.21	149.84	5205	Cotton yarn (other than sewing thre	16.44	90.46	2710	Petroleum oils and oils obtained fr	30.75	18.61
2304	Oil-cake and other solid residues,	11.69	92.27	5207	Cotton yarn (other than sewing thre	9.69	170.43	2608	Zinc ores and concentrates.	7.50	20.55
2306	Oil-cake and other solid residues,	7.36	61.62	2304	Oil-cake and other solid residues,	7.02	43.27	5205	Cotton yarn (other than sewing thre	7.33	43.60
2601	Iron ores and concentrates, includi	6.87	11.33	2601	Iron ores and concentrates, includi	5.31	9.40	2304	Oil-cake and other solid residues,	5.28	34.78
7202	Ferro-alloys.	4.70	15.60	2710	Petroleum oils and oils obtained fr	3.74	2.48	2601	Iron ores and concentrates, includi	3.14	4.59
3204	Synthetic organic colouring matter,	3.73	11.65	7208	Flat-rolled products of iron or non	3.40	2.89	7202	Ferro-alloys.	2.31	4.62
5207	Cotton yarn (other than sewing thre	3.62	194.48	4106	Goat or kid skin leather, without h	2.65	133.21	8708	Parts and accessories of the motor	2.10	1.96
2922	Oxygen-function amino-compounds.	2.20	21.39	1001	Wheat and meslin.	2.00	7.73	7112	Waste and scrap of precious metal o	2.04	79.13
2942	Other organic compounds.	2.03	116.96	3204	Synthetic organic colouring matter,	1.94	9.33	5207	Cotton yarn (other than sewing thre	2.01	95.61
2904	Sulphonated, nitrated or nitrosated	1.74	85.56	2942	Other organic compounds.	1.72	123.01	2902	Cyclic hydrocarbons	1.91	1.79

Source: WITS Database

Table XVI: India's RCA (at 6 digit) for top 10 Export commodities to Korea (in terms of volume)

TE 1998				TE 2003				TE 2006			
HS Code	**Product Description**	**Ave Share in total exp**	**Ave RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**
230400	Oil-cake and other solid residues,	11.69	92.27	520710	Containing 85 % or more by weight o	7.63	56.58	271000	Petroleum oils and oils obtained fr	30.75	18.61
520521	Single yarn, of combed fibres :-- M	8.12	198.53	230400	Oil-cake and other solid residues,	7.02	14.77	260800	Zinc ores and concentrates.	7.50	20.55
230640	Of rape or colza seeds	7.03	139.24	260111	Iron ores and concentrates, other t	5.31	4.12	230400	Oil-cake and other solid residues,	5.28	34.78
260111	Iron ores and concentrates, other t	6.87	13.50	271000	Petroleum oils and oils obtained fr	3.74	1.02	260111	Iron ores and concentrates, other t	3.14	5.58
520511	Single yarn, of uncombed fibres :--	5.46	194.96	520521	Single yarn, of combed fibres :-- M	3.73	59.28	520521	Single yarn, of combed fibres :-- M	2.13	95.95
720249	Ferro-chromium :-- Other	2.91	113.65	520511	Single yarn, of uncombed fibres :--	3.57	54.66	711290	Other	2.03	82.87
520790	Other	2.38	194.80	720825	Other, in coils, not further worked	3.00	53.23	870899	Other parts and accessories :-- Oth	1.99	5.70
294200	Other organic compounds.	2.03	116.96	520523	Single yarn, of combed fibres :-- M	2.36	39.88	294200	Other organic compounds.	1.87	80.77
760110	Aluminium, not alloyed	1.68	2.98	520524	Single yarn, of combed fibres :-- M	2.33	33.40	720241	Ferro-chromium :-- Containing by we	1.87	13.92
520535	Multiple (folded) or cabled yarn, o	1.60	199.58	520790	Other	2.06	64.87	520511	Single yarn, of uncombed fibres :--	1.66	74.43

Source: WITS Database

Table XVII: Korea's RCA (at 2 digit) for top 10 Export commodities to India (in terms of volume)

TE 1998				TE 2003				TE 2006			
HS Code	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**
84	Nuclear reactors, boilers, mchy & m	20.42	0.90	85	Electrical mchy equip parts thereof	29.04	2.58	85	Electrical mchy equip parts thereof	30.64	2.98
29	Organic chemicals.	12.48	2.27	84	Nuclear reactors, boilers, mchy & m	15.47	1.15	84	Nuclear reactors, boilers, mchy & m	16.47	1.19
39	Plastics and articles thereof.	11.30	4.60	87	Vehicles o/t railw/tramw roll-stock	8.95	5.57	87	Vehicles o/t railw/tramw roll-stock	10.29	6.63
85	Electrical mchy equip parts thereof	8.69	0.89	89	Ships, boats and floating structure	7.53	15.14	72	Iron and steel.	9.71	2.44
89	Ships, boats and floating structure	8.45	13.29	39	Plastics and articles thereof.	4.84	2.33	27	Mineral fuels, oils & product of th	6.44	0.31
72	Iron and steel.	6.90	1.82	72	Iron and steel.	4.64	2.00	39	Plastics and articles thereof.	5.25	2.33
87	Vehicles o/t railw/tramw roll-stock	5.64	3.07	54	Man-made filaments.	3.44	4.24	29	Organic chemicals.	2.57	0.63
73	Articles of iron or steel.	5.09	2.39	29	Organic chemicals.	3.41	0.75	89	Ships, boats and floating structure	2.11	7.54
74	Copper and articles thereof.	3.32	2.69	27	Mineral fuels, oils & product of th	2.49	0.16	48	Paper & paperboard; art of paper pu	1.84	2.16
54	Man-made filaments.	2.34	8.09	88	Aircraft, spacecraft, and parts the	2.14	1.25	73	Articles of iron or steel.	1.83	1.27

Table XVIII: Korea's RCA (at 4 digit) for top 10 Export commodities to India (in terms of volume)

TE 1998				TE 2003				TE 2006			
HS Code	**Product Description**	**Average Share in total exp**	**Ave RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Ave RCA**	**HS Code**	**Product Description**	**Ave Share in total exp**	**Ave RCA**
8479	Machines and mechanical appliances	5.95	4.50	8525	Transmission apparatus for radio-tel	16.62	8.38	8525	Transmission apparatus for radio-tel	21.25	8.51
2902	Cyclic hydrocarbons	5.17	6.17	8708	Parts and accessories of the motor	8.74	8.13	8708	Parts and accessories of the motor	9.84	8.66
8905	Light-vessels, fire-floats, dredger	4.75	19.96	8901	Cruise ships, excursion boats, ferr	5.33	17.72	2710	Petroleum oils and oils obtained fr	6.43	3.12
3901	Polymers of ethylene, in primary fo	4.08	6.71	8529	Parts suitable for use solely or pr	3.90	3.83	7208	Flat-rolled products of iron or non	3.42	3.02
2917	Polycarboxylic acids, their anhydri	3.99	9.32	8540	Thermionic, cold cathode or photo-c	2.51	6.51	8479	Machines and mechanical appliances	3.30	5.57
3902	Polymers of propylene or of other o	3.92	8.37	2710	Petroleum oils and oils obtained fr	2.48	2.53	7209	Flat-rolled products of iron or non	2.32	11.10
8901	Cruise ships, excursion boats, ferr	3.67	11.03	8471	Automatic data processing machines	2.47	1.25	8529	Parts suitable for use solely or pr	2.29	3.17
8703	Motor cars and other motor vehicles	3.46	6.90	8905	Light-vessels, fire-floats, dredger	2.20	21.18	8901	Cruise ships, excursion boats, ferr	2.10	8.64
7408	Copper wire.	3.04	10.24	8802	Other aircraft (for example, helico	2.13	2.45	8540	Thermionic, cold cathode or photo-c	1.77	6.76
7208	Flat-rolled products of iron or non	2.34	2.86	7209	Flat-rolled products of iron or non	2.13	12.22	4801	Newsprint, in rolls or sheets.	1.75	4.39

Source: WITS Database

Table XIX: Korea's RCA (at 6 digit) for top 10 Export commodities to India (in terms of volume)

TE 1998				TE 2003				TE 2006			
HS Code	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**	**HS Code**	**Product Description**	**Average Share in total exp**	**Average RCA**
847989	Other machines and mechanical appli	5.03	6.57	852520	Transmission apparatus incorporatin	16.58	8.87	852520	Transmission apparatus incorporatin	21.20	8.93
390210	Polypropylene	3.86	9.45	870899	Other parts and accessories :-- Oth	8.58	11.19	870899	Other parts and accessories :-- Oth	9.30	12.07
291736	Aromatic polycarboxylic acids, thei	3.59	10.19	890120	Tankers	4.40	23.86	271000	Petroleum oils and oils obtained fr	6.43	3.13
870322	Other vehicles, with spark-ignition	3.44	15.51	852990	Other	3.88	4.39	852990	Other	2.28	3.85
390120	Polyethylene having a specific grav	3.22	10.52	271000	Petroleum oils and oils obtained fr	2.48	2.93	720836	Other, in coils, not further worked	2.17	18.70
740811	Of refined copper :-- Of which the	3.03	11.03	890590	Other	2.20	22.23	890120	Tankers	2.09	12.30
890590	Other	2.85	20.19	880240	Aeroplanes and other aircraft, of a	2.13	2.98	720917	In coils, not further worked than c	1.84	17.73
290243	Xylenes:-- p-Xylene	2.54	6.10	847170	Storage units	2.05	3.98	480100	Newsprint, in rolls or sheets.	1.75	4.40
890120	Tankers	2.00	11.05	841430	Compressors of a kind used in refri	1.66	11.11	847989	Other machines and mechanical appli	1.64	5.13
890520	Floating or submersible drilling or	1.91	20.20	720917	In coils, not further worked than c	1.58	15.81	840290	Parts	1.58	11.74

Source: WITS Database

XX: Trade Intensity Indices

Export Intensity of Korea with respect to India:

$XI_{KI} = [X_{KI} / X_K] / [M_I / (M_W - M_K)]$.....(i)
Where:
XI_{KI} = Export intensity of Korea with India
X_{KI} = Export of Korea to India
X_K = Total Export of Korea
M_I = Total Import of India
M_W = Total World Imports
M_K = Total Import of Korea

Import intensity of Korea with respect to India:

$MI_{KI} = [M_{KI} / M_K] / [X_I / (X_W - X_K)]$.....(ii)
Where:
MI_{KI} = Import intensity of Korea with India
M_{KI} = Import of Korea to India
M_K = Total Import of Korea
X_I = Total Export of India
X_W = Total World Exports
X_K = Total Export of Korea

Export intensity of India with respect to Korea:

$XI_{IK} = [X_{IK} / X_I] / [MK / (M_W - M_I)]$.....(iii)
Where:
XI_{IK} = Export intensity of India with Korea
X_{IK} = Export of India to Korea
X_I = Total Export of India
M_K = Total Import of Korea
M_W = Total World Imports
M_I = Total Import of India

Import intensity of India with respect to Korea

$MI_{IK} = [M_{IK} / M_I] / [X_K / (X_W - X_I)]$.....(iv)
Where:
MI_{IK} = Import intensity of India with Korea
M_{IK} = Import of India from Korea
M_I = Total Import of India
X_K = Total Export of Korea
X_W = Total World Exports
X_I = Total Export of India

Figure 1A: Korea's Share in India's total merchandise Exports and Imports

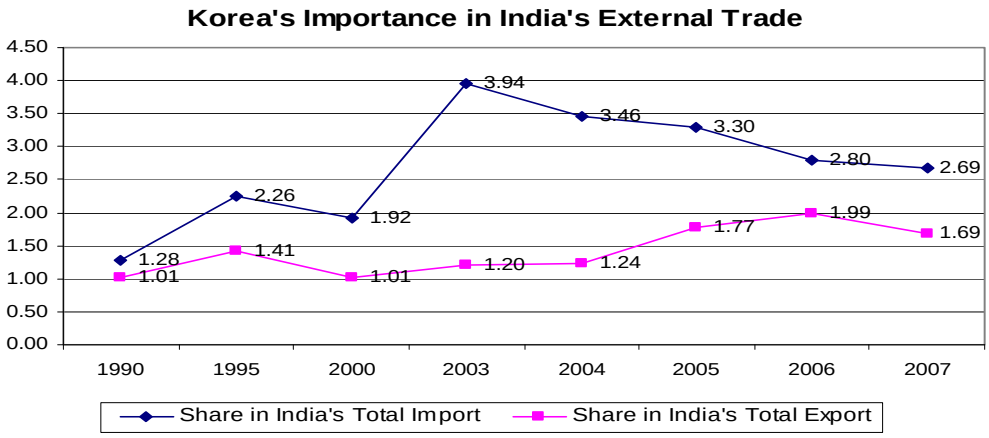


Figure 1B: Korea's Share in India's total merchandise Exports and Imports

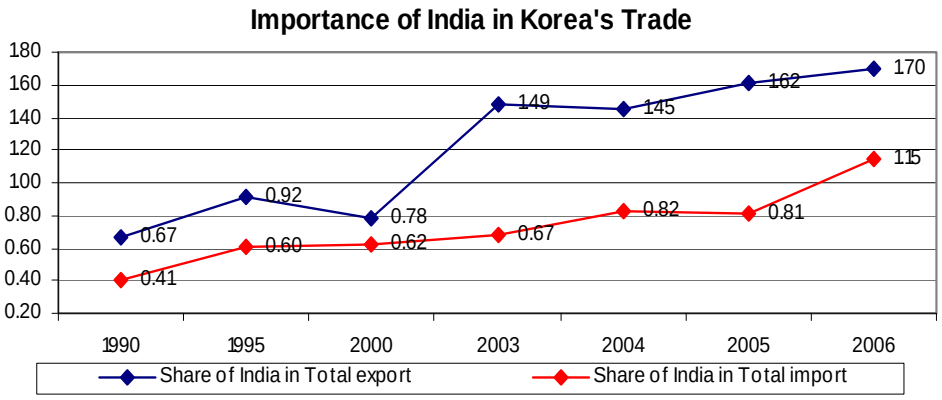
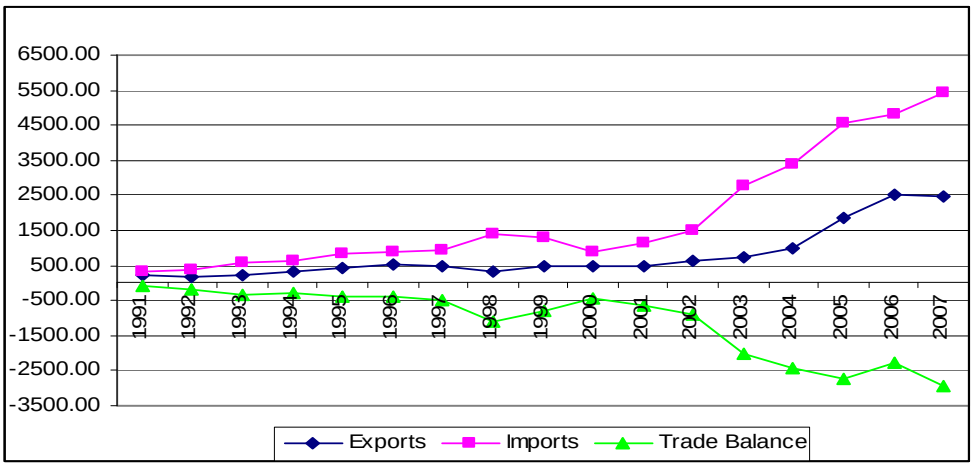


Figure 1C: India-Korea Trade Relation (US$ Million)



Source: WITS Database

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