India-Korea CEPA: Potentials and Realities

Ahmed, Shahid

Jamia Millia Islamia (Central University), New Delhi

2010

India-Korea CEPA: Potentials and Realities

Shahid Ahmed*

Abstract

The present study investigates the potential economic impacts of India- Korea CEPA using trade indices, partial equilibrium and computable general equilibrium. One hypothetical scenario is examined in SMART model and two hypothetical tariff liberalization scenarios are examined in GTAP model focusing on short run and long run. Using the partial equilibrium WITS-SMART model, we tried to assess the impact of liberalization under the CEPA, assuming full liberalization of imports from the India into Korea and vice versa. We more specifically looked at consumer surplus, trade creation and diversion results as well as the impact on tariff revenues. Using GTAP model, it is a good instrument for identifying the winning and losing countries and sectors under policy changes. GTAP can be used to capture effects on output mix, factor usage, trade effects and resultant welfare distribution between countries as a result of changing trade policies at the country, bilateral, regional and multilateral levels. Finally, bilateral investment flows has also been discussed.

The GTAP results reveal that Korea gains while India loses in terms of welfare. Sectoral output and employment effects are mixed. Both countries are gaining significantly in their bilateral trade flows. The SSA results reveal that the CGE results are robust. Using partial equilibrium analysis, SMART model indicates positive effect on consumer surplus and on other trade flows. However, tariff revenues will be reduced by this agreement. India is expected to loose US$-768.37 million while Korea will loose by US$ -1232.6 million. The study recommends the following in light of our findings. First, in order to tamper the losses in budget revenues, countries should seek to diversify their tax base and develop alternative less distortionary revenue generating strategy. Secondly, if the consumers are to truly benefit of CEPA, the national capacity to limit rent capture by importers and exporters should be strengthened.

JEL Classification: C68, F12; F15; F17; F21
Keywords: Trade Intensity Index; CEPA, India, South Korea

---

* Associate Professor, Department of Economics, Jamia Millia Islamia (A Central University), New Delhi-110025 (India). All correspondence to shahec@gmail.com

India-Korea CEPA: Potentials and Realities

1. Introduction

Doha Round of WTO was conceptualized for removing the trade distortions in international trading regime for the development oriented trade integration of developing Countries and it is expected to reduce inequities and eradicate poverty in poor countries (Ahmed, 2008). Given the slow progress of Doha round in the WTO, both developed and developing countries have moved towards regionalism in a rigorous way to cater to their developmental needs. In recent period, the number of regional trading agreements (RTAs) has proliferated in alarming way. Up to February 2010, 462 RTAs have been notified to the GATT/WTO; 345 RTAs were notified under Article XXIV of the GATT 1947 or GATT 1994; 31 under the Enabling Clause; and 86 under Article V of the GATS. Of these RTAs, Free Trade Agreements (FTAs) and partial scope agreements account for 90%, while customs unions account for 10 % (WTO, 2010).

Economic theory argues liberalization of trade by reducing and then eliminating tariff and non-tariff barriers promotes efficiency, scale economies, competition, factor productivity and trade flows, thereby, promoting economic growth (Barro and Sala-i-Martin, 1995 and Wacziarg, 1997). In spite of liberal economic reforms for trade liberalization in many countries, scholars have identifies variety of country-specific barriers, which impede the growth of world trade (Kalirajan, 1999). These constraints would create a "trade-gap" by reducing actual trade flows between countries from their potential levels (Kalirajan, 2007). It is in this context, besides multilateral efforts, regional and bilateral efforts facilitate countries to address some of these issues. This process evolves through progressive stages of trade and investment cooperation agreements among governments through several bilateral, regional and multilateral arrangements among different trading partners (Lawrence, 1996).

Recent times have witnessed an increasing emphasis on India's economic partnership arrangements with various countries and regions. Some of which are in the immediate neighbourhood and some are in the inter-regional framework of economic cooperation. The interactions have ranged from bilateralism to sub-regionalism to regionalism. Some of the initiatives that are in the process of being studied, negotiated and implemented include India-Singapore Comprehensive Economic Cooperation Agreement (CECA), India-ASEAN FTA, India-Korea Comprehensive Economic Cooperation Agreement (CECA), India-Japan Comprehensive Economic Cooperation Agreement (CECA), India-China Economic Cooperation, India-GCC economic cooperation, India-Brazil-South Africa (IBSA) Initiative, India-Mauritius and India-Egypt Economic Partnership, India-EU Economic Cooperation, India-US FTA, India-Australia FTA, etc.

A major highlight of some the recent attempts at economic cooperation initiatives is in terms of a broadening of scope and emphasis ranging from trade to investment and services. India is now focusing on non-tariff barriers along with tariffs as well as on services along with goods. Investment cooperation has also emerged as an area of priority. In addition, intensive work is being done on issues like the rules of origin, mutual recognition agreements (MRAs), anti-dumping provisions, revenue compensation mechanism, safeguards like sensitive or negative lists, time schedule for tariff elimination/concession, dispute settlement modalities, etc. In short, in the present-day agreements India has placed considerable emphasis on making them as comprehensive as possible.

It is to be noted that 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. 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. 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. Presently, India is the twelfth largest economy in the world by market exchange rates and the fourth largest by purchasing power parity (PPP) while South Korea is classified as a high-income economy by the World Bank. Korea's per capita income is $28,000. India has large number of skilled man power and market opportunities. 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. South Korea has a very high HDI, measuring particularly high in the Education Index, where it is ranked first in Asia and seventh worldwide. South Korea is currently ranked as the most innovative country in the world among major economies in the Global Innovation Index. Both partners share a strong and rapidly growing trade and economic relationship.

The current size of trade and investment is very low compared to the size and structural complementarities of the two economies because of several tariff and non-tariff barriers in both economies. There is immense potential to enhance economic co-operation between the two sides. In this context, the signing of India-Korea CEPA has been welcomed and rightly so, by both the business community and policy makers from both the countries. This agreement which has provisions for substantial reduction of both tariffs and non-tariff barriers in a phased manner is expected to take India-Korea relations to a higher level and enhance India's presence in East Asia. In this context, the main objectives of this paper are (i) to simulate the gains and losses due to recently FTA between these countries and finally, (ii) what policy conclusions can be drawn as inputs into the policymaking process of FTA between India and South Korea. The remainder paper is arranged as follows: Section 2 briefly discusses the India-Korea CEPA and its objectives. Section 3 reviews bilateral trade relations between India and South Korea. Section 4 research methodology and data bases. Section 5 presents various simulation scenarios. Section 6 reports and discusses the SMART and GTAP results. Section 7 discusses the systematic sensitivity analysis of GTAP results while Section 8 provides concluding remarks.

2. CEPA and its Objective

Recognising their long-standing friendship, strong economic ties and close cultural links, the benefits of a CEPA between India and Korea were examined by Joint Study Group in January 2005. The recommendations of Joint Study group served as the framework for negotiations on the CEPA and its structure as an integrated package of agreements. The CEPA, which come into effect in 2010, has provisions for substantial cuts in both tariff and non-tariff barriers. These will be implemented in a phased manner. Tariffs would be reduced or eliminated on 93 per cent of Korea's tariff lines and 85 per cent of India's tariff lines. The details are provided in appendix 1. The CEPA would improve their attractiveness to capital and human resources, and create larger and new markets, to expand trade and investment not only between them but also in the region. The objectives of this Agreement, as elaborated more specifically through its principles and rules are to:

(a) liberalise and facilitate trade in goods and services and expand investment between the Parties;

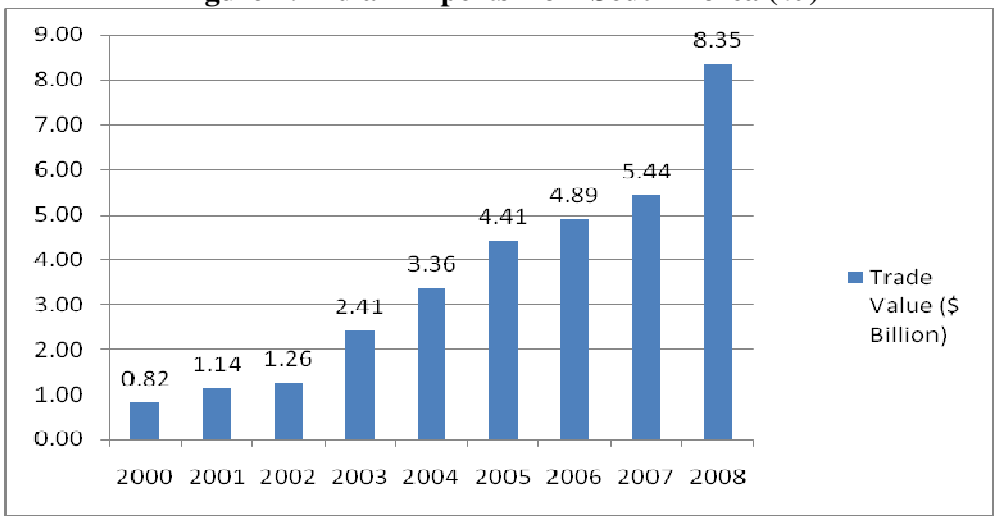
(b) establish a cooperative framework for strengthening and enhancing the economic relations between the Parties;
(c) establish a framework conducive for a more favourable environment for their businesses and promote conditions of fair competition in the free trade area;
(d) establish a framework of transparent rules to govern trade and investment between the Parties;
(e) create effective procedures for the implementation and application of this Agreement;
(f) explore new areas of economic cooperation and develop appropriate measures for closer economic partnership between the Parties;
(g) improve the efficiency and competitiveness of their manufacturing and services sectors and expand trade and investment between the Parties; and
(h) establish a framework for further regional and multilateral cooperation to expand and enhance the benefits of this Agreement throughout Asia, and thereby, to encourage the economic integration of Asian economies.

3. India-Korea Trade

The increase in bilateral trade in goods between the two countries has been attributed to changing demand structure and comparative advantages of both the economies in complementary sectors. The Indian export basket has traditionally consisted of low value added products which shifted over time to a wider range of industrial products in recent years while the Indian import basket from Korea in recent years has mainly consisted of relatively high value added products such as electrical machinery and equipments, nuclear reactors, iron and steel, transport equipments, mineral fuels and their products, organic chemicals, etc. As far as bilateral trade in services is concerned, it has consistently increased in some sectors such as IT/Software services and travel services. It is important to highlight taht India is the 9th largest exporter of commercial services and Korea is the 11th largest importer of commercial services. The CEPA agreement which gives market access and allows inflows of professionals such as IT workers, engineers, and teachers would be beneficial for India and improve bilateral trade in services.
During 1991-08, India's total merchandise trade with South Korea has increased broadly at double digit except few exceptions. Similar trends were observed in bilateral exports and imports growth. Total bilateral trade has increased 28 times during this period. It increased from US$ 0.56 billion in 2001 to US$ 15.8 billion in 2008. The share of South Korea in India's exports lies in the range of 1% to 3% and imports lies in the range of 1.6% to 3.2% during 1991-08. The share of India in South Korea's exports lies in the range of 0.65% to 2.10% and imports lies in the range of 0.59% to 1.51% during 1991-08 (See for details, table 1 and 2 in Annuxure-2).
Despite increase in trade between India and South Korea, it can be seen that the trade intensity for the India has been below optimum while reverse is true for South Korea. The value of trade intensity index for India indicates that the extent of trade between the economies is low than would be expected on the basis of their importance in world trade. Table 1 in appendix-1 reveals that trade and export Intensity Index of India (TII) with South Korea is less than 1 and remained so since 1991, except 2008 while TII of South Korea with India is more than 1. TII indicates that India's trade flow is smaller than expected, given the partner country's importance in world trade. This means India's exports and imports are not intense with South Korea compared with its trading pattern with rest of the world (See for details, table 1 and 2 in Annuxure-2).
Figure 1 represents Indian imports from South Korea. It shows that India was importing approximately US $ 0.82 billion in 2000 which has increased to US $8.35 billion in 2008. During this period, Indian tariff rate on imports from South Korea has reduced substantially as

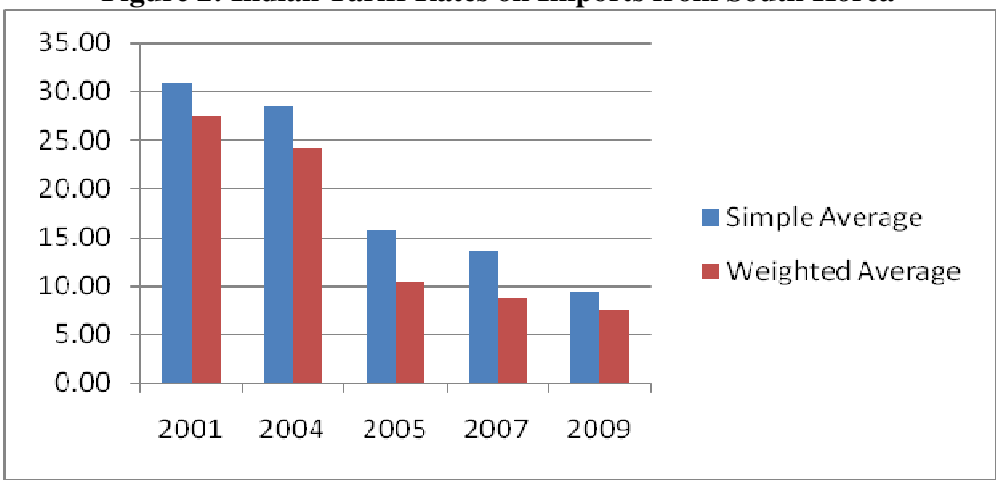
well (Figure 2). In terms of composition of India's imports from South Korea, imports are concentrated in HS chapter 84, 85, 72, 27, 87, 39, 73, 29, 40 and 48 and include commodities like - nuclear reactors, boilers, machinery and mechanical appliances; parts thereof (15.60%), electrical machinery and equipment and parts thereof (15.34%), Iron and steel (13.84%), mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes, etc (9.11%), vehicles o/t railw/tramw roll-stock (9.10%), plastics and Articles thereof, articles of iron or steel, organic chemicals, rubber and articles thereof, paper & paperboard; art of paper, rubber and articles thereof, etc. (figure-3). These products account 81.79% of India's imports from South Korea.

Figure 1: Indian Imports from South Korea (%)



Source: WITS Database

Figure 2: Indian Tariff Rates on Imports from South Korea

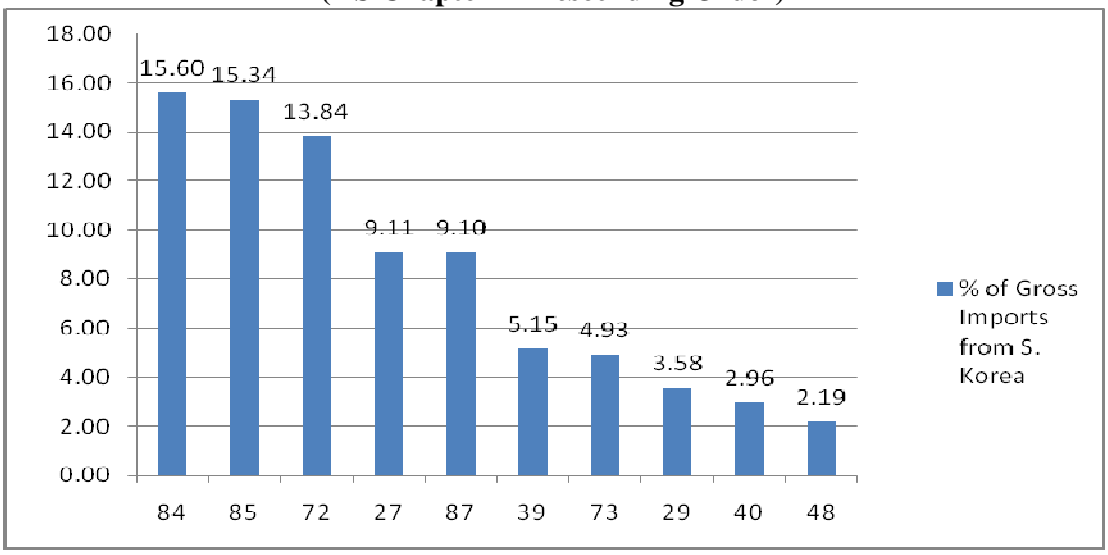


Source: WITS Database

It is important to highlight that most of the India's import items are concentrated in low tariff HS chapters. Figure 4 indicate first 10 HS chapters on the basis of Indian weighted and simple import tariff on Indian products in descending order. The tariff rate lies in the range of 88% to 30%. If we analyze the figure 3 and figure 4 simultaneously, none of the HS chapter is common

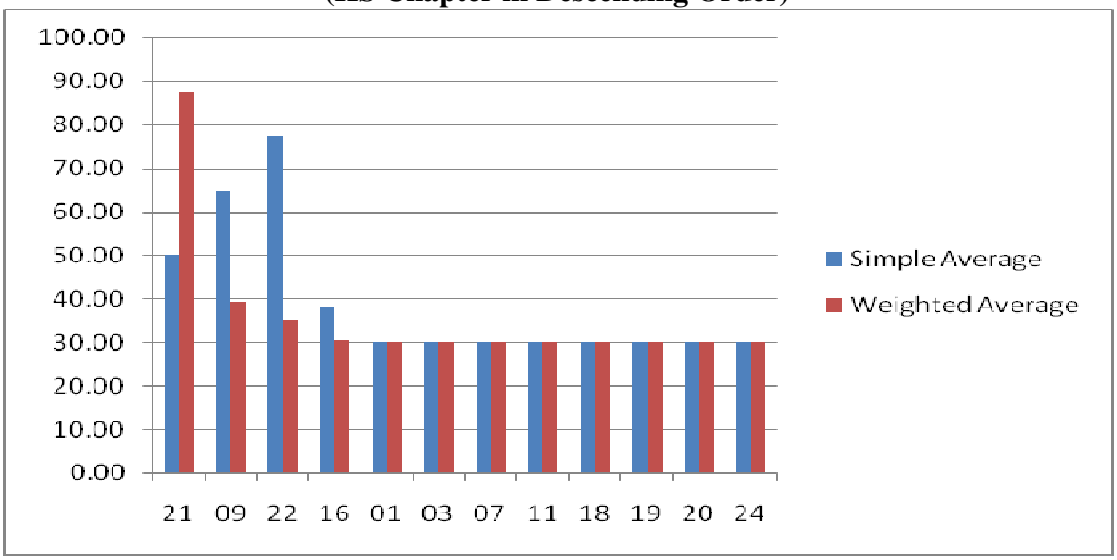
in the list. South Korean firms have not penetrated Indian market in high tariff products. Hence, it may be inferred that tariffs act as significant trade barrier.

Figure 3: Indian Imports from South Korea (% in 2008)
(HS Chapter in Descending Order)



Source: WITS Database

Figure 4: Indian Tariff Rates on Imports from South Korea (% in 2008)
(HS Chapter in Descending Order)

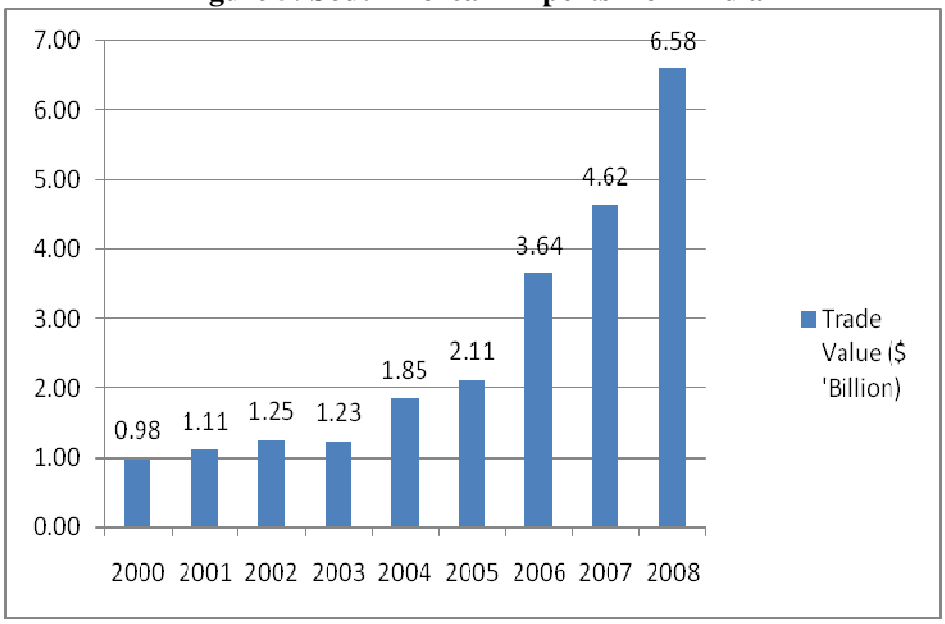


Source: WITS Database

Figure 5 represents South Korea's imports from India. It shows that South Korea was importing approximately US $ 0.98 billion in 2000 which has increased to US $6.58 billion in 2008. During this period, South Korean tariff rate on imports from India has declined substantially (Figure 6). In terms of composition of India's imports from South Korea, imports from South

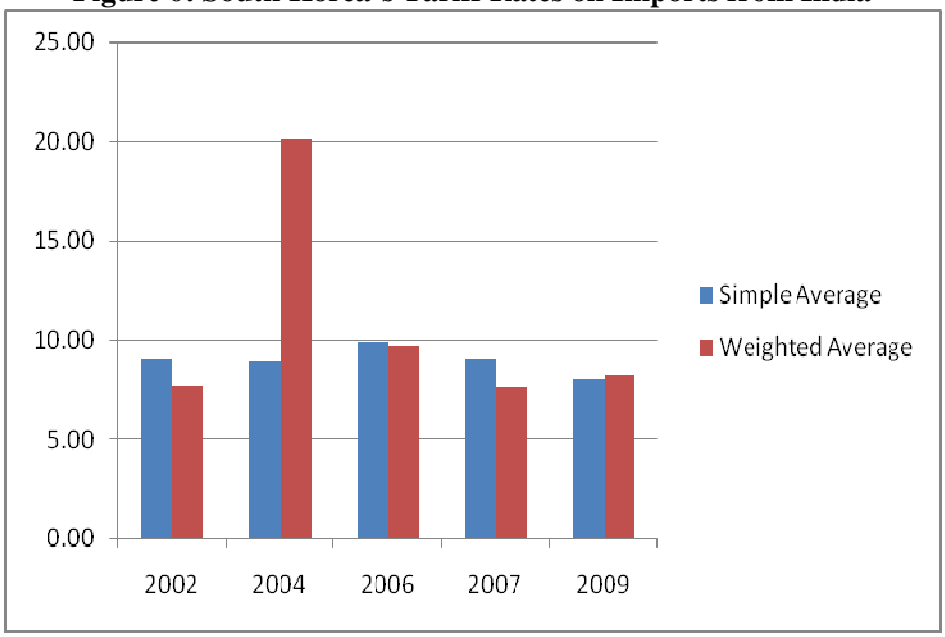
Korea are concentrated in HS chapter 27, 72, 23, 29, 52, 84, 26, 85, 71 and 10 (Figure-7). It is important to highlight that HS Chapter 27, mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes, account 60% of South Korea's imports from India. The products in Chapter 27 faces very low or zero tariff in South Korean Market. It also highlights that India exports to South Korea are not diversified.

Figure 5: South Korean Imports from India



Source: WITS Database

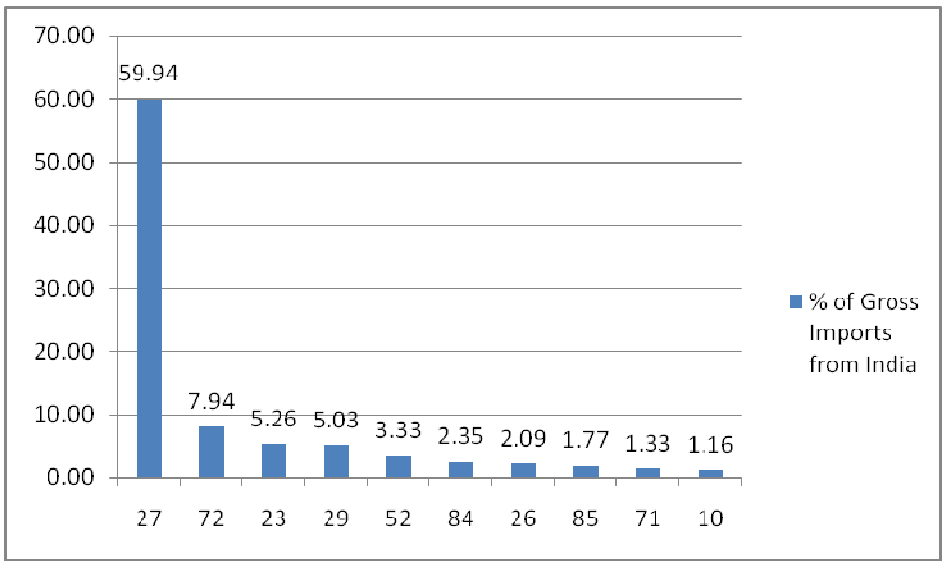
Figure 6: South Korea's Tariff Rates on Imports from India



Source: WITS Database

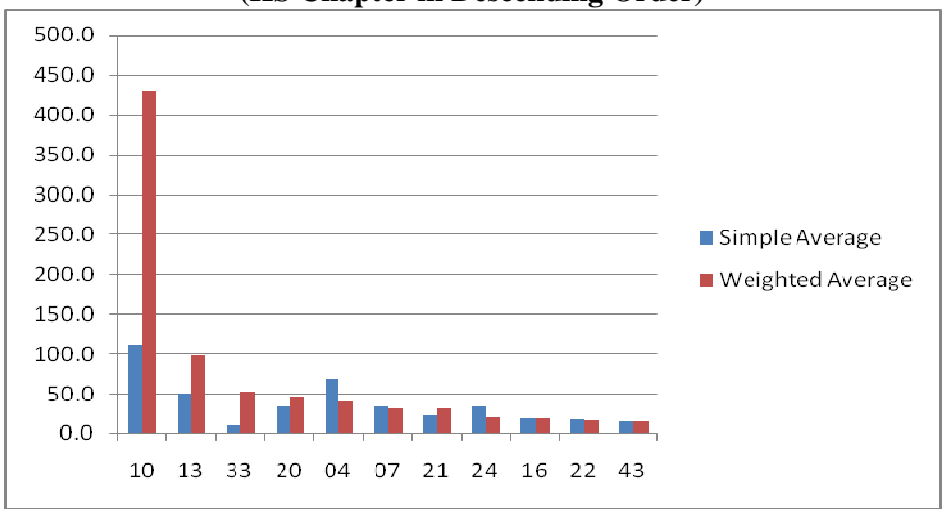
Similarly, South Korea's imports from India are also concentrated in low tariff HS chapters. Figure 8 indicate first 10 HS chapters on the basis of South Korea's weighted and simple import tariff on Indian products in descending order. The tariff rate lies in the range of 2% to 428%. If we analyze the figure 7 and figure 8 simultaneously, Indian exports has not penetrated or marginally in high tariff HS chapters. Hence, it may be inferred that tariffs act as significant trade barrier.

Figure 7: South Korea's Imports from India (% in 2008)
(HS Chapter in Descending Order)



Source: WITS Database

Figure 8: South Korea's Tariff on Imports from India in 2008 (%)
(HS Chapter in Descending Order)



Source: WITS Database

4. Methodology and Databases

The present study is an attempt to examine the potential impacts of India-South Korea CEPA. The analysis is based on partial and general equilibrium modeling. The partial equilibrium modeling is based on World Bank/UNCTAD SMART model and general equilibrium modeling is based on GTAP model. It is possible within a the partial and general equilibrium models to analyze the trade policy effects on trade creation and diversion, welfare and tariff revenues, however under different set of assumptions.

The main advantage of the partial equilibrium approach to Market Access Analysis is its minimal data requirement. In fact, the only required data for the trade flows, the trade policy (tariff), and a couple of behavioral parameters (elasticities). This can therefore take advantage of the rich WITS datasets which contain all of those. Another advantage (which follows directly from the minimal data requirement) is that it permits an analysis at a fairly disaggregated (or detailed) level, which is neither convenient nor possible in the framework of a general equilibrium model. This also resolves a number of "aggregation biases."

The partial equilibrium approach also has a number of disadvantages that have to be kept in mind while conducting any analysis. Since it is only a "partial" model of the economy, the analysis is done on a pre-determined number of economic variables. This makes it very sensitive to a few (badly estimated) behavioral elasticities. Due to their simplicity also, partial equilibrium models may miss important interactions and feedbacks between various markets. In particular, the partial equilibrium approach tends to neglect the important inter-sectoral input/output (or upstream/downstream) linkages that are the basis of general equilibrium analyses. It also misses the existing constraints that apply to the various factors of production (e.g., labor, capital, land…) and their movement across sectors.

4.1 Theoretical Framework of SMART Model

The setup of SMART is that, for a given good, different countries compete to supply (export to) a given home market. The focus of the simulation exercise is on the composition and volume of imports into that market. The degree of responsiveness of the supply of export to changes in the export price is given by the export supply elasticity. SMART assumes infinite export supply elasticity - that is, the export supply curves are flat and the world prices of each variety are exogenously given. This is often called the price taker assumption. SMART can also operate with finite elasticity - upward sloping export supply functions – which entails a price effect in addition to the quantity effect.

SMART relies on the Armington assumption to model the behavior of the consumer. In particular, the adopted modeling approach is based on the assumption of imperfect substitutions between different import sources (different varieties). That is, goods (defined at the HS 6 digit level) imported from different countries, although similar, are imperfect substitutes.

Within the Armington assumption, the representative agent maximizes its welfare through a two-stage optimization process:

- First, given a general price index, she chooses the level of total spending/consumption on a "composite good". The relationship between changes in the price index and the impact on total spending is determined by a given import demand elasticity.

- Then, within this composite good, she allocates the chosen level of spending among the different "varieties" of the good, depending on the relative price of each variety. The extent of the between-variety allocative response to change in the relative price is determined by the Armington substitution elasticity.

The SMART model incorporates three kinds of elasticities:

- **Supply Elasticity:** Supply elasticity is the export supply elasticity value. By default, SMART uses 99 for infinite elasticity for all products and partners. This means that an increase in demand for a given good will always be matched by the producers and exporters of that good, without any impact on the price of the good.
- **Substitution elasticity:** Import substitution elasticities record the rate of substitution between two goods from different origins. The Armington assumption is incorporated, meaning that similar goods from different countries are imperfectly substitutable. The import substitution elasticity is considered to be 1.5 for each good.
- **Import Demand Elasticity**: Import demand elasticity measures the demand response to a shift in import price. Default values are the same for all reporters but may vary by product.

Another important assumption made by the model is perfect competition, which means for example that tariff cuts are fully reflected in the prices paid by consumers (see for details Jammes and Olarreaga, 2005)

4.2 GTAP-The General Equilibrium Modeling Framework

Given the limitations of partial equilibrium moeling, general equilibrium modeling is popular over them. The Global Trade Analysis Project (GTAP) model is in this class of general equilibrium models. GTAP is a multi-region computable general equilibrium (CGE) model designed for comparative-static analysis of trade policy issues (Adams et al. 1997). It can be used to capture effects on output mix, factor usage, trade effects and resultant welfare distribution between countries as a result of changing trade policies at the country, bilateral, regional and multilateral levels. Since the GTAP model puts emphasis on resource reallocation across economic sectors, it is a good instrument for identifying the winning and losing countries and sectors under policy changes involving the trade aspects of the RTAs. The theory of the GTAP model is documented in Hertel (1997) and brief summary of the GTAP model used here is described in Ahmed (2010).

The model relies on country and regional input-output tables for each region and bilateral trade data derived from United Nations trade statistics. This is supplemented with individual countries global trade information and aggregate bilateral trade statistics such as from the IMF, FAO and World Bank. Another important sub-component of the GTAP database is the protection data which has been taken from the MacMap database at the 6-digit Harmonised Systems (HS6) level. These are then aggregated to GTAP concordance using trade weights compiled from the COMTRADE database.

4.3 The GTAP Database and the Study Aggregation

In the present study, GTAP database version 7, covering 113 countries/regions and 57 sectors, with a base year of 2004, have been used (Narayanan and Walmsley, 2008). All the trade flows for the 57 commodity categories are distinguished by their countries/regions of origin and

destination, and on the basis of agents such as intermediate demand, final demand by private households, government and investment. In the present analysis, 113 countries/regions are aggregated into 5 countries/regions and 57 commodities are aggregated into 14 commodity groups. Details of sectoral and regional aggregation are presented in Appendix-2.

5. Simulation Scenarios:

5.1. Partial Equilibrium Simulations

- Full trade liberalization between the two countries, this agreement being considered separately. All bilateral tariffs are completely and immediately eliminated.

5.2 General Equilibrium Simulations

- Scenario-1 consider 100% tariff cut by India and South Korea on imports from each other. In this scenario, standard GTAP closures are adopted.
- Scenario-2 consider 100% tariff cut by India and South Korea on imports from each other. This simulation is undertaken on the basis of modified standard closures for India (Ahmed, 2010).

6. Simulation Outcomes:

6.1 SMART Results:

In this section, the results of SMART model showing the possible impact of the CEPA on India and South Korea are discussed. One of the main justifications of liberalization is to reduce the price paid by consumers, increasing thus their purchasing power. So, our main objective is to analyze as accurately as possible consumers' potential gain. Further, product-specific tariff revenues and trade effects has also been estimated. We choose to simulate the impact of a complete dismantlement of tariffs in order to clearly expose the effects of trade liberalization on all products. This is therefore an "extreme scenario" which aims at delineating the general trends of the impact of liberalization of both economies under the CEPA.

Trade effects as result of South Korea's tariff reduction reveal an increase in South Korea's trade with India about US $ 5.7 billion. The maximum gain of India in HS product at 6 digit level are light oils and preparations (271011), maize (corn), other than seed (100590), Cashew nuts, shelled (80132), smoking tobacco, whether or not containing tobacco substitutes in any proportion (240310), machinery for liquefying air/other gases, whether/not electrically heated (841960) and tobacco partly or wholly stemmed or stripped (240120). The first 25 tariff lines on the basis of total trade effects in ascending order are presented in the table 1. However, there is significant trade diversion in some of these tariff lines from United States, Brazil, Vietnam, China, Indonesia, Spain, Australia, Japan, Israel, and Germany. For instance, HS 6 digit tariff line 100590, 240120, 720230, 230400, 130219 and 840734 indicate trade diversion around 67.57%, 30.10%, 48.13%, 55.78%, 56.61% and 65.34% of total trade effects as result of South Korea's 100% tariff reduction on imports from India. The 25 HS products listed in table capture 98% of India's export gains. The maximum gains are concentrated in high tariff products in South Korean market (Table 2).

Table 1: India's Export as Result of Korea's Tariff Reduction

HS Code	Partner	Trade Total Effect ($ '000)-TTE	Trade Diversion Effect ($ '000)-TDE	Trade Creation Effect ($ '000)	TDE as a % of TTE	Most affected Country
Total		5,681,972.58	0.01	5,681,972.57		
271011	India	5,454,725.81	113,446.89	5,341,278.93	2.08	
100590	India	233,146.29	157,526.35	75,619.94	67.57	United States
80132	India	66,152.40	42.548	66,109.85	0.06	
240310	India	57,749.69	470.091	57,279.60	0.81	
841960	India	22,816.08	150.844	22,665.24	0.66	
240120	India	21,780.11	6,556.66	15,223.45	30.10	Brazil
520523	India	10,370.11	3,163.85	7,206.26	30.51	Vietnam
271119	India	8,222.29	403.887	7,818.41	4.91	
720230	India	6,722.67	3,235.41	3,487.26	48.13	China
230400	India	6,448.61	3,597.25	2,851.36	55.78	Brazil
130219	India	5,676.28	3,213.47	2,462.80	56.61	China
711299	India	4,978.13	2,265.84	2,712.29	45.52	Indonesia
330190	India	4,275.86	2,155.56	2,120.30	50.41	Spain
840734	India	3,786.74	2,474.12	1,312.62	65.34	Australia
151530	India	3,548.43	100.623	3,447.80	2.84	
270730	India	3,300.97	2,063.28	1,237.70	62.51	Japan
520524	India	3,142.35	1,963.23	1,179.12	62.48	China
294190	India	3,014.22	1,840.34	1,173.88	61.06	China
710239	India	2,899.93	594.769	2,305.16	20.51	Israel
520522	India	2,660.21	1,354.93	1,305.28	50.93	China
293090	India	2,616.09	1,447.83	1,168.26	55.34	Japan
320417	India	2,574.48	1,795.31	779.174	69.73	Japan
840999	India	2,518.97	1,497.16	1,021.81	59.44	Germany
847989	India	2,337.41	1,376.97	960.442	58.91	Japan
730721	India	2,234.55	1,025.21	1,209.33	45.88	China

Table 2: India's Export Interest in Korea Republic

HS Tariff Line	Exports Before ($ '000)	Exports After ($ '000)	Export Change ($ '000)
271011	3,889,482.85	9,344,208.66	5,454,725.81
100590	76,421.06	309,567.36	233,146.29
80132	4,801.67	70,954.06	66,152.40
240310	988.385	58,738.07	57,749.69
841960	1,394.70	24,210.78	22,816.08
240120	30,559.07	52,339.18	21,780.11
520523	98,466.96	108,837.07	10,370.11
271119	5,749.70	13,971.99	8,222.29
720230	56,794.98	63,517.65	6,722.67

230400	173,449.80	179,898.40	6,448.61
130219	3,468.20	9,144.47	5,676.28
711299	45,211.94	50,190.07	4,978.13
330190	6,328.73	10,604.59	4,275.86
840734	23,870.57	27,657.31	3,786.74
151530	8,281.55	11,829.97	3,548.43
270730	49,453.47	52,754.44	3,300.97
520524	27,270.93	30,413.28	3,142.35
294190	29,961.58	32,975.80	3,014.22
710239	40,761.73	43,661.66	2,899.93
520522	19,541.08	22,201.29	2,660.21
293090	19,457.35	22,073.44	2,616.09
320417	18,119.11	20,693.60	2,574.48
840999	28,563.82	31,082.79	2,518.97
847989	12,117.33	14,454.74	2,337.41
730721	10,018.20	12,252.74	2,234.55
Change in Export Revenue in First 25 Tariff			5937699
Total			6059427
% of Total			97.99

Trade effects as result of India's tariff reduction predict an increase in South Korea's exports to India of US $ 1.823 billion and reported in table 3. The maximum gain of South Korea lies in HS product at 6 digit level are in vehicles principally designed for the transport of persons(870332), line pipe of a kind used for oil or gas pipelines, having internal and external circular cross-sections (730512), petroleum oils and oils obtained from bituminous minerals, etc (271019), other parts & accessories for the motor vehicles of 87.01-87.05, excluding 8708.91/92/93/94/95 (870899), flat-rolled products of iron or non-alloy steel, of a width of >= 600 mm, in coils, simply hot-rolled, not clad (720836), newsprint, in rolls or sheets (480100), unbalance motors, rubber buffers, coil springs, leaf springs, crank shaft drive and fuses (847989). The first 25 tariff lines on the basis of total trade effects in ascending order are presented in the table 3 and 4. However, there is significant trade diversion some of these tariff lines from Germany, Singapore, Italy, Thailand, Sweden, China, Canada, Japan, Russian Federation and Mexico. For instance, HS 6 digit tariff line 870899, 271019, 480100 reveal trade diversion around 93.79%, 29.61%, 48.35% of total trade effects as result of India's 100% tariff reduction on imports from south Korea. The 25 HS products listed in table capture 63% of South Korea's export gains. The maximum gains are concentrated in high tariff products in Indian markets (table 4).

Table 3: Trade Effects as Result of India's Tariff Reduction

HSCode	Partner	Trade Total Effect ($ '000)-TTE	Trade Diversion Effect ($ '000)-TDE	Trade Creation Effect ($ '000)	TDE as a % of TTE	Most affected Country
		1,823,747.93	0.006	1,823,747.92		
870332	Korea,	515,438.81	59,570.06	455,868.75	11.56	Germany

730512	Korea,	299,170.94	428.063	298,742.87	0.14	
271019	Korea,	130,341.39	38,588.73	91,752.66	29.61	Singapore
870899	Korea, Rep.	65,948.20	61,850.74	4,097.47	93.79	Italy, Japan, Thailand, Sweden
720836	Korea,	62,182.11	8,253.15	53,928.96	13.27	China
480100	Korea,	39,111.88	18,910.46	20,201.42	48.35	Canada
350691	Korea,	34,708.20	427.037	34,281.17	1.23	
847989	Korea,	32,363.73	13,446.97	18,916.76	41.55	Japan
841810	Korea,	27,735.07	681.154	27,053.92	2.46	
870829	Korea,	26,595.55	6,290.91	20,304.63	23.65	Japan
890120	Korea,	25,344.31	1,914.02	23,430.29	7.55	
720916	Korea,	23,829.09	1,915.32	21,913.77	8.04	
852871	Korea,	23,622.17	6,721.92	16,900.24	28.46	China
410792	Korea,	22,602.86	321.136	22,281.73	1.42	
730890	Korea,	22,375.29	8,149.46	14,225.84	36.42	China
840490	Korea, Rep.	21,798.21	3,719.29	18,078.92	17.06	Russian Federation
870830	Korea,	19,466.73	2,767.51	16,699.22	14.22	Japan
841989	Korea,	19,312.81	2,618.01	16,694.80	13.56	China
390410	Korea,	18,512.62	7,601.31	10,911.31	41.06	Japan
840820	Korea,	18,029.02	968.298	17,060.73	5.37	
890190	Korea,	16,732.30	9,696.90	7,035.40	57.95	Russian
400219	Korea,	16,644.42	5,491.64	11,152.78	32.99	Mexico
846299	Korea,	14,849.77	2,766.18	12,083.59	18.63	Japan
870410	Korea,	14,836.65	69.777	14,766.87	0.47	
870894	Korea,	14,381.49	3,701.12	10,680.36	25.74	Japan

Table 4: Export Interest of Korea, Republic in India

	Exports	Exports	Export
Tariff Line	Before ($ '000)	After ($ '000)	Change in Export Revenue ($ '000)
870332	45,949.81	561,388.62	515,438.81
730512	55,084.72	354,255.66	299,170.94
271019	768,983.24	899,324.62	130,341.39
870899	1,130,916.84	1,196,865.05	65,948.20
720836	208,208.08	270,390.20	62,182.11
480100	172,364.31	211,476.18	39,111.88
350691	3,341.79	38,050.00	34,708.20
847989	150,419.62	182,783.35	32,363.73
841810	7,455.36	35,190.43	27,735.07
870829	57,483.42	84,078.97	26,595.55
890120	430,408.38	455,752.69	25,344.31
720916	47,223.26	71,052.35	23,829.09
852871	61,196.55	84,818.72	23,622.17

410792	3,988.96	26,591.82	22,602.86
730890	67,326.35	89,701.64	22,375.29
840490	88,626.90	110,425.11	21,798.21
870830	25,774.75	45,241.48	19,466.73
841989	28,084.90	47,397.71	19,312.81
390410	96,772.87	115,285.49	18,512.62
840820	9,007.07	27,036.10	18,029.02
890190	133,187.57	149,919.87	16,732.30
400219	119,873.63	136,518.05	16,644.42
846299	32,938.51	47,788.29	14,849.77
870410	547.512	15,384.16	14,836.65
870894	39,549.62	53,931.10	14,381.49
Change in Revenue in First 25 Tariff Lines			1525934
Total			2422074
% of Total			63.00%

SMART simulation results reveal positive consumer's surplus for India. The results are reported in table 5. As result of India-South Korea CEPA, India's consumer's surplus will be increasing by US$ 317.8 million while consumer's surplus in South Korea will be increasing by US$ 452.8 million. The maximum consumer surplus gains for Indian consumers are in other vehicles, with compression-ignition internal combustion piston engine (870332), line pipe of a kind used for oil or gas pipelines, having internal and external circular cross-sections (730512), petroleum oils and oils obtained from bituminous minerals, etc (271019) while South Korean will be gaining consumer surplus in maize (corn), other than seed (100590) and light oils and preparations (271011).

Table 5: Consumer Surplus Gains as Result of Tariff Reduction

Consumer Surplus Gains for India		**Consumer Surplus Gains for South**	
HSCode	Welfare ($ '000)	HSCode	Welfare ($ '000)
Total	317,797.31	Total	452,846.66
870332	231,360.03	100590	306,820.15
730512	14,873.12	271011	110,513.89
271019	3,434.61	240310	17,246.47
350691	2,677.28	130219	4,268.94
720836	1,986.85	240120	2,248.44
480100	1,779.55	80132	2,072.00
870829	1,758.54	841960	1,488.09
240220	1,640.92	330190	981.855
841810	1,621.44	210690	415.129
852871	1,417.80	271119	383.166
870830	1,397.58	520523	361.16

410792	1,346.89	200819	276.037
847989	1,310.01	160420	214.918
840820	1,300.60	720230	154.408
730890	1,256.66	151530	147.976
890120	1,203.71	40690	142.303
841989	1,165.97	850231	113.872
870410	985.556	350110	113.201
870840	961.63	170211	111.694
840490	948.675	40410	102.748
730900	940.416	840734	100.552
210390	923.399	711299	98.325
730830	867.095	30379	94.807
870894	857.005	870332	94.462
846299	807.998	730721	90.412

SMART simulation results also reveal that India's revenue loss will be US $ -768.4 million while South Korea may lose revenue about US $-1,232.6 million in case of perfect tariff liberalization (Table 6). India will be losing less revenue compared to South Korea. Given the development needs, India must consider revenue loss and in order to tamper the losses in budget revenues, India should seek to diversify their tax base and develop alternative less distortionary revenue generating strategy. India will be losing maximum revenue in the imports of other parts & accessories for the motor vehicles of 87.01-87.05, excluding 8708.91/92/93/94/95 (870899) and vehicles principally designed for the transport of persons (870332) while South Korea might be losing maximum tariff revenue in the imports of maize (corn), other than seed (100590) and light petroleum oils and preparations (271011).

Table 6: Revenue Loss as Result of Tariff Reduction

Revenue Impact of India's Tariff		**Revenue Impact of Korea's Tariff Reduction**	
HSCode	Revenue Effect ($ '000)	HS Code	Revenue Effect ($ '000)
Total	-768,368.17	Total	-1,232,610.56
870899	-119,271.94	100590	-1,002,854.49
870332	-105,519.86	271011	-106,744.80
890120	-43,232.24	130219	-12,275.49
271019	-33,200.18	520523	-8,130.47
480100	-19,122.65	240120	-7,198.85
890190	-14,288.31	330190	-5,849.59
847989	-13,084.01	230400	-3,186.85
400219	-12,536.53	720230	-3,001.52
720836	-10,823.06	230690	-2,532.52

852990	-9,025.65	520524	-2,338.73
720917	-8,459.45	870423	-2,213.98
390410	-8,349.88	840734	-2,107.58
730890	-7,517.97	711299	-1,819.98
840490	-7,387.63	210690	-1,799.88
852871	-6,791.85	294190	-1,696.25
820730	-6,645.46	520522	-1,671.68
870829	-6,377.42	520526	-1,632.71
847990	-5,907.22	320417	-1,593.15
842952	-5,808.82	270730	-1,545.50
730512	-5,543.15	293090	-1,305.08
730791	-5,469.72	840999	-1,188.51
310530	-4,735.28	350110	-1,177.37
870894	-4,325.07	870120	-1,148.89
720837	-4,303.41	200819	-1,143.63
841430	-4,211.79	847989	-1,113.23

It is important to underline that the SMART model does not allow us to evaluate the total impact of the CEPA on welfare, because it captures only consumer's surplus. In order to obtain a complete view, it is necessary to address also the effects for producers. In addition, these impacts must not be evaluated product by product, but as a whole, taking into account general equilibrium linkages. This is what we intend to do in the next part of this section.

6.2 GTAP Model Results

The results for welfare effects are reported in table 7. In GTAP, welfare effects are measured using the equivalent variations (EV) (Ahmed, 2009). In scenario I, there are positive welfare gains for South Korea (US$ 422.8) million while India is going to have a welfare loss equal to US $ -113.4 million. In this scenario, net global welfare decreases by US $ -319 million. In scenario II, there are positive welfare gains for South Korea equivalent to US$ 423.3 million while India is going to have a welfare loss equal to US $ -454.4 million. In this scenario, net global welfare decreases by US $ -662.1 million. Terms of trade improves significantly for South Korea. India's large welfare loss may be due to 'allocative inefficiency' and declining demand for unskilled labour. Welfare loss can also be explained by the fact that India is likely face a large negative trade diversion effect out of this FTA which will offset the positive trade creation effect.

Table 7: Welfare and its Components (US $ Millions)

Country Groups	Allocative Efficiency effects	Unskilled Employment Effects	Change in Terms of Trade	Change in Capital Stock	Total
Scenario-I					

India	-309.2	0	191.6	4.2	-113.4
South Korea	14.6	0	518.8	-110.6	422.8
DevelCount	13.7	0	-311	47.2	-250.1
RestofWorld	-32.1	0	-405.5	59.4	-378.3
Total	-313	0	-6.1	0.1	-319
Scenario-II					
India	-358.7	-301.4	200.1	5.6	-454.4
South Korea	14.6	0	519.5	-110.8	423.3
DevelCount	14.8	0	-308	46.7	-246.4
RestofWorld	-30.6	0	-412.4	58.5	-384.6
Total	-359.9	-301.4	-0.8	0.1	-662.1

To identify broad categories of gaining and losing sectors, sectoral output effects resulting from India-South Korea CEPA are reported in table 8. Gross output is expected to decline marginally in India while reverse is true for South Korea. However, sectoral output effects are mixed. India's gaining sector is the grain crops sector only while South Korea is expected to gain in processed food items, textile, meat and live stock products, vegetable and fruits, fishing, dairy and milk products, beverages and tobacco and light manufacturing. Sectoral employment effects are broadly similar in direction to the output effect. The employment of unskilled labour in India may decline by -0.16% in Scenario II. However, total employment remains unchanged as scenario-1 as it is based on full employment assumption. Sectoral redistribution of unskilled labour is also expected in both partner countries (table 8 and 9).

Table 8: Output Effect (% change)

	Scenario-1		Scenario-2	
Commodity Groups	India	South Korea	India	South Korea
GrainsCrops	0.98	-3.23	0.95	-3.23
V_F	-0.34	1.04	-0.37	1.04
MeatLstk	-0.01	1.07	-0.06	1.07
Fishing	-0.07	0.28	-0.11	0.28
Extraction	-0.18	-0.44	-0.21	-0.44
DairyMilk	-0.02	0.26	-0.08	0.26
B_T	-0.08	0.24	-0.12	0.24
ProcFood	-0.33	1.77	-0.37	1.77
Tex	-0.77	1.3	-0.86	1.3
Wapp	-1.29	-0.03	-1.47	-0.03
Leather	-0.8	-0.16	-0.87	-0.15
LightMnfc	-0.51	0.1	-0.57	0.1
HeavyMnfc	-0.38	-0.06	-0.43	-0.06
Services	-0.08	0.01	-0.14	0.01
Total	-0.07658	0.053403	-0.13199	0.053415

Table 9: Employment Effect (% change)

Commodity Groups	Scenario-1		Scenario-2	
	India	South Korea	India	South Korea
GrainsCrops	1.36	-4.65	1.29	-4.66
V_F	-0.09	0.23	-0.16	0.23
MeatLstk	0.48	0.09	0.36	0.09
Fishing	-0.11	0.57	-0.2	0.57
Extraction	-0.26	-0.5	-0.3	-0.5
DairyMilk	-0.14	0.28	-0.3	0.28
B_T	-0.21	0.28	-0.36	0.28
ProcFood	-0.45	1.8	-0.59	1.8
Tex	-0.84	1.33	-1	1.33
Wapp	-1.36	-0.01	-1.6	-0.01
Leather	-0.94	-0.14	-1.13	-0.14
LightMnfc	-0.63	0.13	-0.8	0.13
HeavyMnfc	-0.55	-0.02	-0.75	-0.02
Services	-0.24	0.05	-0.44	0.05
Total	0.00	0.00	-0.16	-0.00

6.3 Systematic Sensitivity Analysis

The SSA results summarizes the estimates of the mean ($\hat{\mu}_{EV}$) and standard deviation ($\hat{\sigma}_{EV}$) of welfare results (E.V.) for South Korea and India. The 95% confidence intervals (C.I.) are constructed using Chebysshev's Inequality ($\hat{\mu}_{EV} - 4.5\hat{\sigma}_{EV}, \hat{\mu}_{EV} + 4.5\hat{\sigma}_{EV}$). The SSA results for scenario-1 and 2 are reported in table 10. The SSA results for (+/-) 50% shock around the default value of ESUBD indicate that welfare for India may have mixed direction depending on parameter values, with greater probability of negative side. The SSA results for (+/-) 50% shock around the default value of ESUBD indicate that welfare gains for South Korea will remain positive and lies within 95% confidence interval irrespective of parameter values. Hence, the welfare gains for South Korea are more stable compared to India. The SSA results for scenario-2 also broadly consistent with scenario-1.

Table 10: Systematic Sensitivity Analysis (Welfare Changes (US$ millions)

Country	ESUBD (+/- 50% shock)					ESUBD (+/- 50% shock)				
	Scenario-1					Scenario-2				
	Default	Mean	SD	95 % C.I.		Default	Mean	SD	95 % C.I.	
India	-113.39	-110.24	139.36	-737.36	516.88	-454.4	-460.89	156.93	-1167.08	245.295
South Korea	422.82	445.61	27.67	321.095	570.125	423.3	446.16	27.73	321.375	570.945
Devel Count	-250.12	-256.57	58.13	-518.155	5.015	-246.43	-252.75	56.59	-507.405	1.905
Rest of World	-373.03	-380.15	42.09	-569.555	-190.745	-384.57	-391.84	48.68	-610.9	-172.78

7. Investment Opportunities

As discussed above, India has limited scope in goods trade and has overall negative welfare effects. In this scenario, India may gain and rely on South Korean investment inflows in India as result of this CEPA. In past, sensing the opportunity in the Indian economy, many Korean companies have aggressively started entering the Indian market since 1991, and within a short period of time Korean enterprises such as LG, Samsung, Hyundai etc, have not only established their presence but have also diversified their businesses in various sectors in the economy. The share of Korea was around 4 per cent of total cumulative FDI received by India between 1991 and 1999. However, post 2000, the Korea's share has declined to 0.6 per cent of total cumulative FDI during the period April 2000 to March 2010. Major sectors attracting Korean FDI approvals are electrical equipments (including computer software & electronics), metallurgical industries, food processing industries etc. The CEPA will encourage more Korean investments in consumer goods and physical infrastructure and construction sectors; modernization of Railways stands out as one of the sectors where Korean engineering and innovation expertise can be used to India's benefit. Korea has the world's highest mobile and broadband penetration. India's telecom and IT hardware and software industries as well and the other engineering industry sectors are sure to benefit from closer cooperation with Korea's demonstrated ability to introduce new, sophisticated and innovative products into the market.

Recently India has liberalized and consolidated FDI policy for boosting FDI inflows. Presently, FDI is freely permitted in almost all sectors except a handful of industry sectors in which no FDI or limited FDI is permitted – these tend to be "sensitive" sectors. In the limited number of sectors/activities requiring prior government approval, proposals for FDI are considered by the government on the recommendation of the Foreign Investment Promotion Board (FIPB) in a time bound and transparent manner. Under the Foreign Direct Investments (FDI) Scheme, investments can be made by non-residents through two routes; the Automatic Route and the Government Route. Under the Automatic Route, the foreign investor or the Indian company does not require any approval from the Reserve Bank or Government of India for the investment. Under the Government Route, prior approval of the Government of India, Ministry of Finance, and Foreign Investment Promotion Board (FIPB) is required. In sectors which are not reflected in the prohibited list or in the Sector-specific policy, FDI is permitted up to 100% through the automatic route

In South Korea, 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. 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. However, Korean policy makers have realized 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.

7.1 Investment Opportunities for Korean Firms in India:

The main sectors attracting foreign direct investment from South Korea are transportation industry accounting for over 1/3rd of the share, fuels (power & oil refinery), electrical equipment (computer software & electronics), chemicals (other than fertilizer) and commercial, office &

household equipments. There have also been technical collaborations with South Korea- areas include transportation industry, electrical equipment including computer software & electronics, chemicals other than fertilizers, metallurgical industries and industrial machinery. There are large number opportunities for South Korean Firms in India. Few Sectors are discussed below:

Oil & Gas Industry: India's domestic demand for oil and gas is on the rise and country always has excess demand scenario. India is also emerging as the global hub for oil refining with capital costs lower by 25 to 50 per cent over other Asian countries. In this sector, the government of India has been taking many progressive measures to create a conducive policy and regulatory framework for attracting investments. According to the Investment Commission of India, the total opportunity in the oil and gas sector is expected to reach US$ 35 billion to US$ 40 billion by 2012.

Infrastructure Sector: Infrastructure investment in India is set to grow dramatically. According to investment banking company Goldman Sachs, India's infrastructure sector will require US$ 1.7 trillion investment in the next 10-years in ports, airports, railroads, roads, etc.

Tourism & Hospitality Sector: As per the Travel and Tourism Competitiveness Report 2009 by the World Economic Forum, India is ranked 11th in the Asia Pacific region,14th best tourist destination for its natural resources and 24th for its cultural resources, with many World Heritage sites, both natural and cultural, rich fauna, and strong creative industries in the country. The demand for travel and tourism in India is expected to grow by 8.2 per cent between 2010 and 2019 and will place India at the third position in the world (Tourism Satellite Accounting (TSA), 2009). The report forecasts India to get capital investment worth US$ 94.5 billion in the travel and tourism sector in 2019.

Healthcare Industry: In recent years, the healthcare industry in the country, which comprises hospital and allied sectors, is projected to grow 23 per cent per annum to touch US$ 77 billion by 2012 from the current estimated size of US$ 35 billion, according to a Yes Bank and ASSOCHAM report. Adds a FICCI-Ernst and Young report, India needs an investment of US$ 14.4 billion in the healthcare sector by 2025, to increase its bed density to at least two per thousand populations. The fast growth in the Indian healthcare sector has created various pockets of opportunities for investors.

Textiles Industry: A leading sector in the Indian economy, textiles contributes 14 per cent to industrial production, 4 per cent to the GDP and around 17 per cent to the total export earnings. It is, in fact, the largest foreign exchange earning sector in the country. India has certain natural advantages which has propelled the growth of its textiles Industry. The increase in the domestic market and exports has led to increased investment inflows into the sector. By 2012, investment in the textiles and clothing industry is estimated to touch US$ 38.14 billion (IBEF, 2007).

Power Sector: As the Indian economy continues to surge ahead, its power sector has been expanding concurrently to support the growth rate. The demand for power is growing exponentially and the scope for the growth of this sector is immense. The government has taken several proactive steps to open the sector for the private players and allowed foreign equity participation up to 100 per cent in the power sector under the automatic route (except nuclear).

Auto Sector: Automobiles have been kept outside the ambit of tariff elimination but there is continuous support and encouragement for FDI. The growth of the Indian middle class along with the growth of the economy over the past few years has attracted global auto majors to the Indian market. Moreover, India provides trained manpower at competitive costs making India a favoured global manufacturing hub. The attractiveness of the Indian markets on one hand and the stagnation of the auto sector in markets such as Europe, US and Japan on the other have resulted in shifting of new capacities and flow of capital to the Indian automobile industry. Korean car

giant Hyundai are increasingly banking on their Indian operations to add weight to their businesses, even as numbers stay uncertain in developed markets due to economic recession and slowdown. Hence, there is still huge untapped potential for Investment.

Auto Components: According to the Investment Commission of India, India is among the most competitive manufacturers of auto components in the world. India is also becoming a global hub for research and development (R&D). Companies like Daimler Chrysler, Bosch, Suzuki and Johnson Controls have set up development centres in India. Many international auto-component majors including Delphi, Visteon, Bosch and Meritor have set up operations in India. Auto manufacturers including GM, Ford, Toyota, etc. as well as auto component manufacturers have set up International Purchasing Offices (IPOs) in India to source for their global operations (IBEF, 2010). The government has taken many initiatives to promote foreign direct investment (FDI) in the industry such as automatic approval for foreign equity investment up to 100 per cent of manufacture of automobiles and components is permitted, the automobile industry is delicensed and import of components is freely allowed.

Telecommunications Industry: The Indian telecommunications industry is one of the fastest growing in the world and India is projected to become the second largest telecom market globally. The government has taken many proactive initiatives to facilitate the rapid growth of the Indian telecom industry. 100 per cent foreign direct investment (FDI) is permitted through the automatic route in telecom equipment manufacturing and FDI ceiling in telecom services has been raised to 74 per cent.

Aviation Industry: The Indian aviation industry is one of the fastest-growing aviation industries in the world with private airlines accounting for more than 75 per cent of the sector of the domestic aviation market. FDI up to 100 per cent is allowed under the automatic route for Greenfield projects in this sector. For existing projects, FDI up to 100 per cent is allowed; while investment up to 74 per cent under the automatic route and beyond 74 per cent under the government route. Investment opportunities of US$ 110 billion are being envisaged up to 2020 with US$ 80 billion towards new aircraft and US$ 30 billion towards development of airport infrastructure, according to the Investment Commission of India.

In addition to the above sectors, South Korean firm may also explore investment opportunities in financial services, banking, insurance, real estate sectors, food processing Industry and electronics.

7.2 Indian Investment Opportunities in Korea

Korea's state-of-the-art IT infrastructure, competitive IT firms and technology, and innovation-friendly consumers constitute a winning combination that has attracted global IT giants to its soil. Microsoft has opened its R&D lab for mobile technology in Korea; IBM, an R&D lab for ubiquitous computing; and Google, an engineering lab. Motorola, Microsoft and Intel choose Korea as the test market in which to first release their new products in light of the nation's tech-savvy and trend-conscious consumers whose feedback is highly prized. Motorola and eBay have chosen Korea as their Asia-Pacific headquarters from which to oversee their business interests in countries like China and India. Kimberly-Clark opened its first R&D center outside the United States in Korea while Siemens and Dupont also operate a medical R&D center and a nano R&D lab, respectively, within Korea. L'Institut Pasteur, an eminent French biotechnology institute, has also had research presence in Korea since 2004 (Invest Korea, 2009).

With the growing amount of globalization and liberalization, not only Korean companies are making their presence felt in India, Indian firms too are establishing themselves in Korea, namely Tata Motors, L&T Infotech, Mahindra Satyam, Indian Overseas Bank, Tata Consultancy Services, Jindal Stainless Steel, Nucleus Software Solutions and Wipro Technologies. Another

important area in which India stands to gain is services through market access in South Korea for our Independent Professionals and Contractual Service Suppliers in areas like IT and IT-enabled services, English teaching, engineering, legal, and other services like financial services. Although Indian investment in South Korea is negligible, the CEPA has come at the right time for Indian companies eager to expand into Korea. This is a good opportunity for the Indian IT industry looking to establish a stronger presence in the APEC region.

7.3 Trade and Investment Barriers

In some of the product categories which constitute a major proportion of Korea's exports, India's tariff rates are very high such as vehicles, rail/tram roll-stock, iron and steel. Imports of certain products, like electrical appliances, where Korea is very competitive, are subject to licensing by the Bureau of Indian Standards (BIS) which is cumbersome and expensive. As a result of the CEPA, some of the barriers to Korean investors such as high regulation, nationality or residency requirements, biasness in award of projects, compulsory registration with local specific service provider associations, etc will be relaxed, thereby increasing Korean FDI in the future.

Similarly, Indian exporters would benefit from the CEPA in sectors, like textiles and apparel products and agricultural and fishery products, where South Korea maintains high tariffs of more than 30 per cent. Further, Indian exports which were subject to rigid standards, technical regulations and conformity assessment procedures, particularly in drugs, food, cosmetics etc. will find it easier to enter Korean markets. Additionally, the restrictions on Indian investment in Korea in the telecommunications sector, film and broadcast industry, voice-overs, local advertising and foreign re-transmission channels will also be removed. The agreement will create an enabling framework to reduce barriers and resolve the disputes, thereby, reducing anti-dumping cases in future (Sahoo, Rai and Kumar, 2009).

8. Concluding Remarks

The present study reveals that India and South Korea's consumer's surplus will be increasing as result of this CEPA. Indian and South Korean consumers will derive gains from the FTA since they will have access to goods at lower prices. To this point, it is assumed that producers and exporters will pass the benefits of tariff reductions on to consumers. If the benefits of tariff dismantlement are not passed on to consumers but are captured by the exporter or the importer, it is possible that there will be no increase in consumer welfare. It is therefore crucial to ensure that consumer welfare is transmitted to consumers. To this end, it is necessary that the competition policy shield consumers against possible abuse of potential dominant positions or against collusion from large importers. Competition policy capacities and the judicial system supporting it should therefore be strengthened to ensure that the FTA delivers its potential benefits.

Despite consumer surplus gains, the CGE analysis concludes that India- South Korea CEPA would result in welfare loss for India. India's large welfare loss may also be due to allocative inefficiency, and decline in employment opportunities for unskilled labour and trade diversion. This study indicates that output in India declines in labour intensive sectors such as textile, wearing apparel, vegetable and fruits, etc. Further, this study also indicates that there is possibility of increase in bilateral exports however there is substantial possibility of trade diversion as result of bilateral trade in goods.

The unique selling point of India-Korea CEPA for India is not the trade in goods but the Korean FDI inflows and technology transfer. India has large number of untapped investment opportunities for South Korean firms. The successful implementation of CEPA and proactive policy coordination will encourage collaboration between small and medium size Korean companies to synergize with Indian small and medium enterprises in the areas of semi-

conductors, plastics, auto parts, agricultural instruments, textiles, multi-media, ceramic products etc.

To gains from CEPA, India needs to improve its poor infrastructure, the hiring, management and dispute settlement mechanism in the case of labour, credit retrieval, local financing and binding system, government intervention, customs and clearance procedures and visa related problems. There are also concerns regarding India's notification process for amendments of certain regulations. To realize the potential of CEPA, Korean must look into barriers lies in the existing regulatory, tax, corporate governance and business environment (namely, entry barriers in key service sectors) structures, and unless these are streamlined quickly, the promised gains will remain illusory. Both side need to focus on removal of non-tariff barriers, otherwise predicted gains may not be materialized despite tariff removal.

References:

Ahmed, Shahid. 2010 "India-Japan FTA in Goods: A Partial and General Equilibrium Analysis"Paper presented in Thirteenth Annual Conference on Global Economic Analysis "Trade for Sustainable and Inclusive Growth and Development" during June 9-11,2010 in Malaysia.

Ahmed, Shahid. 2009. "Free Trade among South, East and South-East Asian Countries: A Step towards Asian Integration." Foreign Trade Review XLIV(2):

Ahmed, Shahid. 2008 "Potential for Trade between Developing and Least Developed Countries: A CGE Analysis" Trade and Development Review Vol. 1, Issue 2, 2008, 122-143, Available online at: http://tdrju.net/index.php/tdr/article/view/17/7

Barro, R., and Sala-I-Martin, X. 1995. Economic Growth. New York: McGraw-Hill

Hertel, T. W. Ed. 1997. "Global Trade Analysis: Modeling and Applications", Cambridge: Cambridge University Press.

Investment Commission of India, Various Reports, http://www.investmentcommission.in/

Invest Korea, 2009. Overview of FDI in Korea. Ministry of Knowledge Economy, Government of Korea, Republic, http://www.investkorea.org/InvestKoreaWar/data/bbs/20091112/091112_IE_BO.pdf

IBEF, Various Reports, http://ibef.org/

Jammes, O. and M. Olarreaga 2005. "Explaining SMART and GSIM", The World Bank, http://wits.worldbank.org/witsweb/download/docs/Explaining_SMART_and_GSIM.pdf

Kalirajan K. 2007. "Regional Cooperation and Bilateral Trade Flows: An Empirical Measurement of resistance." *The International Trade Journal*, 21(2): 85-107.

Kalirajan, K. 1999. "Stochastic Varying Coefficients Gravity Model: An Application in Trade Analysis." *Journal of Applied Statistics*, 26: 185–194.

Lawrence, Robert. 1996. *Regionalism, Multilateralism, and Deeper Integration*. Washington: Brookings Institution.

Narayanan, G. Badri and Terrie L. Walmsley, Eds. 2008. *Global Trade, Assistance, and Production: The GTAP 7 Data Base*, Center for Global Trade Analysis, Purdue University. Available online at: http://www.gtap.agecon.purdue.edu/databases/v7/v7_doco.asp

Sahoo, Pravakar, Durgesh Kumar Rai and Rajiv Kumar (2009), "India-Korea Trade and Investment Relations, Working Paper No. 242, Indian council for research on international economic relations, New Delhi

Wacziarg, R. 1997. Trade, Competition and market Size. Cambridge, MA: Harvard University.

Appendix-1

Tariff Reduction or Elimination under CEPA

1. Except as otherwise provided in a Party's Schedule to this Annex, the following staging categories apply to the reduction or elimination of customs duties by each Party pursuant to Article 2.4.1:

(a) duties on originating goods provided for in the items in staging category E-0 in a Party's Schedule shall be eliminated entirely and such goods shall be duty-free on the date this Agreement enters into force;

(b) duties on originating goods provided for in the items in staging category E-5 in a Party's Schedule shall be removed in five equal annual stages beginning on the date this Agreement enters into force, and such goods shall be duty free, effective January 1 of year four;

(c) duties on originating goods provided for in the items in staging category E-8 in a Party's Schedule shall be removed in eight equal annual stages beginning on the date this Agreement enters into force, and such goods shall be duty free, effective January 1 of year seven;

(d) duties on originating goods provided for in the items in staging category RED in a Party's Schedule shall be reduced to one to five percent from the base rate in eight equal annual stages beginning on the date this Agreement enters into force, and such goods shall remain at one to five percent, effective January 1 of year seven;

(e) duties on originating goods provided for in the items in staging category SEN in a Party's Schedule shall be reduced:

- for India, by fifty percent of the base rate in ten equal annual stages beginning on the date this Agreement enters into force, and such goods shall remain at fifty percent of the base rate, effective January 1 of year nine; and
- for Korea, by fifty percent of the base rate in eight equal annual stages beginning on the date this Agreement enters into force, and such goods shall remain at fifty percent of the base rate, effective January 1 of year seven;
- (f) duties on originating goods provided for in the items in staging category EXC. in a Party's Schedule are exempt from the obligation of tariff reduction or elimination.

2. Tariff reduction or elimination pursuant to paragraph 1 shall be carried out in accordance with the following timetable:

Percentages of annual tariff reduction for Korea

Category	Entry into force	Jan.1 Year 1	Jan.1 Year 2	Jan.1 Year 3	Jan.1 Year 4	Jan.1 Year 5	Jan.1 Year 6	Jan.1 Year 7
E-0	100%							
E-5	20%	40%	60%	80%	100%			
E-8	12.5%	25%	37.5%	50%	62.5%	75%	87.5%	100%
RED[5]	12.5% of [Base Rate (in %s) minus 1~5%]	25% of [Base Rate (in %s) minus 1~5%]	37.5% of [Base Rate (in %s) minus 1~5%]	50% of [Base Rate (in %s) minus 1~5%]	62.5% of [Base Rate (in %s) minus 1~5%]	75% of [Base Rate (in %s) minus 1~5%]	87.5% of [Base Rate (in %s) minus 1~5%]	100% of [Base Rate (in %s) minus 1~5%]
SEN.	6.3%	12.5%	18.8%	25%	31.3%	37.5%	43.8%	50%

Percentages of annual tariff reduction for India

Category	Entry into force	Jan.1 Year 1	Jan. 1 Year 2	Jan.1 Year 3	Jan.1 Year 4	Jan.1 Year 5	Jan.1 Year 6	Jan.1 Year 7	Jan.1 Year 8	Jan.1 Year 9
E-0	100%									
E-5	20%	40%	60%	80%	100%					
E-8	12.5%	25%	37.5%	50%	62.5%	75%	87.5%	100%		
RED	12.5% of [Base Rate (in %s) minus 1~5%]	25% of [Base Rate (in %s) minus 1~5%]	37.5% of [Base Rate (in %s) minus 1~5%]	50% of [Base Rate (in %s) minus 1~5%]	62.5% of [Base Rate (in %s) minus 1~5%]	75% of [Base Rate (in %s) minus 1~5%]	87.5% of [Base Rate (in %s) minus 1~5%]	100% of [Base Rate (in %s) minus 1~5%]		
SEN.	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%

3. The base rate of customs duty for determining the interim rate of customs duty for an item shall be the MFN customs duty rate applied on 1 April 2006.

4. For the purposes of this Annex and a Party's Schedule, **year one** means the subsequent year after this Agreement enters into force as provided in Article 15.7 (Entry into Force).

5. For the purposes of this Annex and a Party's Schedule, beginning in year one, each annual stage of tariff reduction shall take effect on January 1 of the relevant year.

Table-1: Trade Indicators Statistics

(Reporter-India, Partner-Korea, Rep.)

Year	Export Growth (%)	Export Intensity Index	Export Share (%)	Import Growth (%)	Import Share (%)	Total Trade Growth (%)	Total Trade, in million US$	Trade Intensity Index	Trade Share (%)
1991	47.5	0.66	1.3	-3.6	1.6	13.5	555.0	0.76	1.5
1992	-18.6	0.57	1.0	30.6	1.8	9.2	606.0	0.78	1.4
1993	17.3	0.56	1.1	-10.8	1.7	-1.7	595.8	0.70	1.4
1994	20.9	0.54	1.2	90.0	2.7	63.3	972.7	0.92	2.0
1995	41.5	0.55	1.3	3.3	2.1	14.2	1111.2	0.74	1.7
1996	27.8	0.63	1.6	16.6	2.3	20.6	1339.9	0.84	2.0
1997	-4.7	0.62	1.4	16.3	2.4	8.4	1452.6	0.85	1.9
1998	-27.6	0.70	1.0	33.3	3.1	13.2	1644.1	1.15	2.2
1999	24.9	0.63	1.2	0.6	2.7	5.7	1738.0	0.94	2.1
2000	5.3	0.47	1.1	-24.2	2.0	-16.8	1445.9	0.63	1.6
2001	119.8	1.04	2.2	56.6	2.6	76.6	2553.6	1.05	2.4
2002	-40.2	0.55	1.2	-7.9	2.4	-20.6	2028.3	0.78	1.9
2003	22.2	0.55	1.2	75.4	3.4	59.6	3237.2	0.99	2.4
2004	24.3	0.54	1.2	24.0	3.1	24.1	4016.2	0.90	2.3
2005	78.6	0.73	1.7	38.6	3.1	47.7	5930.9	0.97	2.5
2006	43.7	0.83	1.9	10.4	2.7	19.5	7088.3	0.91	2.4
2007	18.1	0.77	1.8	20.7	2.4	19.9	8497.3	0.85	2.2
2008	116.2	1.19	3.0	72.3	3.2	86.6	15857.7	1.18	3.1

Source: IMF Directions of Trade Statistics, Asia Regional Integration Center - Integration Indicators Database, Accessed via website: http://aric.adb.org/indicators.php

End Notes:

- Export growth is the percentage change in the value of exports relative to the previous year.
- Export intensity index is the ratio of export share of a country/region to the share of world exports going to a partner. An index of more than one indicates that trade flow between countries/regions is larger than expected given their importance in world trade.
- Export share is the percentage of exports going to a partner to total exports of a country/region. A higher share indicates a higher degree of integration between partner countries/regions.
- Import growth is the percentage change in the value of imports relative to the previous year.
- Import share is the percentage of imports from a partner to total imports of a country/region. A higher share indicates a higher degree of integration between partner countries/regions.
- Total trade growth is the percentage change in the value of total trade (exports plus imports) relative to the previous year.
- Total trade is the sum of the value of exports and imports.

- Trade intensity index is the ratio of trade share of a country/region to the share of world trade with a partner. An index of more than one indicates that trade flow between countries/regions is larger than expected given their importance in world trade.
- Trade share is the percentage of trade with a partner to total trade of a country/region. A higher share indicates a higher degree of integration between partner countries/regions.

Table 2: Trade Indicators Statistics
(Reporter- Korea, Rep, Partner- India)

Year	Export Growth (%)	Export Intensity Index	Export Share (%)	Import Growth (%)	Import Share (%)	Total Trade Growth	Total Trade, in million	Trade Intensity Index	Trade Share (%)
1991	7.71	1.19	0.65	71.19	0.59	32.72	954.00	1.10	0.62
1992	-5.88	1.01	0.57	-1.49	0.58	-3.65	919.20	1.03	0.57
1993	308.42	3.23	2.10	9.55	0.60	153.13	2326.80	2.03	1.35
1994	-35.66	1.77	1.14	11.70	0.57	-25.01	1744.80	1.29	0.86
1995	-3.00	1.23	0.86	36.55	0.59	10.25	1923.60	1.05	0.72
1996	4.58	1.15	0.85	22.26	0.65	11.92	2152.80	1.01	0.75
1997	-2.24	1.09	0.80	-4.06	0.65	-3.07	2086.80	0.99	0.72
1998	45.05	1.75	1.26	-35.13	0.65	9.09	2276.40	1.39	1.01
1999	-18.40	1.19	0.94	26.48	0.64	-6.43	2130.00	1.06	0.81
2000	-2.63	1.09	0.77	28.22	0.61	8.49	2310.88	0.97	0.69
2001	6.15	1.37	0.93	12.28	0.78	8.76	2513.36	1.20	0.86
2002	-1.68	1.19	0.85	12.96	0.82	4.76	2633.05	1.09	0.84
2003	106.12	1.89	1.47	-1.29	0.69	55.17	4085.69	1.33	1.09
2004	27.31	1.70	1.43	50.07	0.82	34.17	5481.96	1.26	1.14
2005	26.59	1.66	1.61	14.17	0.81	22.40	6709.92	1.22	1.23
2006	20.33	1.31	1.70	72.38	1.18	36.72	9173.59	1.20	1.44
2007	19.29	1.09	1.77	27.02	1.30	22.36	11224.46	1.09	1.54
2008	36.02	1.19	2.10	42.31	1.51	38.61	15558.30	1.17	1.80

Source: IMF Directions of Trade Statistics, Asia Regional Integration Center - Integration Indicators Database, Accessed via website: http://aric.adb.org/indicators.php

Endnotes: As referred in table

Appendix 2: GTAP Model Aggregations

Regional Aggregation

	New	region	Comprising
No.	Code	Description	old regions
1	India	India	India.
2	SKorea		Korea.
3	DevelCount	Developed countries	Australia; New Zealand; Hong Kong; Japan; Taiwan; Singapore; Canada; United States of America; Austria; Belgium; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Latvia; Lithuania; Luxembourg; Malta; Netherlands; Poland; Portugal; Slovakia; Slovenia; Spain; Sweden; United Kingdom; Switzerland; Norway; Rest of EFTA; Bulgaria; Romania.
4	RestofWorld	Rest of World	Rest of Oceania; China; Rest of East Asia; Cambodia; Indonesia; Lao People's Democratic Republ; Myanmar; Malaysia; Philippines; Thailand; Viet Nam; Rest of Southeast Asia; Bangladesh; Pakistan; Sri Lanka; Rest of South Asia; Mexico; Rest of North America; Argentina; Bolivia; Brazil; Chile; Colombia; Ecuador; Paraguay; Peru; Uruguay; Venezuela; Rest of South America; Costa Rica; Guatemala; Nicaragua; Panama; Rest of Central America; Caribbean; Albania; Belarus; Croatia; Russian Federation; Ukraine; Rest of Eastern Europe; Rest of Europe; Kazakhstan; Kyrgyztan; Rest of Former Soviet Union; Armenia; Azerbaijan; Georgia; Iran Islamic Republic of; Turkey; Rest of Western Asia; Egypt; Morocco; Tunisia; Rest of North Africa; Nigeria; Senegal; Rest of Western Africa; Central Africa; South Central Africa; Ethiopia; Madagascar; Malawi; Mauritius; Mozambique; Tanzania; Uganda; Zambia; Zimbabwe; Rest of Eastern Africa; Botswana; South Africa; Rest of South African Customs .

Sectoral Aggregation

	New	sector	Comprising
No.	Code	Description	old sectors
1	GrainsCrops	Grains and Crops	Paddy rice; Wheat; Cereal grains nec; Oil seeds; Sugar cane, sugar beet; Plant-based fibers; Crops nec; Processed rice.
2	V_F	Grains and Crops	Vegetables, fruit, nuts.
3	MeatLstk	Livestock and Meat Products	Cattle,sheep,goats,horses; Animal products nec; Raw milk; Wool, silk-worm cocoons; Meat: cattle,sheep,goats,horse; Meat products nec.
4	Fishing	Extraction	Fishing.
5	Extraction	Mining and Extraction	Forestry; Coal; Oil; Gas; Minerals nec.
6	DairyMilk	Dairy Products	Dairy products.
7	B_T	Beverages and Tobacco	Beverages and tobacco products.
8	ProcFood	Processed Food	Vegetable oils and fats; Sugar; Food products nec.
9	Tex	Textiles and Clothing	Textiles.
10	Wapp	Textiles and Clothing	Wearing apparel.
11	Leather	Light Manufacturing	Leather products.
12	LightMnfc	Light Manufacturing	Wood products; Paper products, publishing; Metal products; Motor vehicles and parts; Transport equipment nec; Manufactures nec.
13	HeavyMnfc	Heavy Manufacturing	Petroleum, coal products; Chemical,rubber,plastic prods; Mineral products nec; Ferrous metals; Metals nec; Electronic equipment; Machinery and equipment nec.
14	Services	Other Services	Electricity; Gas manufacture, distribution; Water; Construction; Trade; Transport nec; Sea transport; Air transport; Communication; Financial services nec; Insurance; Business services nec; Recreation and other services; PubAdmin/Defence/Health/Educat; Dwellings.