KNOWLEDGE PARTNERSHIP PROGRAMME

Project Report

MANAGING INDIA'S TRADE DEFICIT WITH LARGE TRADING PARTNERS: LESSONS AND PROSPECTS

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CONTENT

LIST OF TABLES

APPENDIX TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

India's trade deficit with China, South Korea and Indonesia has widened considerably in recent period and is becoming unsustainable. Together, these countries accounted for 24 percent of India's overall trade deficit in 2007 that has increased to 29 percent in 2012. To reduce the unsustainable deficit, it is necessary to increase India's exports in these countries and improve the capability of domestic industries to compete effectively with the rising imports. Accordingly, the present study undertakes a detailed analysis of the structure of exports and imports of India to these countries and identifies the possible ways of reducing the deficit in future. The study is organised six chapters including conclusion. The main findings of the study is discussed briefly here.

Since mid-2000, China has become the largest trading partner of India but skewed in favour of the former. At the aggregate level, India's export pattern has similarity with Chinese imports reflecting potential opportunities of exports. The export basket has several competitive products which largely belongs to low value added primary items like cotton, ores, copper, mineral oils and chemicals products to China. India has the potential to supply wide range of products but suffers from poor competitiveness, growth rates and low share. These products broadly fall in agricultural, mineral, chemical, pharmaceuticals, metals electrical and non-electrical machinery, automobile parts and medical instruments. The presence of high tariff and non-tariff barriers and preferential treatment given to the competing countries are the main reason behind low penetration into Chinese market.

The bilateral imports from China are largely concentrated in technology intensive products capital and intermediate goods like machinery, chemicals & fertilizers, and base metals, which is driven by high domestic demand in India. Although the domestic industries have improved production and enjoys wage cost advantage, the capital good segment has not been able to meet the rising domestic user industries demand. This is further aggravated by India's liberalisation initiatives like Information Technology Agreement, inverted duty structure, which has resulted in inflow of cheap Chinese imports resulting severe anti-dumping duties by Indian producers. Thus, the analysis suggests that there is a need to improve the quality and efficiency of machinery and allied sectors to meet the requirement of domestic user industries like automobiles, textiles, and other manufacturing.

India found to export diversified product to Korea but largely dominated by traditional labour intensive products such as mineral fuels, cereals, food wastes, oil seeds and cotton products. On the other hand, the high-income elastic products like Iron & Steel, zinc articles and machinery items are found to be either low growth or low share. One plausible reason can be the prevalence of large amount of TBT/SPS and the preferential trade agreements granted to some of the trade partners of Korea. As revealed by the trade complementarity index, India's exports are gradually overlapping with Korea's imports over the years. This implies favourable trade prospects for India in the future. In the import case, the study clearly shows the heavy dependence of India on capital goods like machinery and intermediate goods on Korea. The formation of CEPA, which grants substantial reduction in tariff and non-tariff barriers, will help to attract capital, human resources and market size. The report finds that large number of import items from Korea is attributed to the reduction in tariff under CEPA.

The bilateral trade between Indonesia reveal that India's export basket has the potential to supply diversified products like cereals, oil seeds to advanced technology intensive products like electrical & non-electrical machinery, transport equipment. However, lack of competitiveness, trade barriers and preferential trade agreement with rival countries retard India's ability to supply in Indonesia. The analysis of imports clearly reflects the relative comparative advantage of Indonesia in supplying natural resource products like palm oil and mineral fuels. These products are primarily used as consumer goods or raw materials in India. Since the composition of imports is not as severe as China and Korea, it is essential that the policy should focus on enhancing the export prospects of its manufacturing products especially the high technology oriented machinery and transport apparatus. The mutual trade between India and Indonesia is found to be far greater than other trade partners as the trade complementarity has been around 60 percent in recent period.

Thus, the study finds that India has large unutilized production and trade capability to tackle the increasing trade deficit, which can be addressed through appropriate policy instruments. A viable strategy would be to attract foreign investments in technology intensive manufacturing segments. This will not only supplement domestic capital requirements but also facilitate technology transfer and efficiency improvement in the long run.

Chapter I INTRODUCTION

1.1 Background

India's trade pattern with several large partners has caused bilateral trade deficits/imbalances to emerge. In Asian region, the top three countries where India has negative trade balance are China, South Korea and Indonesia. Over the last 5 years, India's trade deficit with each of these countries more than doubled. During 2007 and 2012, India's trade deficit with China increased from US$ -15 billion to US$ -39.4 billion, with Korea it increased from US$-3 billion to US$ -9.6 billion and with Indonesia it increased from US$ -3 billion to US$-8.1 billion. Together these countries accounted for 23.7 per cent of India's overall trade deficit in 2007, which has increased to 28.6 per cent in 2012. India's trade engagement with China, Korea and Indonesia has been rising and has not reached their full potential. By 2015, India's trade engagement with China is expected to touch US$ 100 billion, with Korea US$40 billion and with Indonesia US$20 billion and therefore, the possibilities of the trade deficit further rising exist. The challenge here is to see how these bilateral trade gaps can be reduced while maintaining the growing trade engagement with these countries.

1.2 Overview of Trade Flows

(i) India and China

India and China are fast growing emerging economies with an average GDP growth of 7.5 percent for India and 9.2 percent for China during 2009 and 2012. The trade orientation of both countries has been increasing over the years. In 2012, the trade to GDP ratio was over 50% for both the countries. However, the growth trajectory of china has been much higher when compared to India. During 1990's, India's GDP per capita was higher than that of China but by 2012, declined to one-fourth of china (Table 1.1). Further, the volume of global exports and imports has been much higher for China as compared to India. During 1990 and 2012, global exports of China increased by over 30 times registering a CAGR of 17.2 percent. As against this, India's global exports increased by over four times registering a CAGR of 13.5 percent. Moreover, China's volume of exports was higher relative to imports and this difference increased over the years resulting in overall trade surpluses. In contrast, India's growth in imports has been much higher relative to exports thereby leading to overall trade deficit.

Table 1.1
China-India: Comparison of Selected Trade Indicators

Year	GDP per capita (US $)		World Export (US $ Million)		World Import (US $ Million)		Balance of Trade	
	China	India	China	India	China	India	China	India
1990	314	375.89	62,091	17,969	53,345	23,580	8,746	-5,611
2000	949	457.28	249203	42358	217921	52940	31,282	-10,582
2005	1731	740.11	761953	100353	604790	140862	1,57,163	-40,509
2010	4433	1417.07	1577764	220408	1289134	350029	2,88,630	-1,29,621
2012	6091	1503	2048782	289565	1675269	488976	3,73,513	-1,99,411
Growth Rates (1990-2012)			17.23	13.47	16.96	14.78		

Growth rates correspond to CAGR. Figures in this table are calculated by the authors using data from WDI and UN COMTRADE (WITS)

The higher growth in exports for China is largely because of the developments in the manufacturing sector. Since 1978, China has implemented several policy reforms. In particular, three major reforms have contributed to China emerging as the largest industrial manufacturing country in the world. First, setting up of export processing zones wherein raw materials, parts and components and other intermediate goods were allowed to be imported duty free as long as they are used to produce export goods. This enabled the Chinese manufactures (both state owned and foreign affiliates) to compete successfully in the world market. Second, significant tariff reduction since 1980s. Third, since 1979, China implemented various policies to attract foreign direct investment to strengthen its manufacturing base. The foreign investors in special economic zone were given preferential tax incentives and better administrative treatment. These policies resulted in a surge in both financial and physical capital to the Chinese economy, which improved the technological capability to produce sophisticated products (Yi and Kiannan, 2009). Therefore, during 1980 and 2009, china's share in global manufacturing exports has increased from 0.8 percent to 13.5 percent surpassing USA and Japan (Deloitte, 2011).

Besides, the rapid expansion in trade volumes, China's export structure has transformed dramatically since 1992. There has been a significant decline in the world export share of consumer goods and raw materials and growing shares of capital goods. There has been a notable shift in the export basket from traditional labour intensive manufacturing products such as textiles and apparel, garments and shoes to non-traditional capital intensive manufactures such as consumer electronics, appliances, computers and telecommunication equipment. Given this rise in sophistication of Chinese exportables, the export structure has been exhibiting a growing similarity with the export basket of high-income countries like Japan, USA and EU.

(ii) India and South Korea

Table 1.2 highlights the selected trade indicators of India and Korea during 1990 and 2012. The per capita GDP of Korea is significantly higher than that of India. In 2012, the GDP per capita of Korea was US$ 22590 while that of India it was USS$1503. Such high GDP per capita is explained by Korea's heavy dependence on merchandise trade. The merchandise trade – GDP ratio of Korea increased from 62 per cent in 2000 to 95 per cent by 2012. For the same period, merchandise trade- GDP ratio for India increased from 20 to 42 per cent (WDI, 2014). The transformation of Korea into a high performing economy with a strong base in manufacturing sector is a result of export oriented policy specialising first in labour intensive manufacturing and then in capital and skill intensive manufactures (Kim, 2007). As such, world exports of Korea are much higher than that of India. In 2012, Korea exported US$548 billion as compared to US$ 290 billion by India. Further, the growth in exports during 1990 and 2012 was much higher for Korea as compared to India (see Table 1.2) Also, relative to imports, the growth in exports was higher thereby leading to an overall trade surplus. As against this, India's import growth has been higher than the export growth thereby leading to overall trade deficit.

Table 1.2
South Korea-India: Comparison of Select Trade Indicators

Year	GDP per capita (US $)		World Export (US $ Million)		World Import (US $ Million)		Balance of Trade	
	South Korea	India	South Korea	India	South Korea	India	South Korea	India
1990	6153.1	375.9	65016.0	17969.0	69844.0	23580.0	-4828	-5611
2000	11346.6	457.3	172267.0	42358.0	160481.0	52940.0	11786	-10582
2005	17550.8	740.1	284419.0	100353.0	261238.0	140862.0	23181	-40509
2010	20540.0	1417.1	466383.8	220408.0	425212.2	350029.0	41171.6	-129621
2012	22590.0	1503.0	547869.8	289565.0	519584.5	488976.0	28285.3	-199411
Growth Rates (1990-2012)			19.4	13.5	18.2	14.8		

Note: Growth rates are based on CAGR. Authors calculations based on World Development Indicators and UN COMTRADE (WITS)

The development experience of Korea clearly indicates an active participation of the State in policy formulation and establishment of key industries in the manufacturing sector (*chaebols*). Following the internal deregulation, steps were taken to liberalise international trade, especially the import of manufactured goods by substantially reducing tariff rates. The intense foreign competition for the domestic as well as the exported products and the availability of necessary imported intermediated and capital goods considerably improved the efficiency and international competitiveness of the Korean manufacturing industries. Moreover, Korea's strong macroeconomic fundamentals helped faster recovery during the East Asian financial crisis (1997-98) and the global financial crisis of 2007-08.

(iii) India and Indonesia

During 1990-2012, both Indonesia and India have witnessed considerable growth in GDP per capita. However, the growth is much higher for the former and this difference widened as the growth rate accelerated for the Indonesian economy since 1990s (Table 1.3). The development policy of Indonesia, with large focus on self- sufficiency in agriculture and allied activities shifted to industrialisation and urbanisation in 1960s and 1970s, resulting change in policy focus towards manufacture exports. From the mid-1980s, trade barriers were reduced and Indonesian economy became more globally integrated (Elias and Noone, 2011). Foreign and domestic investment was gradually deregulated during 1986-94, especially towards export oriented FDI. The rapid growth of the Indonesian manufacturing industry occurred in almost all of its modern industry, which comprised of big scale and medium scale manufacturing units (Thee, 1999).

Table 1.3
Indonesia- India: Comparison of Select Trade Indicators

Year	GDP per capita (US $)		World Export (US $ Million)		World Import (US $ Million)		Balance of Trade	
	Indonesia	India	Indonesia	India	Indonesia	India	Indonesia	India
1990	640.6	375.9	25675.0	17969.0	21837.0	23580.0	3838	-5611
2000	789.8	457.3	65403.0	42358.0	43595.0	52940.0	21808	-10582
2005	1273.5	740.1	86996.1	100353.0	75724.9	140862.0	11271.2	-40509
2010	2946.7	1417.1	158074.5	220408.0	135323.5	350029.0	22751	-129621
2012	3556.8	1503.0	188146.1	289565.0	190225.2	488976.0	-2079.1	-199411
Growth Rates (1990-2012)			18.1	13.5	19.8	14.8		

Note: Growth rates are based on CAGR**S.** Authors calculations based on World Development Indicators and UN COMTRADE (WITS)

With these developments, the total merchandise exports to the world expanded registering a growth of 18 percent during 1990 and 2012. Although world imports of Indonesia also grew at a higher rate, there was an overall trade surplus. As against this, India's growth in imports were much higher than exports leading to an overall trade deficit. It may be noted that the overall world exports and imports of India were higher than that of Indonesia.

1.3 Approach to the Study

From India's perspective, these three countries exemplify different dimensions of non-oil trade factors leading to trade deficit. While the trend clearly points towards a trade deficit for India, there are many bilateral issues that require closer scrutiny. As the bilateral trade gap with these countries is increasing, it is important to examine as to what extent these bilateral trade imbalances are contributing to India's overall trade gap with the rest of the world. In this regard,

the sustainability of current account needs to be analysed given the current pattern of exports and imports of goods and services.

With the prospect of bilateral trade engagement with China, Korea and Indonesia rising, a detail analysis of commodity composition and structural shifts will be important to identify the factors leading to trade deficit at the country level. In this regard, a detail analysis of export trends need to explore the possibilities of potential export opportunities and constraints for export growth in terms of tariff, non-tariff barrier and tariff concession to India's competitors in each market. Similarly, for analysing the rising import trends from each of these markets will have to assess the changes in the structural composition of imports, their price competitiveness and their implications on the domestic manufacturing capabilities.

(i) Analysis of Export Opportunities

To assess India's export opportunities to China, South Korea and Indonesia at 6-digit product level, the analysis was carried out from two dimensions. One, an analysis of India's major exports; and two, identification of export potential products. Given the structure of exports, diversification of India's export basket is possible if export share of major exports and potential exports is increased. The scope for increasing the share of above products exists if the domestic demand is expanding and there are no supply constraints. The following methodology has been adopted to carry out this analysis.

- Based on the export trends of all 6-digit HS products during 2008 and 2012, the products that constituted top 80% share in 2012 have been identified as Major exports. Growth rates for these products have been computed and based on this criterion; High and Low growth exports have been identified.
- For all the major exports, global RCA (Revealed Comparative advantage) values have been calculated for the period 2008 and 2012 to identify the export competitive products. A product has been identified as export competitive if the RCA values are greater than one for at least 3 years or more.
- Export competitive products with low growth have been identified as those having export opportunities for India. For these products, the existing tariff and non-tariff barriers (NTBs) have been collected to identify the constraints to export growth.
- To identify potential export opportunities for India, major world exports to China, Korea and Indonesia (or major imports) have been mapped with major world exports

of India and common products identified. As the focus is on products with expanding domestic demand, exports with negative growth have been excluded. The products so identified have been categorised into three groups. Category I products are those which are being imported by China, South Korea and Indonesia and India is exporting to the world but not to these counties. This would imply that India has supply capability but unable to export to these countries. Category II products are those that these countries are importing from the world and the share of imports from India is high. Category III products are those which these countries are importing from the world and India's share is low. Category I and III products are identified as export potential products.

- For Category I, II and III products, global RCA values have been calculated to assess their export competitiveness. Further, to assess the constraints for export growth, tariffs and non-tariffs barriers have been detailed.

(ii) Analysis of Imports

The broad structure of import product composition from China, South Korea and Indonesia is examined using aggregate 2-digit HS classification for the years 2000-2012. To assess the nature of concentration of imports or diversification of imports over time, major imports were selected. Based on 2012 data, the products that accounted for 80% of imports of India from country *i* were categorised as major imports. For these products, India's relative position in the world exports of these countries as also the relative position of each of these countries in India's world imports was examined.

The shifts in the structural composition of imports was analysed at the 6-digit HS product level. All the 6-digit products under the major imports were classified into product groups based on their end-use. The use-based classification prepared by the UN Statistical division was used which classifies the products into four broad groups ,namely, (i) Raw Materials, (ii) Intermediate goods, (iii) Capital goods and (iv) Consumer goods.

As China emerged as a major supplier to India, the above analysis was supplemented by an econometric estimation of the determinants of Indian imports from China to explain the factors behind the growing imports. The hypothesis is that the major imports from China depends on domestic demand pressure and relative prices. Domestic demand pressure is proxied by industrial production or gross domestic product and relative import price of Chinese imports, which is measured as the ratio of unit value of India's imports from China by the unit value of

India's import from the rest of the world. It is expected that the higher the domestic demand higher will be the level of imports and lower the relative prices higher will be the imports from China. Fixed effect panel estimation was used for selected products at HS 6 digit for the period 2000-2012.

With imports rising from China, there is a need to cater to the rising domestic demand through increased domestic production. To assess the domestic production capability of the Indian manufacturing, the following parameters were examined (i) labour productivity, (ii) wage rate and (iii) unit labour cost. The labour productivity or output per unit of labour is calculated using value added and number of workers. It shows the ability and the efficiency by which workers contribute to domestic output in the manufacturing sector. The wage rates and unit labour cost on the other hand, provide information on the cost competitiveness of the industry under consideration. Examining these three indices and comparing the performance with China, the study would explore India's potential to meet the growing user demand in future and identify the constraints for the same.

(iii) Other Trade Indices

In the study, Michaely's bilateral trade complementarity indices (TCI) and Grubel and Lloyd's intra-industry trade (IIT) indices are used to assess the bilateral trade flows between India and major partner countries. The TCI, when measured on the export side, shows us how much the export pattern of a country matches with the import pattern of the trade partner. A higher TCI reveals more favourable prospects for a successful trade arrangement. The IIT reveals the extent to which two nations engage in similar products trade as opposed to inter-industry trade. A high ratio of IIT reveals that a country can reduce the number of similar goods it produces, and benefit from scale economies.

These indicators will help us to identify the nature of bilateral trade between India and its trade partners. Understanding the trade scenario will assist the government to frame policies to curtail the current account deficit in the future. It is argued that persistent trade deficit is currently unsustainable. This is empirically verified in the following section.

1.4 The Sustainability of the Current Account Deficit

The sharp increase in current account deficit coupled with sharp devaluation of rupee since 2012 has raised the issue of long run sustainability of the Indian current account deficit. The

current account deficit is can be looked at in terms of inter-temporal trade- importing goods today (current account deficit) in return for exporting goods in future (current account surplus). Therefore, the current deficit needs to be borrowed from other countries; however, the ability to borrow is restricted by the present value of future trade surpluses. Persistently high current account deficits lead to accumulation of larger external debt, which in turn leads to higher interest payments. This leads to lower credibility of the country in the international financial markets, which limits its ability to borrow further. To test the sustainability of the current account deficit, we have adopted the theoretical model from Husted (1992). As per this model, investigating cointegrating relationship between current account receipts and payments provide the information about the sustainability of the current account deficit[1]. The theoretical background and empirical models are given in appendix A1.

As per the results the India's current account balance is not sustainable in the long run with the current pattern of flow of exports and imports of goods and services, there is a need to identify the causes for imbalance and remedial measures to correct the current account balance. Post financial crisis the Indian investors are cautious to invest in financial assets and started to allocate more to physical assets like gold. This also had an impact on the current account deficit of India due to increased imports of gold. Other indicators external debt and share of short-term debt in the total debt are in manageable limits. Therefore, India needs to take measures to increasing domestic savings, restore faith of investors in the financial assets, reducing fiscal deficit go a long way in improving the current account situation.

[1] For more detailed discussion on these issues, see Milesi-Ferretti, *et al* (1996) and Caranza (2002).

APPENDIX A1

This paper adopts the theoretical model from Husted (1992) to test for the sustainability of current account deficit. Investigating cointegrating relationship between exports and imports provide the information about the sustainability of the current account deficit. Nag and Mukherjee (2012) examined the issue of sustainability of India's trade balance and concluded that the trade balance is unsustainable. However, their study considers only trade account not the current account.

Theoretical framework

The Husted model starts with an individual residing in a small open economy who is able to borrow and lend freely in international markets at the prevailing world interest rates. The current-period budget constraint of this representative household is given as:

$$C_0 = Y_0 + B_0 - I_0 - (1 + r)B_{-1}$$

Where C_0 denotes current consumption; Y_0 represents output, B_0 is borrowing, I_0 is investment, r is world interest rate. The borrowing could be positive or negative $(1+r)B_{-1}$ is the initial debt of individual. When the individual situation is generalized to the country, then the above equation means the total consumption of the economy is equal to the total output minus investment and interest payment on the existing debt and the current borrowing. Since the budget constraint holds for every period, the amount that a country can borrow (lend) in the international market is equal to the present value of future current account surplus (deficit). Husted (1992) arrived at the long run relationship between exports, imports (merchandise and services) and interest payments. The equation is given below:

$$X_t = \alpha + \beta_1 M_t + \beta_2 r_t + \varepsilon_t$$

Where X_t = exports for the period, M_t = Imports for the period and r_t=interest payment for the period

The e_t in the above equation should follow I(0) process for an economy to satisfy the inter-temporal budget constraint. This means that the inflow (exports) and outflows (imports and net interest payments) should be cointegrated. Failure to detect cointegration between the variables indicate the economy is not able to meet its budget constraint, suggesting unsustainable current account balance.

Data Source

The data cover the period 1972-73 to 2012-13 and is collected from RBI Handbook of Statistics on Indian Economy. Exports (X_t), include export of goods and services. Imports (M_t) include import of goods and services, net transfer payments, and net compensation of employees for receipts and payments of the current account. Interest payments (INT) include net investment income. This reflects the payments made by India to servicing of debt and other long-term money invested by foreigners. The data considered is denominated in nominal US Dollars in the log form.

Econometric Methodology

Unit root test

To implement the cointegration test all the variables needs to be integrated of same order. The same can be verified by unit root tests. However, the recent literature on the units roots indicate the traditional unit root tests such as ADF, PP etc. are biased towards the non-rejection of the null hypothesis in the presence of structural breaks. Therefore, the study employs the test developed by Lee and Strazicich (2003, 2004) to test the unit roots in the presence of endogenous structural breaks. The LS unit-root test with two structural breaks endogenously determines the location of two breaks in level and trend and tests the null of a unit-root. The Lee and Strazicich unit-root test with two structural breaks is invariant to the magnitude of the breaks.

Unit-root tests for one and two breaks with shift and with shift and trend were conducted with RATS 7.2 with the following code (lsunit.src). The unit root test for log of level variables X, M, INT are presented in Table A1.1. To decide the presence of unit root (i.e. order of the integration) t-statistic in the test can be examined to test the null of a unit-root. If t-statistic is lower than the critical values then the variable is non-stationary in other words it has a unit root. Examination of the table revels that for all the three variables (log X, log M, and log INT) the t-statistic is lower than the critical values for all the four models (Level with 1 break, Level with 2 breaks, Level & Trend with 1 break, Level & Trend with 2 breaks). Therefore, all three variables are non-stationary in log levels. Then the next step is to check the order of the integration. This can be tested by unit root test at the first difference on the series. The results are presented in table A1.2.

To decide that a series is stationary at least one of the models tested should reject unit root hypothesis. The unit root hypothesis is reject by all the models for interest variable, for exports variable is rejected by 3 models and for import variable by 2 models. Therefore, we can conclude that all the three variables are stationary at first differences. A variable is considered integrated of order 1, (I(0)), when in level it is non-stationary and in first difference it is stationary. Therefore, Lee-Strazicich Unit Root Test indicate that all the series are non-stationary in levels and stationary in first differences in the presence of endogenous structural breaks. The four unit root tests (Level with 1 break, Level with 2 breaks, Level & Trend with 1 break, Level & Trend with 2 breaks)conducted on three variables (Exports, Imports, and interest payment) don't indicate uniform structural break dates. However, careful observation reveal that there are three periods (I) Mid 1980's, where exports and imports were increasing at a higher rate and also this period also the beginning of increasing current account deficit as a percent of GDP (see figure A1.1 and A1.2). (II) Early 1990's is the period marked with BOP crisis in 1991 and subsequent exchange rate devaluation with increase in exports. (III) Period of 2002-2004, this is marked by sharp increase in exports and imports backed by buoyant international economic scenario. Subsequent to year 2004, the CAD/GDP has been ever increasing (figure A1.1).

Cointegration test

As all the variables are integrated of the same order (I(1)), investigation of presence of cointegration of the variables can be performed. The study implemented the cointegration procedure advocated by Gregory and Hansen (1996). The traditional cointegration tests may give misleading picture in the presence of endogenous structural breaks in the data. Gregory and Hansen (1996) developed a test for null hypothesis of non cointegration against the alternative of the existence of cointegration using coefficients of vector cointegration which vary from a possible presence of endogenous structural breaks in the data. Gregory and Hansen (1996) consider three different models with structural breaks. These are break in intercept, break in intercept and trend, and regime shift (break in intercept and slope. The estimated results for the three models suggested by Gregory and Hansen (1996) are presented in table A1.3.

The T values are less than the critical value, therefore we accept the null hypothesis of no cointegration in all three models tested. This means that the current account balance of India is unsustainable in the long run. If the current account is not sustainable then it will lead to balance of payment crisis and this has severe implications for foreign investment and economic growth of the country. Milesi-Ferretti, Gian Maria, and Assaf Razin, (1996) have studied the country experience of Chile, Malaysia, Mexico, Korea apart from other countries conclude that large increase in real interest rates, worsening of terms of trade and depreciation of currency and halting of economic growth are associated with the bop crisis.

Table A1.1
Lee-Strazicich unit root tests with endogenous breaks (at level)

Variable	t-statistic Level with 1 break	t-statistic Level with 2 breaks	t-statistic Level & Trend with 1 break	t-statistic Level & Trend with 2 breaks	Result
Log X	-2.3165 (4) [2004]	-2.6689(4) [1990, 2004]	-2.9030(4) [1990]	-4.4658(3) [1983, 2002]	Unit root
Log M	-1.7439(1) [1990]	-2.1066(4) [1990, 2004]	-3.0589 [1990]	-5.0383(2) [1983, 2002]	Unit root
Log INT	-2.5864(4) [1985]	-2.7419(4) [1985, 2000]	-2.4852(4) [1989]	-4.0945(4) [1986, 1999]	Unit root

Note: The numbers given in parentheses are the optimal lags. The lag length k is selected by employing a general to specific approach in all a priori unknown break unit root tests and tested by AIC. The number given in the brackets are the year of break point, only financial year beginning is given.(i.e for 2004-05 only 2004 is given).

The critical values are:

	Level with 1 break	Level with 1 breaks	Level & Trend with 1 break	Level & Trend with 2 breaks
1 percent	-4.239	-5.05 to -5.11	-4.545	-6.16 to -6.42
5 percent	-3.566	-4.45 to -4.51	-3.842	-5.59 to -5.74

Table A1.2
Lee-Strazicich unit root tests with endogenous breaks (first difference)

Variable	t-statistic Level with 1 break	t-statistic Level with 2 breaks	t-statistic Level & Trend with 1 break	t-statistic Level & Trend with 2 breaks	Result
Log DX	-3.5291 (0) [1998]	-4.6611 (0) [1992, 2001]	-5.6087 (1) [2002]	-6.6816 (1) [2002, 2008]	Reject the Unit root hypotheses
Log DM	-2.5824 (0) [2009]	-3.1597 (0) [1988, 1995]	-4.6069 (0) [1980]	-6.1902 (0) [1980, 2002]	Reject the Unit root hypotheses
Log DINT	-6.4229 (0) [1981]	-6.9201 (0) [1981, 2002]	-5.7666 (2) [1982]	-7.3814 (2) [1982, 1990]	Reject the Unit root hypotheses

Table A1.3
The results of cointegration tests

Model	Break Point	T-Statistic	Critical Values at 5%	Conclusion
Break in Intercept. No Trend	1980-81	-3.72344	-4.92	No cointegration
Break in Intercept. Trend Included	1983-84	-3.87458	-5.29	No cointegration
Full Structural Break@	1996-97	-4.35145	-5.50	No cointegration

@Full Structural break means dummies for the intercept and slope no dummy for trend

Table A1.4
Macro Indicators

Indicators	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Real GDP Growth (%)	6.7	8.6	8.9	6.7	4.5	4.7
Gross Capital Formation (Investment)	38.1	34.3	36.5	36.5	35.5	34.8
Gross Domestic saving	36.8	32	33.7	33.7	31.3	30.1
GAP (Investment – Savings)	1.3	2.3	2.8	2.8	4.2	4.7
Openness (%)	40	34	36	42	43	41
External Debt to GDP Ratio (%)	20.3	18.2	18.2	20.5	22	23.3
Short Term Debt / Total Debt (%)	19.2	20.1	20.4	21.7	23.6	20.3

Figure A1.1
15444India's Trade Deficit, Net Invisibles and Current Account as a Proportion of GDP

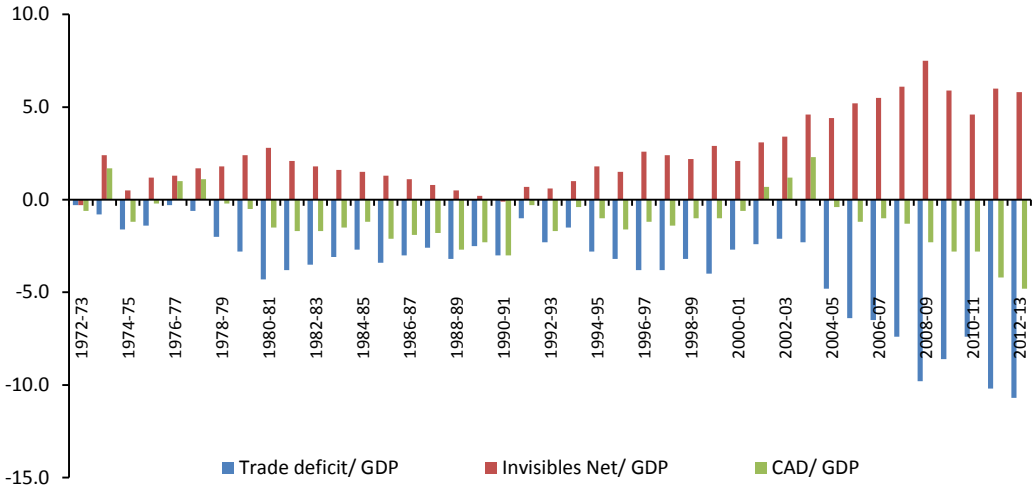


Figure A1.2
India's Exports and Imports (Million US$)

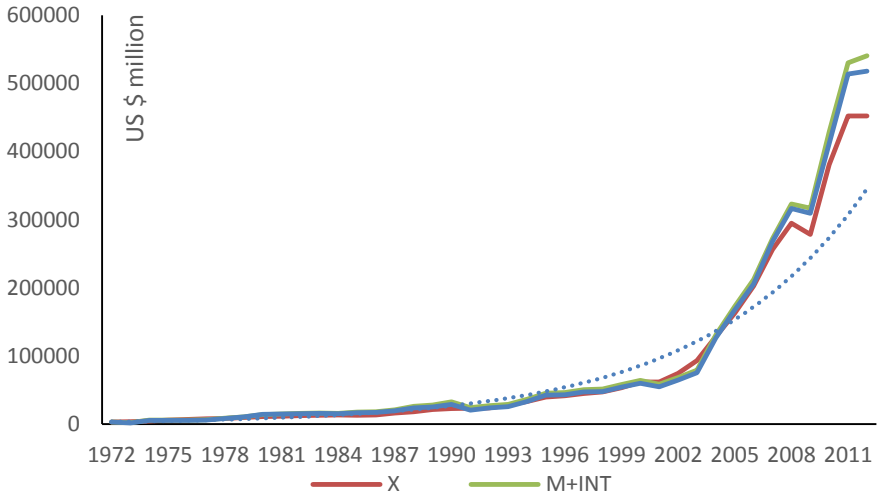
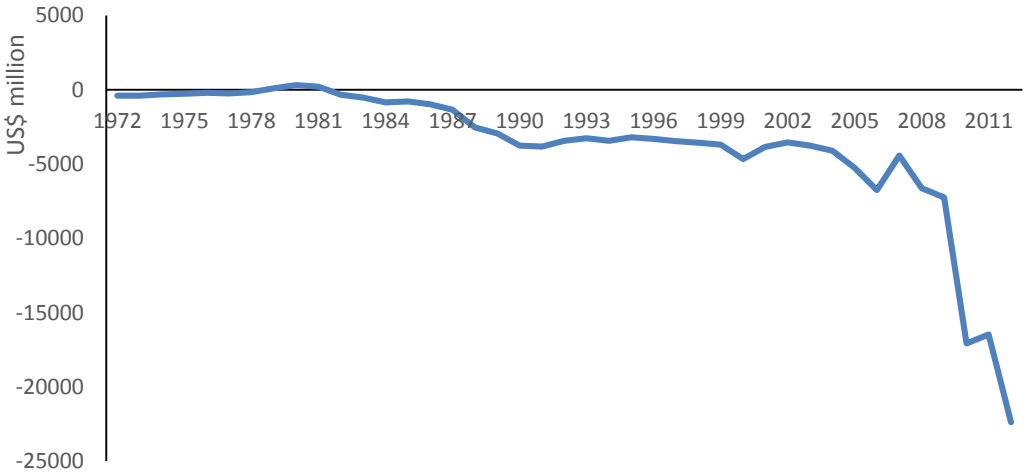


Figure A1.3
Interest (Investment Income (net)



Chapter II India-China Bilateral Trade Developments

2.1 Introduction

India's direction of trade has undergone significant shifts over the last 12 years. During 2000-01 and 2011-12, the share of EU and USA in India's total trade declined from 50.6 to 35.4 per cent and the share of Asia increased from 37.4 to 50 per cent. With Asia emerging as a strong growth centre and a major trading partner, China has emerged as a leading trade partner for India. The share of China in India's total trade has increased from 2.5 per cent in 2000-01 to 8.6 per cent in 2013-14.

The bilateral trade flows between India and China increased from US$ 2.2 billion in 2000 to US$ 68.9 billion in 2012 (see Table 2.1).With china's share in India's total imports increasing at a much faster rate than that of exports, India's trade deficit with China increased particularly from 2006 onwards. Between 2006 and 2012, India's trade deficit with China increased from US$-7.8 billion to US$ 39.4 billion.

Table 2.1
Bilateral trade flows between India and China (US $ Million)

Year	India's exports to China	India's import from China	Total Trade	Balance of Trade
2000	734.9 (1.7)	1477.6 (2.8)	2212.5	-742.7
2005	7183.8 (7.2)	10167.1 (7.2)	17350.9	-2983.3
2006	7829.2 (6.5)	15639.1 (8.8)	23468.2	-7809.9
2010	17440.0 (7.9)	41249.1 (11.8)	58689.1	-23809.1
2012	14729.3 (5.1)	54140.5 (11.1)	68869.8	-39411.1

Note: Figures in brackets represent percent share of India's exports (imports) to (from) China in India's total world exports (imports).
Source: Authors calculation using data from UN COMTRADE (WITS)

China has been on high growth trajectory for over three decades, maintaining a sustainable growth of over 9 percent. The main driver of China's economic growth has been the exports. Manufacturing exports have propelled China's export growth mainly due to technology embodied FDI and domestic innovation system that have resulted in growth of product development for exports (Mohanty, 2014). With the changing industrial structure, Chinese exports are increasingly becoming high tech exports. The implications of these developments on India's growing trade deficit with China will be examined in this chapter. Further, the possibility of enhancing India's trade prospects with China will also be explored.

2.2 India-China Trade Pattern

India's rising trade deficit with China is on account of China's better terms of trade as compared to India. As shown in Table 2.2, China's terms of trade increased significantly from 2006 while India's terms of trade deteriorated. This has also resulted in a stronger relative position for China in India's total trade. Between 2000 and 2012, China's share in India's total trade increased from 2.3 to 8.8 per cent. As against this, India's share in China's total trade, which was 0.5 per cent in 2000, increased to 1.9 per cent in 2012.

Table 2.2
Terms of Trade and Relative Position of India and China

Year	India's Terms of Trade	China's Terms of Trade	India's trade in Chinese Total Trade (% Share)	India's trade to China as proportion of India's trade with the World (%)
2000	0.50	1.15	0.47	2.3
2005	0.71	0.91	1.27	7.2
2006	0.50	1.42	1.39	7.8
2010	0.42	1.96	2.05	10.3
2012	0.27	2.54	1.85	8.8

Note: Growth rates correspond to CAGR.
Source: Authors calculation using data from UN COMTRADE (WITS)

The structural shift in China's manufacturing exports is the primary reason for the significant rise in China's terms of trade. China's export structure has transformed dramatically since 1992. There has been a significant decline in the world export share of Consumer goods and Raw materials with growing shares in Capital goods. China emerged as a global production centre largely accounted by *processing trade* with rising skill intensity and export sophistication. During this period, significant reallocation of manufacturing exports took place. Exports of apparel, textiles and footwear declined while exports of electrical and Non-electrical machinery, Telecom and office machines increased. (Amiti and Freund, 2007, Feenstra and Wei, 2009). Processing trade accounted for over 50 per cent of total exports of china in 2009 (WTO, 2010). In most leading electronic exports, China's unit value was lower than those of Korea, Malaysia and Singapore.

A closer look at the product composition of India's trade (both exports and imports) with China explains the differences in the observed terms of trade. As highlighted in Table 2.3, India's imports from china are largely accounted by the Electrical machinery (85), Non-electrical machinery (84) and chemicals (29). Together, these product groups account for about 52 percent of the total imports from China. As compared to this, primary products dominate India's exports to China. For instance, Ores and Slags (26), Cotton (52) and Iron & Steel (72)

account for about 62 per cent of total exports to China. Further, for these products, China is a major market for India accounting for a share ranging from 40 to 80 per cent of India's total world exports for these products. Even with regard to imports, India's dependence on China is very high. For Non-Electrical machinery (84), Electrical machinery (85) and Organic chemicals (29), China's share in India's total imports is relatively high ranging from 28.9 to 43.6 per cent. However, from China's perspective, India is an insignificant market for most products. India's share in China's total exports to world is below 1 percent for most products (see the last column in Table 2.3(B)). It is important to highlight that even with insignificant share; the value of China's exports to India is high and has increased significantly during the reference period.

Table 2.3
India's Major Traded Product Groups with China: by 2 Digit Classification

2Digit	Description	2000	2005	2012	Share of total exports to China (% in 2012)	Share of China in India's total World exports (% 2012)
(A)	**India's Exports to China (Million US$)**					
15	Animal fat & Oil	22.8	42.9	380.0	2.6	39.8
25	Salt	46.5	149.0	573.9	3.9	33.2
26	Ores	136.8	3956.6	2615.1	17.8	81.7
27	Mineral fuels	0.9	24.4	341.6	2.3	0.6
29	Organic chemicals	94.2	435.5	1022.9	6.9	8.2
39	Plastics	55.3	338.3	608.2	4.1	12.2
52	Cotton	60.4	246.9	3613.3	24.5	42.2
72	Iron and steel	12.9	731.5	328.2	2.2	4.3
74	Copper	15.8	104.6	2194.9	14.9	77.7
84	Non-Electrical Machinery	16.6	103.1	402.6	2.7	3.6
(B)	**India's Import from China (Million US$)**					
2Digit	**Description**	**2000**	**2005**	**2012**	**Share in total imports from China (% in 2012)**	**Share of China in India's total World imports (% 2012)**
27	Mineral fuels	260.3	831.5	827.7	1.5	0.4(3.4)
29	Organic chemicals	248.2	1200.9	4622.1	8.5	30.3(7.0)
31	Fertilisers	4.3	12.4	2689.2	5.0	34.1(2.5)
39	Plastics	13.5	174.2	1280.9	2.4	13.8(0.1)
71	cultured pearls & stones	8.5	181.3	1263.3	2.3	1.5(0.2)
72	Iron and steel	14.4	263.8	1694.3	3.1	12.3(0.2)
73	Articles of iron or steel	6.7	175.4	1420.3	2.6	33.4(0.3)
84	Non-Electrical Machinery	185.0	1833.7	10609.4	19.6	28.9(0.6)
85	Electrical Machinery	160.5	2479.7	12730.3	23.5	43.6(0.4)
87	Motor vehicles	2.9	63.2	1034.9	1.9	20.8(0.1)
90	Optical Photos	21.9	135.8	1096.2	2.0	15.9(0.3)

Note: (a) The reported products constitute around 80% of India's exports (imports) to (from) China in 2012. (b) Figures in parenthesis in the last column in B shows the proportion of the total exports of each of the products by China to India by the total exports of each of the products by China to the World (% share).This gives us the relative importance of Indian market for China.
Source: Authors calculation based on UN COMTRADE, accessed from WITS

The bilateral trade prospects can be assessed by looking at the trend in the Trade Complementarity Index (TCI)[2] between India and China (see Table 2.4). On the export side, the TCI1 reveals that, over the years (2000-12), the export supply pattern of India seems to match with China's import demand pattern. The TCI1 which was 38.8 in 2000 increased to 55.3 by 2012 indicating that India has been gradually exporting those items for which sufficient demand exists in Chinese market. However, as the trade overlap is only 55 per cent, there is high scope for India to increase. On the import side, the TCI2 indicates that India's import demand from the world does not match with China's export supply to the world. During the reference period, the index ranges from 37 to 43 per cent and in recent period, there is a noticeable decline. Although at the aggregate level, there is a mismatch between India's import pattern and China's export pattern, there could be surge in imports in certain sectors at disaggregate level.

Table 2.4
Trade Complementarity index between India & China (2000-2012)

TCI	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TCI1	38.8	42.2	42.5	44.7	49.1	51.1	51.9	51.1	54.2	53.2	54.2	53.8	55.3
TCI2	37.3	39.7	39.9	40.5	40.3	40.1	41.0	43.3	38.8	40.3	38.6	38.2	37.4

Note: TCI 1 based on India's exports to the world and China's imports from the world; TCI2 is based on India's imports from the world and China's exports to the world
Source: Authors calculation based on UN Comtrade database, WITS

From India's point of view, the analysis of trade pattern and trade prospects clearly point out to the need for a detail analysis of export prospects and import growth at a disaggregate level. Therefore, to understand the sustainability of India- China trade engagement, the following sections critically examine the structure of trade between India and China at a disaggregate product level and explore the possibilities of reducing trade imbalances.

[2] The TCI was proposed by Michaely (1996) to show the extent to which two countries are 'natural trading partners' in the sense that one country exports/imports overlaps with other country imports/exports (UNCTAD/WTO, 2012). It can be calculated at the export side (TCI1) and import side (TCI2). TCI1 between countries i and j approximates the adequacy of j's import demand to i's export supply by calculating the extent to which i's total exports match j's total imports. The index ranges between 0 and 100, with zero indicating no overlap and 100 indicating a perfect match in the import/export pattern (Mikic and Gilbert, 2009). The index is calculated using the following formula

$$\left[1-\left(\sum_{k}\left(\left|\frac{\sum_{w} m_{wk}^{i}}{\sum_{w} M_{w}^{i}}-\frac{\sum_{w} x_{wk}^{j}}{\sum_{w} X_{w}^{j}}\right|\right)\div 2\right]\times 100 \qquad -----(1)$$

where i is reporting country (India), j is the bilateral partner country of interest (for example, China), w is the set of all countries in the world, k is set of commodities at the 2-digit level, m is the product imports at 2-digit level, M is the total imports, x is the commodity exports at 2-digit level, X is the total export flow. In the calculation, trade data with the world for 2-digit product groups (HS 01 to 97) were selected for the period 2000-12. Thus, the TCI is the summation of the sectoral trade data at 2-digit level.

2.3 Analysis of Export Opportunities

To assess India's export opportunities to China at 6-digit product level, the analysis was carried out from two dimensions. One, an analysis of India's major exports to China[3] and two, identification of export potential product[4]. Given the structure of exports, diversification of India's export basket is possible if export share of major exports and potential exports is increased. The scope for increasing the share of the above products exists as they are export competitive and domestic demand is expanding for these products in China[5]. From the supply side, there does not seem to be constraints as India's exports to world have increased for all products except four[6].

2.3.1 Analysis of India's Major Exports to China

34 products are identified as major exports at 6-digit HS product level (see footnote 2). Of these, 14 products have been categorised as High growth[7] exports and the remaining 20 products as Low growth exports. Of the 34 products, 29 products have a low share in India's exports to China and the remaining 5 products are high share exports[8]. Based on these two parameters and RCA values, the possibilities of increasing the market share of these major exports are explored.

Table A2.1 summarizes the trade characteristics of India's major exports to China. Most of the Low share products are competitive and therefore there is scope for increasing the exports. The

[3] Under the identified two digit products, all the 6-digit products have been listed. Based on the export trends of all 6-digit products during 2008 and 2012, the products that constituted 80 percent share of all exports in 2012 have been identified as major exports. A total of 34 products have been identified.
[4] The trend in major world imports of China has been mapped against India's world exports and common products identified. The premise here is that if domestic demand in China is expanding and India has supply capability then opportunities for export expansion will also rise for India. There are 25 products where China's demand is expanding and India has supply capability.
[5] Based on the trend in China's imports from world for these products during 2008 and 2012, growth rates have been calculated. The average CAGR for all these products is 23.5 percent thereby reflecting expanding demand conditions.
[6] Based on the trend in India's exports to world for these products during 2008 and 2012, growth rates have been calculated. The average growth rate for all these products is 53.1 percent. Except for four products namely, Iron ores (260111), Chromium ores and concentrates (261000), single yarn (520511) and Ferro chromium (720241) which exhibited negative growth. The growth rates for all other products were positive.
[7] Average CAGR for all 34 products for the period 2008 to 2012 is 48 percent. If the CAGR of a product is higher than the average CAGR then these products have been categorised as High Growth exports. For the products whose CAGR is lower than the average CAGR, they have been categorised as Low growth exports.
[8] The average share of these 34 products is 2.35 percent. If the share of a product is higher than the average share, it is categorised as High share product. For the products whose share is below this average share, they have been categorized as Low share products.

domestic demand for these products in China is expanding. Based on the trend in China's imports from the world for these products during 2008 and 2012, the average CAGR for these products is 23.5% thereby reflecting expanding demand conditions. On the supply side, there does not seem to be constraints as India's exports to world have increased for most of the products except for four products. Based on the trend in India's exports to world of these products during 2008 and 2012, the average growth rate is 53.1%. Except for four products, namely, Iron ores (260111), Chromium ores and concentrates (261000), Single yarn (520511) and Ferro-chromium (720241) which exhibited a negative growth, the growth rates for other products are positive.

Further, most of the low growth products are competitive. As such, the low growth of these exports to China seem to be largely because of market access issues. Table A2.1 details the tariffs and Non-tariff barriers (NTBs) faced by the identified major exports. Though tariffs are low for most products, the NTBs are spread across wide range of products. Among the industrial products (HS25 to HS74), TBT (Technical barriers to trade) range from 8 to 14 measures applied on each product. For Agricultural products (HS03 to HS 15), SPS (Sanitary and Phytosanitary) measures applied on each product range from 41 to 45. In addition, tariffs are relatively high for these products.

Thus, the possibilities of expanding existing exports would depend on how these market access barriers are negotiated and addressed.

2.3.2 Analysis of Export Potential Products

To assess the potential export opportunities for India, an analysis of China's world imports and India's world exports has been carried out at disaggregated HS 6 digit product level for the years 2009 to 2012. The premise here is that if domestic demand in China is expanding and India has supply capability for these products then opportunities for export expansion will also rise for India. As such, the trend in major world imports (top 80 percent) has been mapped against the major world exports of India (top 80 percent) and common products identified. There are 25 products where demand is expanding and India has supply capability. These products fall into 15 HS 2-digit broad category that are listed in the following Table 2.5.

Of the 25 identified HS 6-digit products there are only 3 products that China is importing from the world, and India is exporting to the world but not to China (category-I) (see Table A2.2). Similarly, there are only three products that China imports from the world and India but the

import share of these products from India is at least 5 percent or more (category-II). However, there are 19 products that China imports from the world and India but the import share of these products from India is at least 5 percent or less (category-III). These products reflect India's potential export opportunities and are detailed in Table A2.2.

Table 2.5
Export potential products at the HS 2-digit product category

2 Digit	Description
10	Cereals
17	Sugars and sugar confectionery.
24	Tobacco and manufactured tobacco substitutes
25	Salt; sulphur; earth & stone; plastering mat; lime & cement
26	Ores, slag and ash.
27	Mineral fuels, oils & product of their distillation; etc.
29	Organic chemicals.
30	Pharmaceutical products.
40	Rubber and articles thereof.
52	Cotton
75	Nickel and Articles thereof
84	Non-Electrical machinery & mechanical appliance; parts
85	Electrical machinery equip parts thereof; sound recorder etc.
87	Vehicles other than railway tram rolling stock, parts and accessories
90	Optical, photographic, cinematographic, measuring, checking, precision, medical

Table 2.6
India's export potential HS 6-digit products to China (US$ Million)

Categories	6 Digit	Description	China's import from World in 2012	India's exports to the World in 2012
Category I	240120	Tobacco, stemmed/stripped	1178.3	598.9
Category II	260111	Non-agglomerated	90393.7	2407.9
	271000	Petroleum oils from minerals	33032.6	52763.9
	520100	Cotton not carded or combed.	11804.0	3647.1
Category III	100590	Other	1683.4	1117.3
	170111	Cane sugar	2023.9	1008.7
	260600	Aluminium ores and concentrates.	1886.4	59.3
	261400	Titanium ores and concentrates.	1003.2	322.9
	290241	o-Xylene	1052.8	313
	290243	p-Xylene	9562.9	965.8
	520512	Single yarn, of uncombed fibres	1870.0	294.5
	902214	Apparatus on the use of X-rays	965.4	107.9

Note: Products listed in this table are India's globally competitive products for the period 2009-2012.

India would be able to realise the potential export opportunities if these identified products are globally competitive. Based on RCA values, one product from category I and 8 products from Category III are identified as export competitive which is currently being exported to China but with low share. There are three products under Category II, which have been identified as globally competitive, and there is scope for further increasing these exports as China's world imports of each of these products ranges between US$11billion to US$ 90 billion. These

priority products are listed below in Table 2.6. If India succeeds in securing an average market share of 5 percent for Category I and Category III products then the export value will increase by $42.3 billion. If we consider only the competitive products, the 5 percent share for category I and category III is $1.06 billion.

The tariffs and non-tariff barriers imposed by China on India's identified export potential products is given in Table A2.2 in the Appendix. It is evident that both tariff and non-tariff barriers are relatively high across all the products for category-I and category-III when compared to the products in category-II. Further, within category-I and category-II, both tariff and non-tariff restrictions are relatively high for India's competitive products (based on global RCA). The market access barriers are primarily NTBs (SPS and TBT) as the tariffs are low except for agricultural products like Maize, Rice and Raw sugar where the tariff range is between 50 to 65 percent. For Category I, tariff range is between 10 to 25 percent but there are significant NTBs across product groups.

It appears that imposing high tariffs and NTBs by China is having an impact on the limited or no market access by India with regard to its export potential products, and this seems to be even more exacerbated for globally competitive products that have the potential to export to China. Thus, while potential export opportunities exist, there are market access barriers that emerge as major constraints for expanding Indi's exports to China.

2.3.3 Major Competitors and Tariff Preferences

To increase exports to China, India would have to effectively face competition from major suppliers of the identified products and especially see if they enjoy tariff preferences compared to India. For this propose, the top 5 suppliers have been identified by taking their share as a percentage to total imports of China for each product under Major exports and Export potential products. An analysis of tariff preferences- bilateral and multilateral- that each country has with China has been carried out.

Table A2.3 details the tariff preferences granted to India and its competitors by China for India's Major exports. For most products, India's competitors are ASEAN countries, Pakistan, South Korea, Russia and USA. China has FTA with Pakistan, ASEAN and New Zealand under which tariff concessions are given to these countries. India and South Korea also receive preferential tariffs under APTA though the tariff margins are much lower compared to China's FTA partners.

In Table A2.4 in the appendix, there are very few products in which India faces preferential applied tariffs granted by China to India's top five competitors for export potential products. Interestingly, India faces competition from mainly other Asian countries namely South Korea, Singapore, Thailand, Vietnam and Indonesia under various agreements such as country-specific FTAs, Asia-Pacific Trade Agreements (APTA), and FTAs under ASEAN. Moreover, these products fall in category-III where China imports from the world and India but the import share from India is 5 percent or less.

2.4 Analysis of India's Imports from China

The imports from China has increased from US$1.5 billion in 2000 to a peak of US$5.4 billion in 2012. As such, the share of India's imports from China compared to total world imports increased from a mere 2.8 percent in 2000 to 11.1 percent in 2012. The implications of this rising imports need to be seen from the domestic industry perspective. Although imports can be used in a number of economic activities, some imports emerge as rivals to the domestic industry whereas some of them are used as means for producing other goods. To capture these different dimensions of imports, the approach to the analysis of imports is taken up from three perspectives. *First*, the composition and trend in imports is analysed based on end-use classification and trend in major imports. *Second*, the determinants of import growth is analysed by carrying out econometric analysis of the import determinant model. And, *third*, to assess the capability of the domestic industry in meeting the growing demand for imports, a comparative analysis of the industry performance of India and China is carried out in terms of three indices: (a) labour productivity, (b) wage rate and (c) unit labour cost. By examining these three components a comparative assessment of labour efficiency and cost competitiveness (wages, labour cost), the potential of Indian domestic industry in meeting the growing user demand can be assessed.

2.4.1 Analysis of the composition of imports from China

The end use classification of imports is categorised into four groups, namely, Raw materials, Intermediate goods, Consumer Goods and Capital goods by using UNCTAD SoP classification prepared on HS96. Data were collected on India's total imports from China of all the HS 6-digit products and that of the world for 2000, 2005, 2010 and 2012. The proportionate share of use-based products that India imports from China is detailed in Table 2.7. Structural shifts in the import basket from China is evident from the Table. In 2000, raw materials accounted for

20.5 percent of the total imports that has declined to 2.6 percent by 2012. During the same period, the share of Intermediate goods has declined marginally but their relative importance in world imports has increased. However, the most remarkable compositional shift is evident in the Capital goods category, which comprises machinery, tools and equipments used for producing other goods. The share of capital goods imports has increased from 22 per cent in 2000 to 48 percent in 2012. In the case of consumer goods, the share has increased marginally but their relative importance in world imports increased significantly from 3 percent to 14 percent.

Table 2.7
India's import from China: By use-based classification (% share)

Use based Classification	2000	2005	2010	2012
Raw materials	20.47 (1.22)	6.56 (1.26)	1.74 (0.54)	2.60 (0.63)
Intermediate goods	47.23 (4.98)	40.00 (9.26)	35.69 (10.88)	35.93 (12.11)
Consumer goods	10.04 (2.58)	11.37 (7.65)	12.33 (15.87)	13.85 (14.14)
Capital goods	22.27 (4.01)	42.08 (15.00)	50.24 (30.32)	47.61 (30.53)

Note: The figures adjacent to the parenthesis are the share of use based classification on the total import of India from China. The figures in parenthesis are the share of India's use based product from China relative to India's import of the same product from the world.
Source: Author calculation using HS standard product groups from UN COMTRADE (WITS) database.

Table 2.8
India's major HS 2-digit imports from China: US$ Million (%)

2 Digit	Description	2000	2005	2010	2012
85	Electrical Machinery	160.48 (10.86)	2479.66 (24.56)	10985.58 (26.63)	12730.30 (23.51)
84	Non-Electrical Machinery	184.97 (12.52)	1833.70 (18.16)	7501.93 (18.19)	10609.40 (19.60)
29	Organic chemicals	248.24 (16.80)	1200.93 (11.89)	3741.42 (9.07)	4622.13 (8.54)
99	Unspecified	14.94 (1.01)	0.00 (0.00)	3185.94 (7.72)	4463.26 (8.24)
31	Fertilisers	4.25 (0.29)	12.39 (0.12)	1367.04 (3.31)	2689.23 (4.97)
72	Iron & Steel	14.37 (0.97)	263.79 (2.61)	2142.63 (5.19)	1694.32 (3.13)
73	Articles of Iron & Steel	6.73 (0.46)	175.36 (1.74)	1054.75 (2.56)	1420.28 (2.62)
39	Plastics	13.47 (0.91)	174.24 (1.73)	789.51 (1.91)	1280.91 (2.37)
71	Natural stones	8.48 (0.57)	181.26 (1.80)	523.87 (1.27)	1263.26 (2.33)
90	Optical, photo, cine	21.93 (1.48)	135.85 (1.35)	641.74 (1.56)	1096.21 (2.02)
87	Vehicles, parts	2.92 (0.20)	63.17 (0.63)	685.28 (1.66)	1034.88 (1.91)
27	Mineral fuels	260.26 (17.61)	831.50 (8.24)	637.56 (1.55)	827.70 (1.53)

Note: Figures in parenthesis are the respective share of each product in total imports of India from China for a given year (%). The total share of all the 2-digit products in 2012 is 80 percent.
Source: Authors using data from UN COMTRADE (WITS) database.

When compared with the major imports from China at broad 2-digit HS classification, similar compositional shift is evident (see table 2.8). The share of Electrical Machinery (85) and Non-Electrical Machinery (84) in total imports from China, which was 23 percent in 2000, has increased to 53 percent in 2012. Even in absolute values of imports, the growth has been phenomenal. Organic chemicals which are mainly intermediate goods, increased significantly in absolute values. Relative to these products the increase in imports of other major imports has not been very significant except for Iron and steel products and fertilizers.

Table 2.9
India's Non-Electrical machinery (HS 84) imports from China (% share)

6Digit	Description	2000	2005	2010	2012
847130	Portable digital automatic data processing machines	0.73	9.21	12.65	15.82
		(3.0)	(56.6)	(87.7)	(83.0)
847330	Parts and accessories of 8471	31.81	18.65	6.77	7.21
		(8.9)	(26.6)	(39.4)	(47.8)
847160	Input or output units	5.28	10.95	5.26	4.95
		(9.4)	(45.0)	(77.9)	(67.0)
847170	Storage units	11.89	6.85	3.71	3.38
		(9.7)	(25.7)	(37.0)	(34.9)
844359	Other printing machinery	0.02	0.07	3.47	2.98
		(0.5)	(5.5)	(49.5)	(47.5)
847150	Digital processing units	0.54	2.38	1.73	2.32
		(2.3)	(16.1)	(28.5)	(35.7)
841510	Air-conditioning machines	0.50	1.31	2.78	1.95
		(9.5)	(42.9)	(56.3)	(38.2)
847989	Other machines and mechanical appliances	1.25	2.13	1.05	1.71
		(3.7)	(10.3)	(10.7)	(18.7)
848210	Ball bearings	3.77	0.82	1.38	1.23
		(12.7)	(13.6)	(34.4)	(40.5)
841480	Other	0.73	0.90	1.62	1.23
		(6.6)	(16.6)	(37.2)	(27.8)
848180	Other appliances	0.50	0.44	1.28	1.23
		(1.1)	(3.4)	(18.4)	(15.9)
843149	Other machinery of heading 8426, 8429-30	0.09	0.55	0.78	1.20
		(0.4)	(5.4)	(14.2)	(21.4)
844390	Parts of printing machinery	0.07	0.02	1.11	1.19
		(1.1)	(1.2)	(22.1)	(30.7)
841590	Parts of air conditioning machinery	0.99	1.97	1.72	1.13
		(6.7)	(35.3)	(45.4)	(39.9)
841490	Parts of vacuum pump machinery	0.37	0.65	1.24	1.11
		(1.4)	(9.4)	(18.2)	(21.5)
847990	Parts machines & mechanical appliances	0.15	0.51	0.70	1.03
		(0.8)	(6.4)	(15.5)	(25.5)

Note: The figures adjacent to parenthesis are the percent share of each 6-digit in total imports of Non-Electrical machinery from China by India. The figures in parenthesis are the percent share of India's import from China vis-à-vis the import from the world.
Source: Authors calculation from UN Comtrade (WITS) database

Given that the imports of machinery products have increased, it is important to identify the sub-groups of products where imports have surged. For this purpose, all the 6-digit level

products for each of the machinery sectors were considered for further analysis.[9] Based on 2012 data, some of the major non-electrical machinery items imported from China are portable digital automatic data processing units (HS847130), its parts and accessories, (HS847330), input-output units (HS8471630), storage Units (HS847170), other printing machinery (HS844359) and digital processing units (HS847150) (see Table 2.9) . Except for the first four items, the share of all remaining 12 products has witnessed a continuous increase since 2000. The heavy dependence on China is evident from the figures in parenthesis in Table 2.9, which shows an increasing share of India's import from China with respect to its imports from the world across all products during 2000-2012. For instance, in 2012, out of the total world imports, 83 percent of portable digital automatic data processing machines and 67 percent of input-output units comes from China. A similar trend is observed across all the remaining products where India's relative dependence on China for the supply of the products has increased more than two fold, especially since mid-2005.

On the other hand, within the electrical machinery (HS85) imports of transmission apparatus incorporating reception apparatus (HS852520), parts of electrical apparatus for line telephony (HS851790), and other apparatus (HS851780) have registered a significance increase and constituted as the major imported electrical machinery items from China (see table 2.10). Except for transmission apparatus and loudspeaker, rest of the items have witnessed a marked increase since 2000. Looking at the relative dependency with respect to the rest of the World, it is evident that China has emerged as a major supplier to India for 7 out of the 16 identified products where more than half of its total world imports come from China (see figures in parenthesis in Table 2.10). For instance, of the total imports of Transmission Apparatus Incorporating Reception Apparatus in 2012, China accounts for 69 percent. Similarly, out of the total world imports of India, 64 percent of Parts of Electrical Apparatus for Line Telephony (HS851790), Printed Circuits (HS853400) comes from China. A similar trend is observed across all the remaining products where India's relative dependence on China has increased more than two fold especially since mid-2000. Several industrial segments have raised concern over the adverse impact of Chinese imports (see Box 2 for few examples).

[99] At the 6-digit level, there are 507 products under Non-electrical machinery (HS84) and 292 products under Electrical machinery (HS85). For selection, the study considered only those products that have continuous data and have at least 1 percent share in the total imports of HS 84 and HS 85. Thus, for both categories 16 major products have been identified that represent 50 percent of total imports of HS 84 and 72 percent for HS85.

Table 2.10
India's Electrical machinery (HS 85) imports from China (% share)

6Digit	Description	2000	2005	2010	2012
852520	Transmission apparatus	1.21 (1.1)	46.19 (35.1)	37.63 (76.3)	25.03 (68.8)
851790	Parts of electrical apparatus for line telephony	1.72 (3.5)	1.94 (14.8)	11.07 (43.3)	14.26 (64.2)
851780	Other apparatus	0.59 (9.6)	0.20 (6.1)	8.02 (41.9)	6.10 (38.5)
852990	Other Transmission Apparatus	8.80 (11.8	4.20 (26.0)	2.99 (41.6)	3.42 (44.4)
852812	Reception apparatus for television	0.13 (5.0)	0.70 (11.3)	1.52 (25.9)	3.24 (39.7)
854140	Photosensitive semiconductor devices	0.41 (5.5)	0.16 (7.3)	0.76 (27.9)	2.68 (39.2)
852540	Still image video cameras & camera recorders	0.00 (0.1)	0.56 (21.9)	1.91 (57.2)	2.48 (53.9)
854230	Other monolithic integrated circuits	0.76 (5.6)	1.21 (11.0)	1.26 (13.5)	2.43 (16.0)
852390	Other prepared blank media for sound recording	0.17 (1.8)	0.55 (29.9)	3.20 (27.2)	2.38 (28.4)
850440	Static converters	0.43 (2.0)	2.85 (34.6)	1.93 (41.0)	2.21 (39.3)
853400	Printed circuits	1.48 (10.5)	0.41 (21.6)	0.55 (47.0)	1.79 (62.8)
850300	Parts for 8501 or 8502	0.30 (0.9)	0.83 (5.6)	1.29 (28.2)	1.54 (35.5)
850780	Other accumulators	0.10 (5.7)	0.11 (34.6)	0.70 (81.6)	1.35 (69.9)
854212	Cards incorporating an electronic integrated circuit	0.30 (5.3)	0.57 (17.6)	0.85 (47.3)	1.12 (52.1)
851830	Headphones, earphones and	0.42 (27.9)	0.26 (43.0)	0.43 (72.9)	1.02 (57.7)
851829	Loudspeakers	4.05 (17.8)	1.10 (61.6)	0.88 (70.8)	1.02 (62.8)

Note: The figures adjacent to parenthesis are the percent share of each 6-digit in total imports of Electrical machinery from China by India. The figures in parenthesis are the percent share of India's import from China vis-à-vis the import from the world.
Source: Authors calculation from UN Comtrade (WITS) database

BOX 2: Chinese Imports And The Impact On Indian Manufacturing Sector

(A) Electrical Equipment Industry

The Electrical Equipment Industry consist of generation equipment such as boilers, turbines, generators and the transmission & distribution and allied machinery equipment like transformers, cables, rotating machines, switchgears, instrument transformers, industrial electronics etc. Since the power generating and distribution is an essential need of a healthy economy, the electrical equipment industry is not only crucial but also strategic importance to the developing country like India. Currently the industry has a worth of 1.3 crore production with the generation equipment sector comprises 19 percent and the transmission covers the rest 81 percent of the entire industrial production. The sector provides direct and indirect employment up to 15 lakh employees and over 50 lakh of the entire value chain.

The Electrical Equipment industry is experiencing significant erosion of domestic market share due to the rapid rise in Chinese imports. Currently, the Chinese imports comprises around 37 percent of the total imports from the world. This created underutilization of domestic capacity, resulting employment loss of qualified engineers, technicians and workers. As the quality and reliability of Chinese imports vary considerably, these equipments are fraught with long-term risk as no domestic manufacturing facility is available to provide emergency repairs, spares, replacement etc. Chinese government provide several incentives like the enormous export subsidy (17 percent of export value), social security subsidies, lower income tax rates (15 percent) which gives the Chinese companies unfair pricing advantage (over 24 percent). Generally, the import duties for 273 finished electrical equipments at 8-digit HS is very low. Apart from these factors, the domestic manufacturing suffers from sales tax, value added tax, entry tax, higher financing cost, lack of quality infrastructure and heavy dependence on foreign sources for critical raw materials and components.

Source: Report by Indian Electrical & Electronics Manufacturers Association (IEEMA)

(B) Consumer Electronics & Home Appliances

Consumer Electronics and Home Appliances (CE & HA) sector, notwithstanding the global recession, has expanded at an impressive CAGR of 13 percent over 2003-13. At this growth rate, it is expected that the industry would face a demand-supply gap of USD 100 billion in 2020 against an estimated domestic demand of USD 400 billion by 2020. This cumulative aggregate demand has to be met through imports and as the industry apprehends, if the present situation is not addressed through active policy intervention, it is likely that by 2020, the electronics import may far surpass oil imports. The potential threat to the industry comes from cheaper imports from China and concessional duty imports from ASEAN countries.

Indian Electronics hardware industry was the foremost sector, which underwent early and steady liberalization since India's accession to WTO way back in 1995. The process was further exacerbated when India became a party to the Information Technology Agreement-1 (ITA-1) of the WTO in 1997, thereby binding a large number of electronic equipments and products with zero tariffs. ITA-1 has resulted in a surge of imports of consumer electronics and home appliances, which in turn, have proved to be more economical than home-production of the same products. Smaller regional manufacturers have increasingly got involved in the import route, mostly trading imported finished products and thereby are anticipated to provide stiff competition to their bigger home businesses in the future.

Another area of serious concern is the India's growing regional trade integration. According to figures given by Asian Development Bank, at present India ranks top first among the ASEAN state-members signing 30 FTAs, succeeded by Singapore with 26, China and Korea with 22 each, and Japan with 19. Out of 30 FTAs, 8 are among the integrating Asian region while 22 are outside Asia. It is imperative to take a serious look at the FTAs with ASEAN as this has called up a host of issues adverse to the industry to the extent that concessional duty imports through such FTAs result in unsustainable outflows of forex and loss of employment and livelihood in the employment-intensive sector of CE & HA. In particular, the sector, owing to implementation of FTAs, is also facing inverted duty structure, where the final item are subjected to zero/concessional duty rates while the raw materials are imported against 7.5/10 percent duty. Consumer Electronics and Appliances Manufacturers Association (CEAMA), which is an all India body of organizations CE & HA sector deems such import laws as inimical to indigenous manufacturing and recommend that import duty on inputs, which are not produced in the country, be reduced to zero percent. The Body also suggested, as a part of immediate policy intervention, Product Specific rules should be made applicable for consumer appliances sector products wherein critical inputs like Open Cell for LED TVs should be made in the country of Origin.

Source: *Opportunities and Challenges in Consumer Electronics & Home Appliances,* A Report prepared by CEAMA and Arthur D Little.

By segregating the identified major imports into use based classification, the dominance of the capital goods segment is clearly visible (see Table 2.11). In the non-electrical machinery products, all the 16 identified products are capital goods whereas in the case of electrical machinery, 14 products are capital goods while the remaining two products are consumer goods. In the case of organic chemicals, all the major imports are used as intermediate inputs in the production process.

Table 2.11
Distribution of Machinery (HS84 +HS85) and Organic Chemicals by Use-based classification

Sectors	No of 6 digits	Use based category
Non-Electrical Machinery (HS 84)	847130, 847330, 847160, 847170, 844359, 847150, 841510, 847989, 848210, 841480, 848180, 843149, 844390, 841590, 841490, 847990	Capital Goods
Electrical Machinery (HS 85)	852520, 851790, 851780, 852990, 854140, 852540, 854230, 850440, 853400, 850300, 850780, 854212, 851830, 851829	Capital Goods
	852812, 852390	Consumer goods
Organic Chemicals (HS 29)	294200, 294190, 294110, 292229, 294150, 293339, 293359, 293490, 293299, 292910, 293390, 293090, 292690, 291521, 293319, 292620, 292221, 293799, 292142, 292429, 291470, 293100, 292090	Intermediate goods

Source: Authors calculation based on HS standard product groups from UN COMTRADE (WITS) database.

One of the primary reason for the increase in technology intensive products (capital goods) is the implementation of Information Technology Agreement (ITA-1) of WTO. As per the agreement, signatory members, including India, eliminated tariff for 165 ITA products. India has bought down the duties on these products to zero by 2005. As per the estimates by Kallumal (2012), the ITA products imported from China account for $11.93 billion, which is approximately 29 percent of Indian imports from China in 2010. Overall, China has replaced the USA, Japan, Singapore and Germany and established as main source of total ITA-1 imports into India, accounting for around 46 percent.

2.4.2 Import Determinant Model: Estimation Results

The basic purpose of the model estimation is to identify the factors behind the growing imports during 2000-2012. As the major part of the import from China is accounted by machinery and organic chemicals (52 percent), the determinant model focuses on these three industrial sectors. The standard trade theory suggests that imports are functions of the domestic income level and the relative price difference across trade partners. The dependent variable is the level of imports of product *i*, where *i* denotes the machinery sector ([HS84 + HS85], non-electrical machinery sector [HS84], electrical machinery sector [HS85]) and organic chemical sector [HS29]. The explanatory variables are relative price ratio proxied by the unit value of Chinese imports and the rest of the world (*RP*) and domestic demand pressure proxied by the level of industrial production based on real net value added (*D*). The econometric results of the panel estimation of import determinant model are discussed and the model is explained in Appendix B.

Besides this basic model, several variants of model 1 have been estimated to check the robustness of the result across different specifications. In model 2, the real GDP of India is included as a proxy for domestic demand. In model 3, the relative unit prices are segregated into the unit value of China and unit value of the rest of the world (excluding China). In order to capture the domestic demand, the real net value added is used in the respective industries. Finally, for model 4, real GDP of India is used as well as the components of relative unit values of India and China. The analysis is based on the trade determinant model developed by Goldstein and Khan (1985) using fixed effect panel technique. The econometric results are given in Table 2.12.

Table 2.12
Panel Regression of Import determinant model: 2000-2012

Explanatory Variables	Depended variable: log of Imports of product *i* from China ($lnIM$)															
	Machinery sector (HS84 + HS85)				Non-Electrical Machinery (HS84)				Electrical Machinery (HS85)				Organic Chemicals (HS29)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
$lnD\ (NVA)$	3.32**		3.28**		3.72**		3.60**		3.08**		3.10**		3.60**		3.46**	
	(0.081)		(0.08)		(0.12)		(0.12)		(0.09)		(0.10)		(0.11)		(0.14)	
$lnD\ (GDP)$		6.74**		6.66**		6.36**		6.16**		7.08**		7.14**		4.63**		4.47**
		(0.15)		(0.158)		(0.21		(0.20)		(0.21)		(0.22)		(0.14)		(0.17)
$lnRP$	0.15	0.14			-0.26	-0.27*			0.40**	0.37**			-0.18	-0.15		
	(0.088)	(0.08)			(0.14)	(0.13			(0.10)	(0.10)			(0.09)	(0.09)		
$lnUV^{China}$			0.11	0.10			-0.39**	-0.40**			0.41**	0.39**			-0.10	-0.09
			(0.09)	(0.086)			(0.13)	(0.13)			(0.11)	(0.10)			(0.10)	(0.10)
$lnUV^{ROW}$			-0.26**	-0.25**			-0.09	-0.08			-0.36**	-0.31**			0.30**	0.26**
			(0.10)	(0.09)			(0.15)	(0.15)			(0.12)	(0.12)			(0.12)	(0.11)
Constant	-25.31**	-63.55**	-24.41**	-62.24**	-30.41**	-59.87**	-27.09**	-55.58**	-21.98**	-66.85**	-22.25**	-67.68**	-32.72**	-42.12**	-31.59**	-40.8**
	(0.793)	(1.62)	(0.91)	(1.73)	(1.29)	(2.23	(1.44)	(2.31)	(0.94)	(2.25)	(1.06)	(2.40)	(1.24)	(1.46)	(1.43)	(1.72)
R^2	0.85	0.87	0.86	0.87	0.86	0.87	0.87	0.88	0.87	0.88	0.87	0.88	0.86	0.87	0.86	0.87
F-Statistic	70.17	78.58	68.76	77.031	71.39	75.96	75.05	80.7	76.80	84.49	72.28	79.79	75.21	82.40	73.00	79.89
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Observations	412				208				204				298			

(a) For each sector, we estimate the four models using fixed effect panel estimation technique (b) The standard errors are given in parentheses under coefficients (c)** denotes significant at 0.05 level, * at 0.01 level. (d) *D(NVA)* domestic demand pressure proxied by net value added at constant prices, *D (GDP)* is domestic demand pressure proxied by the level of real GDP, *RP* is relative unit value of China and the rest of the world, UV^{China} denotes the unit value of China and UV^{ROW} is the unit value of the rest of the world excluding China.

As four different variants of the original model specification in the econometric estimation of each of the four industrial sectors, Table 2.12 reports the econometric results for all the 16 estimate models across industries. The number of observations is largest in the machinery sector (412) as it combines both non-electrical and electrical segments. In all these models, the coefficient of determination is very high. The range of R^2 is between 0.85 and 0.88 across model estimates. The F statistics, which tells us whether all the independent variable combined in the model has significant joint relationship, is found to be statistically significant across datasets.

The most noticeable feature of the econometric result is that the level of India's import from China depends highly on the domestic demand conditions. The domestic demand pressure is found to be significant across all the industries. The result is robust when the model is estimated using alternative measure demand variable. For instance, in the machinery sector, a 1 percent increase in domestic industrial production (a proxy for domestic demand pressure) increases India's import of Chinese machinery by 3.3 percent (see model 1 in the machinery sector in table 2.12). Instead of domestic production, if the overall income of the country (i.e. real GDP) is considered, the elasticity of imports increases by 6.7 percent (see model 2 in the case of machinery sector in Table 2.12). This relationship holds true across different specification and industrial groups. Thus, in terms of real domestic value added, the estimate coefficient range from 3.08 to 3.72 while for the real GDP, coefficient range between 6.16-7.14 for the entire machinery sector and its sub-categories, namely electrical &non-electrical machinery.

In contrast, the relative import prices (the ratio of the unit value of Chinese imports by the unit value of the rest of the world) is less than unity across data sets. The expected negative and significant coefficient of relative prices is found only in the case of non-electrical machinery (-0.27, in model 2). For electrical machinery segment, the relative price difference have significant positive influence on the import (0.40 in model 1 and 0.37 in model 2). Overall, the machinery sector reports positive but not significant price elasticity on the level of Chinese imports. In the case of organic chemicals, the coefficient of relative prices are negative but not significant across panel. After segregating the two relative price components, the unit value of Chinese imports have negative and significant coefficient estimates for non-electrical machinery. This implies that lower the prices, higher will be the import of machinery products from China. However, similar statistical relationship is not found in the electrical machinery as the coefficient of UV^{China} is positive and significant in model 3 and 4. For the entire

machinery, it is found that the lower the world price, higher the India's imports. In the chemical industry, the Chinese unit value is negative but not significant across model specification (see model 3 and 4), whereas world prices have significant positive impact on India's imports.

In the following sub-section, the performance of domestic industrial sector is examined. Since the major imported items comprises of machinery and chemical industries, the discussion focus on the performance of these three domestic sectors. The performance indicators include labour productivity, wage rates and unit labour cost. The productivity analysis will help us examine the relative efficiency of labour use and the latter two components will inform us the cost competitiveness of the industry over time. The rationale for the analysis is to examine the domestic capability of these industries and compare the performance with China.

2.4.3 Analysis of Labour Productivity of the Selected Industry Groups: India & China

The analysis of labour productivity is based on the period 2003-2010. The period is chosen primarily because of the data availability of Chinese industrial statistics by the UNIDO. The UNIDO data is available in two classifications, namely: International Industrial Classification (ISIC) revision 3 and revision 4. The former classification was adopted since 1998 and the latter in 2008. However, in case of China, industrial data according to ISICrev3 is available only from 2003 onwards. For the entire period (2003-2010), the Chinese industrial characteristics are available according to ISICrev3 classification.

Table 2.13
Industry concordance at 2-digit classification: ISIC rev3 and ISICrev4

Industry	ISICrev3 Code	ISICrev4 Code
Chemical Industry	24	20+21
Non-Electrical Machinery	29+30	28
Electrical Machinery	31+32+33	26+27

Source: Authors construction based on ISICrev3 and ISICrev4 classification registry, UN.

For India, the industry data is reported from 1998 to 2007, and is available according to ISICrev3 classification. For the remaining period (2008-2010), data is provided according to ISICrev4 nomenclature. As the industrial codes have changed considerably in these two classifications, a correspondence between ISICrev3 and ISICrev4 at the aggregate level (two digit) is prepared. This helped us to have comparable statistics of India with China for the entire period. Data was collected at the 4-digit level from the Industrial Yearbook, published online as INDSTAT4 by the UNIDO and therefore aggregated into 2-digit level. The industry matching for the selected industries at the 2-digit sector as explained in Table 2.13.

The output per unit of labour is calculated using industry output and number of employees. The output figure is in million US$ and the employees are in numbers. The summary statistics of labour productivity across three main industries and manufacturing sector is given in Table 2.14. For the entire manufacturing sector as well as the Chemical sector, the average labour productivity of China is found to be higher than India during the study period. However, the labour productivity in Indian machinery sector is found to be marginally higher than China, although the variance (standard deviation) is found to be relatively higher in the former (see column three in Table 2.14).

Table 2.14
Summary statistics of labour productivity indices for Chemical, Machinery & Manufacturing Sector

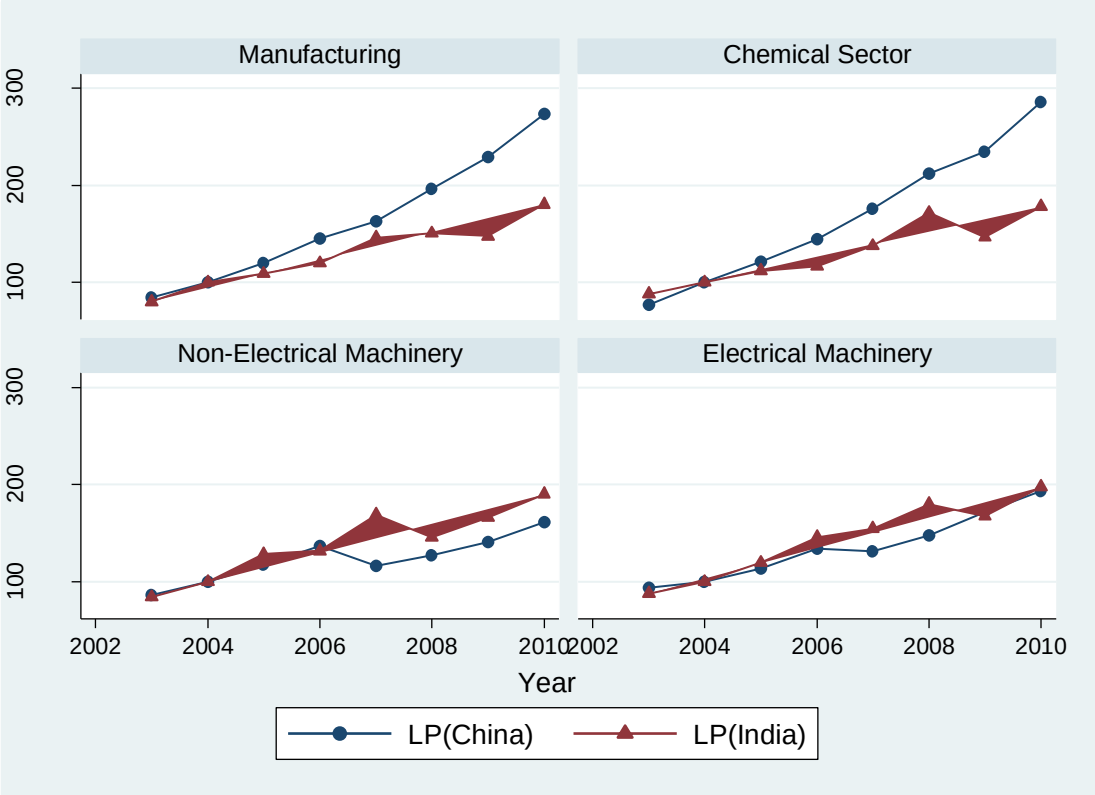
Sectors / Variable	Mean	Std. Dev.	Min	Max
		Non-Electrical Machinery Sector		
LP^{China}	123.4	23.8	86.2	161.3
LP^{India}	139.4	35.8	84.3	190.2
		Electrical Machinery Sector		
LP^{China}	135.7	34.5	93.9	193.6
LP^{India}	144.2	38.8	88.0	197.8
		Chemical Sector		
LP^{China}	168.9	71.5	77.1	285.5
LP^{India}	131.3	32.8	88.0	178.2
		Manufacturing Sector		
LP^{China}	164.0	65.4	84.7	273.3
LP^{India}	129.2	32.6	80.1	180.4
No of observation	8	8	8	8

Note: LP denotes Labour Productivity based on output per number of employees, and had been calculated for the period 2003-2010
Source: Authors calculation based on data from INDSTAT4, UNIDO CD-ROM.

The relative comparison of the level of labour productivity across sectors for India and China is presented in Figure 2.1. It is clear from these figures that labour productivity has increased considerably across chemical, machinery and manufacturing sector for both China and India over the period. As noted before, the level of productivity in the chemical sector as well as the overall manufacturing has been noticeably higher for China. In contrast, productivity of the labour in the machinery sector in India, which has experienced considerable imports from China, has increased at a higher level, especially since the mid-2000. This suggests that, although the level of imports has been on the rise, the industrial workers productivity has not been adversely affected by it. It has to be noted that, the labour productivity depends upon the level of capital intensity in production and the overall technological change. Since it is a partial measure, this change cannot be attributed to be pure technical change. However, as labour

productivity ultimately implies superior work efficiency, an improvement in its level is a favourable outcome.

Figure 2.1
Labour Productivity in India & China: Selected industries (2003-10)



Source: Authors calculation based on INDSTAT4, UNIDO CD-ROM.

Table 2.15
Growth rates of labour productivity and Gross Output in selected sectors: 2003-10

Manufacturing Sectors	LP^{China}	LP^{India}	$Output^{China}$	$Output^{India}$
Non-Electrical Machinery	9.4	12.3	20.8	20.4
Electrical Machinery	10.9	12.3	25.1	23.3
Chemical Products	20.6	10.6	27.4	24.6
Total Manufacturing	18.2	12.3	26.8	20.2

Note LP denotes labour productivity. Growth rates are CAGR for the entire period.
Source: Authors calculation based on data from INDSTAT4, UNIDO CD-ROM.

Similar trend in the growth performance of labour productivity and output of these sectors is seen in Table 2.15. The output of all manufacturing segment has increased at double-digit level for both India and China during the reference period. For China, the largest growth in the labour productivity has occurred in Chemical industry (21 percent) followed by Electrical machinery (11 percent) and non-electrical machinery (9 percent). For India, the growth rate is highest in the electrical and non-electrical machinery (12 percent) followed by chemical sector (11 percent). However, compared to China, the growth rates of both components of machinery sector have been higher for India. However, in the case of overall manufacturing, the labour

productivity growth is found to be higher for China (18 percent) than India (12 percent). Similarly, the overall Chinese industrial output has grown faster than Indian Industrial output for the entire period (27 percent per annum compared to 20 percent per annum).

2.4.4 Relative Wage Rate Comparison between China & India

One of the major components of industrial production cost is the compensation of labours in terms of wage bill. It is often argued that Chinese industrial wages are relatively lower than its competitors, especially the US (see Adams, 2006) and therefore, enabled them to gain competitive advantage in the global market. Thus, the relative wage rates between China and India for the selected industries during 2003-2010 is examined in Table 2.16. The industrial wage rate is calculated using the nominal wages (in thousand US$) and number of employees in each sectors.

Table 2.16
The industrial wage rate for China and India ($ /Total Persons Engaged)

Year	Non-Electrical Machinery Industry		Electrical Machinery Industry		Chemical Industry		Manufacturing Industry	
	China	India	China	India	China	India	China	India
2003	1.62	2.3	1.90	2.4	1.59	2.2	1.46	1.5
2004	1.88	2.4	2.07	2.4	1.83	2.4	1.68	1.6
2005	2.15	2.7	2.31	2.6	2.20	2.6	1.92	1.8
2006	2.57	2.9	2.82	2.8	2.51	2.8	2.28	1.9
2007	3.28	3.6	3.57	3.6	3.16	3.3	2.90	2.4
2008	4.49	3.6	4.60	3.9	4.25	3.9	3.85	2.5
2009	5.34	4.4	5.44	3.9	5.28	3.5	4.92	2.5
2010	5.98	4.7	5.99	4.4	5.84	4.3	5.55	3.0
Summary Statistics								
Mean	3.4	3.3	3.6	3.2	3.3	3.1	3.1	2.2
Std. Dev.	1.7	0.9	1.6	0.8	1.6	0.7	1.5	0.5
Min	1.6	2.3	1.9	2.4	1.6	2.2	1.5	1.5
Max	6.0	4.7	6.0	4.4	5.8	4.3	5.6	3.0
Observations	8	8	8	8	8	8	8	8

The analysis is based on nominal wages (thousand US$). The wage rate is calculated as follows: The nominal wages to employees (in thousand US$) in industry i/The number of employees in industry i
Source: Authors calculation based on INDSTAT4, UNIDO CD-ROM.

For all the selected industrial sectors, the Chinese wage rate was relatively higher than India wage rates in 2003. However, over the years, wage rates have increased significantly in both countries. For instance, the wage rate for Chinese manufacturing sector has increased from 1.5 thousand US$ per employee in 2003 to 5.6 thousand US$ per employee in 2010. Similarly, for India, it has increased from 1.5 thousand US$ per employee to 3 thousand US$ per employee. This indicates that the rate of increase in wage rate has been noticeably higher for China, and over the years, the relative wage rates between the two countries has widened considerably.

Similar pattern in the case of machinery and chemical sectors is also visible. Interestingly, for all the three industries, India's wage rate has been marginally higher than China until 2007. Post 2007, the Chinese wage rates has not only increased but also tend to diverge *vis-a-vis* Indian wage rates.

On average, the relative wage rates of India and China have been around 3 thousand US$ although the variance is relatively higher for China in all the selected manufacturing sectors. This can be inferred from the summary statistics reported in Table 2.16. The wage rate comparison indicates that in the early 2000, the Chinese industry has been able to compete successfully based on wage cost advantage. Although the wages has increased over the years, the productivity has also increased which enabled them to maintain its market share and compete successfully in the international market.

2.4.5 Unit Labour Cost Comparison between China & India

The unit labour cost comparison between China and India further indicates that the labour cost has been relatively higher for China among all the selected industrial groups during 2003-2010 (see Table 2.17 for the summary statistics). For China, the unit labour cost is largest in the non-electrical machinery while for India the Chemical sector has the highest unit labour cost.

Table 2.17
Unit Labour Cost in China & India: By Selected Industries

Statistics	Non-Electrical Machinery industry		Electrical Machinery industry		Chemical Industry		Manufacturing Industry	
	China	India	China	India	China	India	China	India
Mean	141.6	98.6	122.8	93.6	106.3	100.5	107.7	102.9
SD	47.9	9.5	25.8	9.3	9.7	3.1	12.6	6.7
CV	33.8	9.6	21.0	9.9	9.2	3.1	11.7	6.5
Min	96.8	86.9	97.6	78.0	94.8	94.8	93.3	96.0
Max	201.4	112.2	153.3	109.7	123.2	105.5	127.6	118.3
Observations	8	8	8	8	8	8	8	8

Note: The unit labour cost (ULC) is derived by taking the ratio of nominal wages to the gross output (Both are in US$). For comparison, we converted these figures into an index number by taking 2004 as the base period. Thus, the reported figures are the average ULC index number for the period 2003-2010.
Source: Authors calculation using data from INDSTAT4, UNIDO CD-ROM.

The discussion so far suggest that even though there has been significant import of machinery and chemical products from China over the years, the industry has been growing vigorously in the recent past. As most of the machinery products are components of capital goods, which are themselves used to produce machinery and final goods such as consumer goods, it can be argued that most of the imported items are used as an input in the production process in the

domestic manufacturing sector. In this sense, the growing imports suggest that there is a large demand for these products in the domestic market, which is not catered by the domestic industrial segment or the import competing segment of the domestic industrial group.

Examining the three indicators of industrial performance, the study finds that India has the potential to meet the growing user demand in future. This can be gauged from the increasing and widening of relative productivity of labour in the Indian machinery sector over the years. Similarly, in terms of cost competitiveness (wage bill and unit labour cost), the Indian manufacturing is positioned in relatively better position than China to serve the increasing domestic demand pressure by the user industries. However, since competitiveness depends not only on prices but also on non-price facts like skill enhancement, knowledge accumulation, design capability after sale service etc., India needs to further invest in these aspects and enhance the supply capabilities in the future. In this context, it will be useful to examine the scope of specialisation and economies of scale to be derived from engaging in bilateral trade, which can be explored using Intra-Industry trade indices. This is discussed in sub-section 2.4.6.

2.4.6 Intra-Industry Trade between China & India

The intra-industry trade (IIT)[10] between India and China for the selected period is given in Table 2.18. In the first period (2000-02), the highest IIT sectors were salt & Sulphur (0.97), travel vehicles & parts (0.81), copper articles (0.63), optical photo and precision means (0.58) and organic chemicals (0.52). By 2010-12, all these products have witnessed a decline in IIT. It can be seen that the IIT has reallocated towards mineral fuels (0.89), plastics (0.65) and iron & steel (0.45). Most of these sectors IIT has increased significantly from 2000-02 to 2010-12. Overall, apart from these products, the IIT between India and China seems to be low across various other 2-digit products. It seems that sector is experiencing inter-industry trade than intra-industry trade since 2000. Thus, there seem to be large scope in expanding within trade

[10] IIT is calculated using Grubel-Lloyd (GL) index, which is calculated using formula (2).

$$GL_k^{ij} = 1 - \frac{|X_k^{ij} - M_k^{ij}|}{X_k^{ij} + M_k^{ij}} \qquad ----(2)$$

where, X_k^{ij} is the export of reporting country *i* (India) to the partner country *j* (i.e., China, South Korea and Indonesia) of good *k*. The bar denotes absolute values. By construction, the intra-industry index range between zero and one. If, in a sector, a country is either only an exporter or only an importer, the second term will be equal to unity and hence the index will be zero, indicating the absence of IIT. On the other hand, if a country in this sector both exports and imports, the index will be closer to the number one as similarity in the value of imports and exports increases (UNCTAD/WTO, 2012). By engaging in IIT, a country can reduce the number of similar goods it produces, and benefit from economies of scale. A higher IIT ratio suggests that these sources of gains are being exploited and, further the adjustment costs would be lower with trade expansion between the trading partners (see Mikic and Gilbert, 2009).

between India and China provided the latter follow fair trade practices. The widespread anti-dumping policies and disputes registered by India on Chinese imports points out in this direction. This is discussed in the sub-section 2.4.7.

Table 2.18
India's Intra-Industry Trade with China (IIT_IC)

HS 2Digits	Description	2000-02	2010-12
15	Animal/Veg Fats	0.05	0.42
25	Salt & sulphur	0.97	0.42
26	Ores, Slag & ashes	0.12	0.02
27	Mineral Fuels & Oils	0.02	0.89
29	Organic Chemicals	0.52	0.35
31	Fertilisers	0.03	0.00
39	Plastics	0.30	0.65
52	Cotton	0.46	0.12
71	Natural/cultured stones	0.01	0.15
72	Iron & Steel	0.25	0.45
73	Articles of Iron & Steel	0.47	0.09
74	Copper & Articles	0.63	0.16
84	Non-Electrical Machinery	0.14	0.07
85	Electrical Machinery	0.07	0.04
87	Vehicles, railway & parts	0.81	0.16
90	Optical photo, precision means	0.58	0.22

Note: The exports and imports data are the cumulative figures for the given period
Source: Authors calculation from UN COMTRADE (WITS)

2.4.7 Anti-Dumping Duties and Chinese Imports

During 1995-2013, India has initiated 161 anti-dumping cases against China out of which 135 (84 percent) is against Chinese producers. This corresponds to around 25 percent of total anti-dumping duties imposed by India against its trading partners worldwide. The list of anti-dumping duties on Chinese producers by HS 2-digit is given in Table 2.19. The largest cases is found in organic chemicals (94) followed by inorganic chemicals (33), electrical machinery (32), plastics (24), fabricated fibers (15) and iron & steel and non-electrical machinery (11). As observed by Vandenbussche and Viegelahn (2012), the anti-dumping duties during 2009-10 has led to roughly 15 percent decrease in Chinese export value to India. These duties have also encouraged some trade diversion in recent period. For instance, due to anti-dumping duty, China is routing the injection moulding machines through Korea and ASEAN, with which India has signed FTA. The domestic industrial association argues that this has put domestic machinery at disadvantage position.

Table 2.19
List of Chinese Products for India imposed Anti-Dumping Duty

HS 2-digit	Number of products under Anti-Dumping Duty
29	94
28	33
85	32
39	24
54	15
38, 72 & 84	11
40	9
59	7
37, 70, 73 & 90	6
50, 56	5
23, 48, 64, 69 & 76	4
87	3
25, 44, 55, 68 & 81	2
27, 32, 53, 58, 74, 79, 98	1

Source: Authors calculation from Bown (2014) "Global Antidumping Database," World Bank.

Thus, there is large scope of engaging in trade in similar products in number of product groups identified. As India enjoys labour cost advantage over China, investments in technology intensive sectors are expected to boost manufacturing competitiveness. However, for a successful bilateral corporation, there is need to address some of the unfair trade practices adopted by China.

2.5 Summary

Since the mid-2000, the bilateral trade between India and China has increased substantially, and the gap between exports and imports has widened considerably. The persistent bilateral trade deficit with China has posed serious concern for India's policy makers. In this context, the present case study examines the nature of trade deficit, the structure of trade (both exports and imports), the potential export opportunities, import rise and its implication for domestic industrial sector. At the aggregate level, India is exporting mainly cotton, ores, copper, mineral oils and chemicals products to China. As our purpose is to identify the major as well as potential exports so that steps can be taken to further enhance their market access in China, an empirical analysis at the 6-digit HS commodity classification was carried out. In the identification process, India's global revealed comparative advantage indices and statistical tools such as the level of export share of a particular commodity, the growth rates based on CAGR during 2009-2012 etc. were employed. The empirical analysis reveals that over the years, products like titanium ores, fibres, Xylenes, cotton yarn, copper etc. have established niche market in China. There are few products like Sugar, tobacco, p&o-xylene chemicals, aluminium, petroleum oils, raw sugars and non-agglomerated iron ores for which India has export potential to supply in the Chinese markets. Since most of these products are competitive

(based on RCA), the opportunity for enhancing export market share is possible provided China reduces its trade barriers in future. However, some of India's high technology intensive and high income growth export potential products like machining centres, vehicle engines, surgical apparatus etc., are found to be globally uncompetitive. Therefore, there is a need for India to improve the technology content of the exports and diversify the production from low skill intensive products to high-income elastic products in future.

The export prospects of Indian commodities are largely constrained by the wide prevalence of tariff and non-tariff barriers imposed by China. Further, for most of the existing and potential export products, China has entered various Free Trade Agreement with partner countries granting them preferential tariff rates. The increasing competitive pressure from other Asian rivals like Korea, Thailand, Vietnam and Indonesia has also hampered India's export prospects. In this scenario, it is essential that India negotiates the market access issue and demand a steady reduction of tariff and SPS/TBT. However, it has to be noted that the European Union, which is a top supplier in the Chinese market, is able to maintain its existing high market share even without entering into any preferential trade agreements. This is suggestive of the level of sophistication and dynamism of EUs products, which is clearly lacking in the case of India.

Looking at the import side, India is found to be heavily dependent on high technology intensive machinery products like portable digital machinery, printing machinery, computer digital processing machinery, ball bearings, transmission apparatus, media recording & other electrical apparatus and chemical products like penicillin, Ketene from China. The use-based classification revealed that most of these items are either capital goods or intermediate goods, which are used to augment domestic production. The substantial amount of imports clearly indicates that the domestic production of capital good and intermediate industry is not sufficient to cater the expanding demand in the user industries and manufacturing sector in general. Due to rapid modernisation in Indian industries, the demand for superior machinery and apparatus has increased considerably which is largely satisfied through Chinese imports. This is further substantiated by the econometric estimation, which clearly shows the positive and economically significant role of domestic demand pressure in determining India's heavy imports from China. However, on the other hand, the econometric analysis has not found any significant statistical relationship between relative Chinese import prices. One probable reason for this can be the inherent bias of using unit value indices as reflection of price quality changes in our estimation. Another probable reason could be the alleged presence of under and over

invoicing of imports of illegal money transfer to avoid the custom duties[11]. Recently, the Indian Industry associations have also alleged the prevalence of such practices among the importers of Chinese products.

The implication of Chinese imports on the domestic industries were examined by looking at the labour productivity, unit labour cost and wage rate differentials between India and China for machinery, chemical and aggregate manufacturing sector during 2000-2010. Using comparable data for Chinese industries, it is found that rise in labour productivity and industrial output in India is substantially lower than that of Chinese industries in Chemical and manufacturing sector but not in the machinery segment. In addition, the unit labour costs are found to be relatively higher among identified sectors. This suggests that to compete successfully in the world market, Indian industries needs to improve efficiency and competitiveness by adopting technology intensive process and skill up gradation, as done successfully by China in the recent period.

The study found a steady rise of Chinese wages relative to Indian wages since 2008. In 2003, the Chinese wages were around 70-79 percent of Indian wages while in 2010, the same has increased around 127-136 percent. Such wage differentials provides India some leverage to beat its lagging industrial productivity with respect to China and to cut its high import bill by emerging as a major manufacturer in the products hitherto being imported. This, in turn, requires active policy intervention in as much as the implementation of conducive industrial policies and the removal of anomalies in the indirect tax structure that taxes the raw material and intermediaries at higher rate compared to the final products.

[11] A case study of Mozambique shows such under-reporting of import values and fraudulent classification of merchandises into lower-taxed products in order to evade custom duties (See Dunem and Arndt, 2006).

APPENDIX A

Table A2.1
India's major exports to China at the HS 6-digit product category (2000-2012)

6 Digit	Description	Million US$		Share	Relative Position	Growth Status	Global Competitiveness	MFN Tariff	SPS/TBT	Number of SPS/TBT
		2005	2012							
030379	Other fish items	91.88	110.12	0.7	Low Share	Low Growth	Competitive	10	NA	NA
050100	Human hair, unworked, waste	2.13	58.42	0.4	Low Share	High Growth	Competitive	15	NA	NA
130232	Mucilages and thickeners,	23.02	284.21	1.9	Low Share	Low Growth	Competitive	15	SPS1-SPS45	45
151530	Castor oil and its fractions	42.57	316.07	2.1	Low Share	Low Growth	Competitive	10	SPS9-SPS49	41
251611	Granite Crude	96.20	435.35	3.0	High Share	Low Growth	Competitive	0	TBT1-TBT8	8
260111	Iron ores and concentrates	3260.36	2158.56	14.7	High Share	Low Growth	Competitive	0	TBT1-TBT8	8
261000	Chromium ores and concentrates	231.03	74.52	0.5	Low Share	Low Growth	Competitive	0	TBT1-TBT8	8
261400	Titanium ores and concentrates.	3.16	168.56	1.1	Low Share	High Growth	Competitive	0	TBT1-TBT8	8
261900	Slag, dross of iron or steel.	0.0	138.19	0.9	Low Share	Low Growth	Competitive	4	TBT1-TBT8	8
271000	Petroleum oils and oils	21.87	307.43	2.1	Low Share	Low Growth	Competitive	NA	NA	NA
290241	o-Xylene	1.87	246.06	1.7	Low Share	High Growth	Competitive	2	TBT1-TBT14	NA
290243	p-Xylene	2.98	78.47	0.5	Low Share	High Growth	Competitive	2	TBT1-TBT14	14
290511	Saturated monohydric alcohols	0.17	49.19	0.3	Low Share	High Growth	Non-Competitive	5.5	TBT1-TBT14	14
290611	Cyclanic, cyclenic	35.54	231.99	1.6	Low Share	Low Growth	Competitive	5	TBT1-TBT14	14
300390	Other	3.42	59.58	0.4	Low Share	High Growth	Competitive	5.33	TBT1-TBT8, TBT16-TBT32	17
330125	Essential oils other mints	5.67	79.29	0.5	Low Share	Low Growth	Competitive	5	TBT1-TBT8, TBT15	9
390120	Polyethylene 0.94 or more	178.89	84.94	0.6	Low Share	Low Growth	Non-Competitive	6.5	TBT1-TBT8	8
390210	Polypropylene	53.14	383.08	2.6	High Share	Low Growth	Competitive	6.5	TBT1-TBT8	8
410439	Other bovine leather	21.72	65.63	0.4	Low Share	Low Growth	Competitive	NA	NA	NA
520100	Cotton not carded or combed	170.93	2605.01	17.7	High Share	Low Growth	Competitive	NA	TBT1-TBT8	8
520511	Single yarn 714.29 decitex	21.35	71.99	0.5	Low Share	Low Growth	Competitive	5	TBT1-TBT8	8
520512	Single yarn,714.29 decitex	4.15	156.36	1.1	Low Share	High Growth	Competitive	5	TBT1-TBT8	8
520514	Single yarn, fibres 192.31	0.31	150.83	1.0	Low Share	High Growth	Competitive	5	TBT1-TBT8	8
520522	Single yarn decitex not 43	0.92	69.42	0.5	Low Share	High Growth	Competitive	5	TBT1-TBT8	8
520523	Single yarn, of combed fibres	0.24	127.90	0.9	Low Share	High Growth	Competitive	5	TBT1-TBT8	8
520524	Single yarn 192.31-125 decitex	1.72	298.52	2.0	Low Share	High Growth	Competitive	5	TBT1-TBT8	8
530599	Other	0.0	55.91	0.4	Low Share	Low Growth	Competitive	NA	NA	NA
670300	Human hair, dressed, thinned	53.39	158.90	1.1	Low Share	Low Growth	Competitive	20	TBT1-TBT8	8
701120	For cathode-ray tubes	0.0	56.02	0.4	Low Share	Low Growth	Competitive	10	TBT1-TBT8	8
710239	Non-industrial :-- Other	3.79	74.07	0.5	Low Share	High Growth	Competitive	8	TBT1-TBT8	8
720241	Ferro-chromium carbon	29.96	311.02	2.1	Low Share	Low Growth	Competitive	1	TBT1-TBT8	8
740311	Refined copper :-- Cathodes	86.05	2186.40	14.9	High Share	High Growth	Competitive	0	TBT1-TBT8	8
851790	Parts of telephonic appliance	1.24	77.12	0.5	Low Share	High Growth	Non-Competitive	NA	NA	NA
900110	Optical fibres, bundles	4.91	50.42	0.3	Low Share	Low Growth	Competitive	5	TBT1-TBT8	8

Source: Author's calculation from Compendium of India's Trade Portal, Government of India, WTO database, UN COMTRADE (WITS) database.

Table A2.2
India's export potential HS 6-digit products to China

Categories	6 Digit	Description	Global RCA	Applied MFN Tariff (%)	SPS/TBT	Number of SPS/TBT
	240120	Tobacco, stemmed/stripped	Competitive	10-10	SPS3-42, SPS44, SPS51	42
I	750210	Nickel, not alloyed	Non-Competitive	0-0	TBT1-TBT8	8
	870323	Other vehicles, with spar	Non-Competitive	25-25	TBT1-TBT8	8
	260111	Non-agglomerated Iron ores	Competitive	0-0	TBT1-TBT8	8
II	271000	Petroleum oils,	Competitive	NA	NA	NA
	520100	Cotton not carded or combed.	Competitive	0-0	TBT1-TBT8	8
	100590	Other cereals	Competitive	65-65	SPS3-SPS9, SPS44, SPS51	9
	170111	Cane sugar	Competitive	50-50	NA	NA
	250300	Sulphur of all kinds	Non-Competitive	3-3	TBT1-TBT8	8
	260600	Aluminium ores and concentrates	Competitive	0-0	TBT1-TBT8	8
	261400	Titanium ores and concentrates	Competitive	0-0	TBT1-TBT8	8
	261510	Zirconium ores and concentrates	Non-Competitive	0-0	TBT1-TBT8	8
	290241	o-Xylene	Competitive	2-2	TBT1-TBT14	14
	290243	p-Xylene	Competitive	2-2	TBT1-TBT14	14
	300210	Antisera and other blood fractions	Non-Competitive	0-0	TBT1-TBT8, TBT16-TBT32	25
III	400591	Other :-- Plates, sheets and strip	Non-Competitive	8-8	TBT1-TBT8	8
	520512	Single yarn, of uncombed	Competitive	5-5	TBT1-TBT8	8
	842129	Filtering or purifying machinery	Non-Competitive	5-5	TBT1-TBT8	8
	845710	Machining centres	Non-Competitive	9.7-9.7	TBT1-TBT8	8
	852540	Still image video cameras	Non-Competitive	NA	NA	NA
	870894	Steering wheels, steering	Non-Competitive	6-10	TBT1-TBT8	8
	901890	Other instruments and appliances	Non-Competitive	0-4	TBT1-TBT8, TBT38-TBT39	10
	902214	Apparatus based on the use of X-rays	Competitive	4-4	TBT1-TBT8	8
	903149	Other optical instruments	Non-Competitive	0-10	TBT1-TBT8, TBT38-TBT39	10
	903180	Other instruments, appliances	Non-Competitive	3-5	TBT1-TBT8, TBT38-TBT39	10

Table A2.3
Tariff preferences granted by China on India's existing major exports HS 6-digit products

6 Digit	Top 5 Competing Countries	MFN Tariff (%)	Preferential Applied Tariff Granted by China to Trading Partners		
			Preferential Trading Partner	Min (%)	Max (%)
030379	Russia, USA, New Zealand, Norway, South Korea	10-10	Preferential Duty Rate for Korea under APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	5	5
			FTA with New Zealand	2	2
050100	Pakistan, USA, Italy, South Korea, Kyrgyzstan	15-15	Pakistan (FTA)	12.6	12.6
130232	Pakistan, USA, Spain, Italy, Morocco	15-15	Preferential Duty Rate for India under APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	10	10
151530	Thailand, Japan, USA, Spain, Philippines	10-10	FTA with Thailand under ASEAN	0	0
251611	Brazil, Finland, Norway, Angola, South Africa	0-0	NA		
260111	Brazil, Finland, Norway, South Africa, Japan	0-0	NA		
261000	South Africa, Turkey, Australia, Pakistan, Iran.	0-0	No Information		
261400	Vietnam, Australia, Mozambique, Russia, Sierra Leone	0-0	NA		
261900	Turkey, Russia, Iran, USA, Pakistan	4-4	NA		
271000	Korea, Russia, Singapore, Venezuela, Malaysia		No Information		
290241	South Korea, Singapore, Japan, Thailand, Spain	2-2	FTA with Thailand, Singapore under ASEAN	0	0
290243	South Korea, Japan, Thailand, USA, Kuwait	2-2	FTA with Thailand under ASEAN	0	0
290511	Iran, Oman, Saudi Arabia, Malaysia, Qatar	5.5-5.5	FTA with Malaysia under ASEAN	0	0
290611	Singapore, Germany, USA, Japan, Indonesia	5-5	FTA with Singapore, Indonesia under ASEAN	0	0
300390	Sweden, United Kingdom, Italy, Belgium, France	5-6	Preferential Duty Rate for India under APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	4.2	5
330125	Singapore, USA, France, UK, Egypt	5-5	FTA with Singapore, Indonesia under ASEAN	0	0
390120	Korea, Saudi Arabia, Iran, UAE, Thailand	6.5-6.5	Preferential Duty Rate for Korea and India under APTA	6	6
390210	South Korea, Saudi Arabia, Singapore, UAE, Thailand	6.5-6.5	FTA with Singapore	0	0
			FTA with Thailand under ASEAN	5	5
410439	Italy, South Korea, Bangladesh, Brazil, Thailand		No Information		
520100	USA, Australia, Brazil, Uzbekistan, Mali	0-0	NA		
520511	Pakistan, Vietnam, Thailand, Hong Kong, Turkmenistan	5-5	Pakistan (FTA)	3.5	3.5
			Vietnam, Thailand (FTA under ASEAN), Hong Kong (FTA)	0	0
			Preferential duty rate for APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	3.5	3.5

520512	Pakistan, Vietnam, Indonesia, Uzbekistan, Turkmenistan	5-5	FTA with Vietnam under ASEAN	0	0
			Preferential duty rate for APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	3.5	3.5
520514	Vietnam, Uzbekistan, Pakistan, Indonesia, Mexico	5-5	FTA with Vietnam, Indonesia under ASEAN	0	0
520522	Pakistan, South Korea, Indonesia, Malaysia, Vietnam	5-5	Pakistan(FTA), Korea (APTA)	3.5	3.5
			Indonesia, Malaysia, Vietnam (FTA under ASEAN)	0	0
520523	South Korea, Pakistan, Indonesia, Malaysia, Vietnam	5-5	Preferential Duty Rate for Korea under APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	3.5	3.5
			FTA with Indonesia, Malaysia, Vietnam under ASEAN	0	0
520524	Pakistan, South Korea, Thailand, Vietnam, Indonesia	5-5	FTA with Pakistan	3.5	3.5
			FTA with Thailand, Vietnam, Indonesia under ASEAN	0	0
			Preferential Duty Rate for Korea under APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	3.5	3.5
530599	Vietnam, Sri Lanka, Thailand, Indonesia, Brazil		No Information		
670300	Japan, South Korea, Indonesia, USA, Thailand	20-20	Preferential Duty Rate for Korea under APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	18	18
			FTA with Indonesia, Thailand under ASEAN	0	0
701120	Japan, Germany, Malaysia, South Korea	10-10	Preferential Duty Rate for Korea under APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	7	7
			FTA with Malaysia under ASEAN	0	0
710239	Belgium, South Africa, Israel, Botswana, USA	8-8	Preferential Duty Rate for Korea under APTA (Korea, Sri Lanka, Bangladesh, India, Laos)	0	0
720241	South Africa, Kazakhstan, Zimbabwe, Russia, Vietnam	1-1	FTA with Vietnam under ASEAN	0	0
740311	Chile, Japan, Kazakhstan, South Korea, Belgium	0-0	No Information		
851790	Korea, Japan, Philippines, Hong Kong, Malaysia		No Information		
900110	USA, Japan, South Korea, Hong Kong, Germany	5-5	No Information		

NA refers to “Not Applicable”. Data is collected from WTO tariff database. MFN and Preferential rate pertain to the year 2011, latest year for which such data is available. Applied MFN tariff is based on the min-max format. Top 5 competing countries are selected on the basis of their respective market shares in Chinese imports from these countries. APTA refers to Asia-Pacific Trade Agreement. FTA refers to Free Trade Agreement.

Table A2.4
Tariff preferences granted by China on India's potential exports HS 6-digit products

Categories	6 Digit	Top 5 Competing Countries	Applied MFN Tariff (%)	Preferential Applied Tariff Granted by China to Trading Partners		
				Preferential Trading Partner	Min (%)	Max (%)
I	240120	Brazil, US, Argentina, Zambia, Malaysia	10-10	NA		
	750210	Canada, Norway, Japan, UK, Brazil	0-0	NA		
	870323	Germany, Japan, UK, US, South Korea	25-25	NA		
II	260111	Australia, Brazil, South Africa, Iran, Canada	0-0	NA		
	271000	Korea, Russia, Singapore, Venezuela, Malaysia	NA	NA		
	520100	USA, Australia, Brazil, Uzbekistan, Mali	0-0	NA		
III	100590	USA, Lao PDR, Thailand, Myanmar, Russia	65-65	NA		
	170111	Brazil, Thailand, Cuba, Guatemala, Philippines	50-50	NA		
	250300	Canada, Kazakhstan, Japan, Qatar, South Korea	3-3	Preferential duty rate for Korea, Sri Lanka, Bangladesh, India, Laos APTA	0	0
	260600	Indonesia, Australia, Guyana, Brazil, South Africa	0-0	NA		
	261400	Vietnam, Mozambique, Australia, Ukraine, Africa	0-0	NA		
	261510	South Africa, Indonesia, Australia, Vietnam, Madagascar	0-0	NA		
	290241	South Korea, Singapore, Japan, Thailand, Spain	2-2	Singapore, Thailand (FTA under ASEAN)	0	0
	290243	South Korea, Japan, Thailand, USA, Kuwait	2-2	Thailand (FTA under ASEAN)	0	0
	300210	Switzerland, Germany, US, Austria, Spain	0-0	NA		
	400591	Thailand, Malaysia, Indonesia, Vietnam, US	8-8	NA		
	520512	Pakistan, Vietnam, Indonesia, Uzbekistan, Turkmenistan	5-5	India (APTA) Vietnam, Indonesia (FTA)	3.5 0	3.5 0
	842129	Germany, Japan, US, France, UK	5-5	NA		
	845710	Japan, Germany, South Korea, US, France	9.7-9.7	NA		
	852540	Japan, Thailand, Malaysia, Indonesia, Germany	NA	NA		
	870894	Germany, Japan, France, Switzerland, Korea	6-10	NA		
	901890	USA, Germany, Japan, Mexico, Sweden	0-4	NA		
	902214	Germany, US, Japan, Netherlands, UK	4-4	NA		
	903149	Germany, Japan, South Korea, US, Israel	0-10	NA		
	903180	Germany, Japan, South Korea, US, UK	3-5	Korea under APTA	3	5

NA refers to "Not Applicable". Data is collected from WTO tariff database. MFN and Preferential rate pertain to the year 2011, latest year for which such data is available. Applied MFN tariff is based on the min-max format. Top 5 competing countries are selected on the basis of their respective market shares in Chinese imports from these countries. APTA refers to Asia-Pacific Trade Agreement. FTA refers to Free Trade Agreement.

Table A2.5
Detailed List of TBT measures imposed by China

Type	Description
TBT1	Commodity Inspection Law
TBT2	Goods Prohibited from Import (No 1)
TBT3	Goods Prohibited from Import (No 2)
TBT4	Implementation of Commodity Inspection Law
TBT5	List of Articles prohibited or Restricted for Import & Export
TBT6	Measures for the Administration of Certification Bodies
TBT7	Advertising and Sampling Rules of China
TBT8	Import Licensing and Inspection
TBT9	Application Form for Registration of Environmental Management
TBT10	Banned Chemicals
TBT11	Detailed Rules on Implementing the Registration
TBT12	First Category of Chemicals Subject to the Env Mgmt
TBT13	Reg for Env Management on the first import of chemicals
TBT14	Second Category of Chemicals Subject to the Env Mgmt
TBT15	Regulations Concerning The Hygiene Supervision Over Cosmetics
TBT16	Outline of Methods for the Administration of Medicine Recall (SFDA Order 29)
TBT17	Application and approval procedure for clinical trial
TBT18	Application and approval procedure for imported drug (1)
TBT19	Application and approval procedure for imported drugs
TBT20	Approval of Clinical Trial of Foreign Drugs
TBT21	Drug Administration Law
TBT22	Implementation of the Administrative Measures for the Import of Drugs
TBT23	Provisions for Drug Advertisement Examination
TBT24	Provisions for Drug Registration
TBT25	Provisions for Import and Export of Anabolic Agents and Peptide Hormones
TBT26	Provisions Governing Pharmaceutical Directions And Labels
TBT27	Regulations for Implementation of the Drug Administration Law
TBT28	Regulations on Administrative Protection for Pharmaceuticals
TBT29	Special Review and Approval Procedure for Drug Registration of the State Food and Drug Administration
TBT30	Standards for the Examination and Publication of Drug Advertisements
TBT31	Supplementary application and approval procedure for imported drugs (1)
TBT32	Supplementary application and approval procedure for imported drugs (2)
TBT33	Regulation on Vet Drug Adm
TBT34	Retro reflector for Motor Vehicles
TBT35	Administrative Protection of Agricultural Chemicals
TBT36	Implementation of the Regulations on Administrative Protection
TBT37	Regulation on control of Agricultural Chemicals
TBT38	Haemodialysis Equipment
TBT39	Hollow Fiber Dialyzer
TBT40	Medical X-ray Diagnostic Equipment

Table A2.6
Detailed List of SPS requirements Imposed by China

Type	Description
SPS1	Mucilages and thickeners, whether or not modified, derived from locust beans, locust bean seeds or guar seeds China
SPS2	Document Type Document Description
SPS3	Examination & Approval of Safety Management of Agricultural GMO's
SPS4	Health Food Registration
SPS5	Measures for the Administration of Certification Bodies
SPS6	Measures for the Administration on the Inspection & Quarantine of the GMO's Products Entering & Exiting
SPS7	Registration of Foreign Manufacturers of Imported Foods
SPS8	General Labelling Requirements
SPS9	The Food Safety Law China PR
SPS10	Elimination of Selenium Food Contaminant Standard
SPS11	Food Additive Hygiene Standard
SPS12	Food Additive Hygiene Standard (1997 Supplement)
SPS13	General requirement for the Labelling of Flavourings
SPS14	Guidelines for Use of Flavouring
SPS15	National Food Additive Standard DL malic Acid
SPS16	National Food Additive Standard Polydextrose
SPS17	National Food Additive Standard Sucralose
SPS18	National Food Additive Standard Sulphur
SPS19	National Food Safety Standard Arsenic
SPS20	National Food Safety Standard Butyl hydroquinone (TBHQ)
SPS21	National Food Safety Standard Choline
SPS22	National Food Safety Standard ditive Potassium Iodate
SPS23	National Food Safety Standard dium Copper Chlorophyllin
SPS24	National Food Safety Standard els of Mycotoxins in Food
SPS25	National Food Safety Standard Erythrosine Aluminium Lake
SPS26	National Food Safety Standard Fluorine
SPS27	National Food Safety Standard Food Additive Amaranth
SPS28	National Food Safety Standard Food Additive Erythrosine
SPS29	National Food Safety Standard Food Additive New Red
SPS30	National Food Safety Standard Food Additive Sunset Yellow
SPS31	National Food Safety Standard for Blended Food Additives
SPS32	National Food Safety Standard ive Sodium Hypochlorite
SPS33	National Food Safety Standard ive Trisodium Phosphate
SPS34	National Food Safety Standard Niacin
SPS35	National Food Safety Standard s of Contaminants in Food
SPS36	National Food Safety Standard tablized Chlorine Dioxide
SPS37	National Food Safety Standard tive Potassium Chloride
SPS38	National Food Safety Standard Vitamin B12
SPS39	Notice on Issues concerning t of Feeds & Feed Additives
SPS40	Pathogen Limits for Foods
SPS41	Standards for Inspection on Import Food & Food Additives
SPS42	Pesticides Maximum Residue Limits for Pesticide in Food
SPS43	Pesticides Pesticide MRL Standard (2005)
SPS44	General Labellling Requirements
SPS45	Health Food Registration
SPS46	Maximum Residue Limits for Pesticide in Food
SPS47	Entry and Exit Animal and Plant Quarantine
SPS48	Flow Chart of Animal Entry
SPS49	General Regulation on Inspection of Exit Entry of Dairy Products
SPS50	National Dairy Standard 0Folic Acid
SPS51	National Dairy Standard Antibiotics
SPS52	National Dairy Standard Benzoic Acid
SPS53	National Dairy Standard Canned Complementary Foods
SPS54	National Dairy Standard Evaporated Milk
SPS55	National Dairy Standard For Special Medical Purposes

SPS56	National Dairy Standard Fumaric Acid
SPS57	National Dairy Standard GMP es Republic of 12 16 2009
SPS58	National Dairy Standard GMP for Dairy
SPS59	National Dairy Standard GMP for Powdered Milk
SPS60	National Dairy Standard Infant Follow up Formulas
SPS61	National Dairy Standard Infant Formulas
SPS62	National Dairy Standard Lactose
SPS63	National Dairy Standard Lead
SPS64	National Dairy Standard Milk Powder
SPS65	National Dairy Standard Pasteurized Milk
SPS66	National Dairy Standard Sterilized Milk
SPS67	National Dairy Standard Vitamin B6
SPS68	National Food Safety Standard Aflatoxin

APPENDIX B

Determinant factors of Indian Imports: A Panel Econometric Analysis

To identify the determinants of Indian imports from China, the study use an econometric methodology based on the panel data for the period 2000-2012. The analysis is confined to the major imported product groups at the 2-digit level. In each 2-digit category, only those products having continuous data for the entire period and have at least 1 percent share in their respective product category were included. The study hypothesis that the major imports of China to India depends upon the domestic demand pressure and relative import prices. That is, in functional form,

$$IM_{j,t} = f(D, RP) \quad ----(A1)$$

where *j* refers to 6-digit HS commodity, *t* refers to year. *D* is domestic demand proxied by industrial production or gross domestic product and *RP* is the relative import price of Chinese imports measured as the ratio of unit value of India's import from China (UV^c) by the unit value of India's import from the rest of the World (UV^{row}). The unit value is calculated by taking the ratio of value by quantity ($UV_j = \frac{Value_j}{Quantity_j}$) at the 6-digit product group. To calculate the unit value for the rest of the world, we deducted the value and quantity of China from the value and quantity of the world. In the variable specification, we expect that higher the domestic demand higher will be the level of imports and lower the relative import price higher will be the imports from China. The econometric model is given in equation (A2)

$$lnIM_{jt} = \alpha + \beta_i lnD_t + \gamma_i lnRP_{j,t} + \varepsilon_t \quad ---(A2)$$

where,

α = constant

lnD_t= log of domestic demand pressure at time t

$lnRP_{j,t}$ = log of relative import price of China in product *j* at time t

In the model, we expect $\beta > 0$ and $\gamma < 0$.

The study use fixed effect panel estimation technique for the selected products for the period 2000-12. The fixed effect panel model assumes that the unobserved, time invariant factors or unobserved heterogeneity is fixed over time so that one can estimate the equation by pooled OLS. The fixed effect estimator allows for arbitrary correlation between unobserved heterogeneity and the explanatory variables (Wooldridge, 2013). The panel is balanced.

Chapter III India-South Korea Bilateral Trade Developments

3.1 Introduction

Since 1960, almost five decades of economic policy reforms transformed Korea into a high performing economy with strong base in manufacturing sector. For instance, in 2012, the GDP per capita stood around $24453 and merchandise trade contributed around 87 percent of GDP (World Development Indicator, online database). This radical transformation of the economic structure is a result of export-oriented policy specializing first in labor-intensive manufacturing and then in capital and skill-intensive manufactures (Kim, 2007). The development experience of Korea clearly indicates an active participation of the State in policy formulation and establishment of key industries in the manufacturing sector. According to Rodrik (1994), the Korean growth miracle is instrumented through an active government policy of coordinating and encouraging private and public investment in physical capital with high degree of linkage within the modern sector.

During 1970s, the policy focus shifted towards the development of Heavy and Chemical Industries (HCI) like electrical and non-electrical machinery, metallurgical, chemical and shipbuilding industries that created strong positive externalities for the development of other manufacturing industries (Kim 2007)[12]. As the development of HCI intensified, it also created large enterprises, which led to the concentration of economic power in the hands of a few big Korean businesses or *chaebols* (i.e. the family-owned business conglomerates). The intense foreign competition for the domestic as well as the exported products and the availability of necessary imported intermediate inputs and capital goods considerably improved the efficiency and international competitiveness of the Korean manufacturing industries. Thus, it is evident that Korea's development experience especially the way of utilizing foreign capital and technologies through accumulating indigenous capabilities is valid for many Asian economies including India.

[12] For financing the investment requirements, government established the National Investment Fund, which provided long-term subsidized loans to strategically selected heavy and chemical industries to develop their capital formation in an effective and orderly manner. The fund was created through a compulsory mobilization of private deposits from commercial banking institutions (Kim 2007).

Historically, India-Korea trade became significant since 1970s as Korea maintained trade surpluses with large exports of manufacturing goods to India. Studies have highlighted that the Korean exports to India largely consists of high value products while traditional and primary products constituted largest proportion in Indian export basket. The liberalisation of trade and investment in 1990s by the Indian government has further increased the market domination by several Korean investment companies in white goods and consumer good products.

The bilateral trade flows between India and Korea during 2000-12 is given in table 3.1. During this period, the volume of India's exports to Korea has been consistently below its imports from Korea leading to persistent trade deficits. In value terms, the level of imports of India from Korea increased from $0.8 billion in 2000 to $13.7 billion by 2012 whereas the value of exports rose from $0.4 billion to only $4.1 billion for the same period. As India's import from Korea rose much faster than its exports, the trade deficit also increased from US$-0.4 billion in 2000 to US$ -9.6 billion in 2012.

Table 3.1
Bilateral Trade Flows between India & South Korea: 2000-2012 Million US$

Year	India's exports to Korea	India's import from Korea	Total Trade	Balance of Trade
2000	439.1 (1.04)	817.1 (1.54)	1256.2	-377.9
2005	1519.6 (1.51)	4412.4 (3.13)	5932.0	-2892.9
2010	3634.5 (1.65)	9922.3 (2.83)	13556.8	-6287.9
2012	4076.4 (1.41)	13675.1 (2.80)	17751.4	-9598.7

Note**:** (a) Figures in brackets represent percent share of India's exports (imports) to (from) South Korea in India's total world exports (imports). Figures in the tables are calculated by the author based on UN COMTRADE (WITS)

The purpose of the chapter is to examine and identify trade structure, potential export products, growth pattern of imports and the implication of the formation of CEPA on India's merchandise trade. The study is organized into five section including the introduction (3.1). In section 3.2, the bilateral trade pattern between India and Korea is detailed. This is followed by a detailed analysis of India's major exports and potential exports to Korea during 2000-2012 in section 2.3. The growth analysis of import products at disaggregate level is given in section 3.4. The implication of CEPA is discussed in section 3.5. The final section (3.6) summarises the findings of the study.

3.2 India-South Korea Trade Pattern

The rising trade deficit has worsened India's terms of trade with Korea over the years (see table 3.2). In 2000, India's terms of trade stood around 0.5, which worsened, to 0.3 by 2012. On the other hand, Korea has enjoyed better terms of trade as it increased, albeit with mild fluctuations,

from 1.3 in 2000 to 1.7 by 2012. India was able to improve its presence in overall Korea's trade from 0.4 percent in 2000 to 1 percent by 2005 and further to 1.7 percent by 2012. However, as noted before, the bilateral trade of India & Korea is relatively smaller component of India's overall trade with the world (only 2.3 percent in 2012). This suggest that there exist greater opportunity for India to expand trade volume with Korea.

Table 3.2
India & Korea's Trade Pattern: Terms of Trade & Relative Position (2000-2012)

Year	India's Terms of Trade	Korea's Terms of Trade	India's trade in Koreas Total Trade (% Share)	India's trade to Korea as proportion of India's trade with the World (%)
2000	0.54	1.35	0.38	1.32
2005	0.34	2.18	1.09	2.46
2010	0.37	2.02	1.52	2.38
2012	0.30	1.72	1.66	2.28

Figures in the tables are calculated by the author based on UN COMTRADE (WITS)

The unfavorable terms of trade of India can be largely explained by the dominance of less technology driven primary products in its export baskets to Korea. In 2012, the less sophisticated products such as Mineral Fuels (HS 27), Cereals (HS 10), Food industry waste (HS 23), Oil Seeds (HS 12) and Cotton products (HS 52) constitute almost 50 percent of India's total exports to Korea (see table 3.3). In contrast, around 60 percent of India's import basket consists of high technology intensive products such as non-electrical machinery (HS 84), electrical machinery (HS 85), Iron & Steel (HS 72), Ships & Boats (HS 89), organic chemicals (HS 29) and Transport vehicles (HS 87). Further, the volume of most of these products has increased considerably since 2005.

In the last column of table 4, we provide the relative importance of Korean market for India's major traded products (at 2-digit HS). For the exported items, Korea is a major market for just two products, namely, Zinc articles (HS 79) and Aluminum (HS 76). The rest of the products have very low share in 2012. In contrast, India's dependence on Korean market for its technology intensive products is relatively high. For instance, Korea represent around 10 percent of the total import of machinery (HS84 and HS85) items from the world. Similarly, other technology intensive items like ships and boats (20 percent), transport vehicles (15 percent) and Iron & Steel (12 percent), India depends heavily on Korea. However, from Korea's perspective, India is an insignificant market for most of these products (see figures in parenthesis in column 7, table 3.3(B)).

Table 3.3
India's Major Traded Product Groups with South Korea: by 2-Digit Classification

2Digit	Description	2000	2005	2012	Share of total exports to Korea (% in 2012)	Share of Korea in India's total World exports (% 2012)
(A)	**India's Exports to Korea** (Million US$)					
27	Mineral fuels	5.4	375.0	1173.6	28.8	2.2
72	Iron & Steel	28.6	152.4	416.8	10.2	5.4
29	Organic chemicals	35.8	110.8	342.9	8.4	2.7
76	Aluminium	11.4	5.1	265.0	6.5	16.8
10	Cereals	0.1	0.0	244.6	6.0	2.8
23	Food industry waste	57.6	63.6	212.9	5.2	8.1
52	Cotton	140.1	214.1	205.7	5.0	2.4
71	Cultured stones	4.5	16.8	162.3	4.0	0.4
79	Zinc articles	0.0	9.1	101.6	2.5	20.2
84	Non-Electrical Machinery	6.8	38.4	100.1	2.5	0.9
12	Oil seeds	1.4	19.8	85.1	2.1	4.7
(B)	**India's Import from Korea** (Million US$)					
2Digit	**Description**	**2000**	**2005**	**2012**	**Share in total imports from Korea (% in 2012)**	**Share of Korea in India's total World imports (% 2012)**
84	Non-Electrical Machinery	158.7	640.2	2097.3	15.3	5.7 (3.2)
72	Iron & Steel	61.7	326.4	1658.9	12.1	12.1 (6.6)
85	Electrical Machinery	136.4	1699.5	1430.4	10.5	4.9 (1.2)
89	Ships & Boats	0.0	273.0	1205.5	8.8	19.6 (0.9)
39	Plastics	74.3	263.6	1037.7	7.6	11.1 (3.7)
29	Organic chemicals	63.5	149.4	948.5	6.9	6.2 (4.0)
27	Mineral Fuels	5.3	0.0	898.1	6.6	0.5 (1.4)
87	Transport vehicles	17.2	270.8	753.2	5.5	15.1 (2.2)
71	Cultured stones	5.6	22.8	573.8	4.2	0.7 (2.6)
40	Rubber products	16.6	75.3	468.8	3.4	12.1 (4.3)

Note: (a) The reported products constitute around 80% of India's exports (imports) to (from) Korea in 2012. (b) Figures in parenthesis in the last column in B shows the proportion of the total exports of each of the products by Korea to India by the total exports of each of the products by Korea to the World (% share).This gives us the relative importance of Indian market for Korea.
Source: Authors calculation based on UN COMTRADE, accessed from WITS

Table 3.4
Trade Complementarity index between India & Korea (2000-2012)

TCI	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TCI1	38.1	43.6	45.1	47.2	48.7	49.8	55.3	57.6	59.0	55.9	59.3	58.1	56.5
TCI2	38.0	39.8	40.0	42.1	43.5	44.8	46.3	48.3	44.8	47.3	45.1	45.6	46.0

Note: TCI 1 based on India's exports to the world and South Korea imports from the world; TCI2 is based on India's imports from the world and South Korea's exports to the world
Source: Authors calculation based on UN Comtrade database, WITS

In Table 3.4, the trade complementarity index between India and Korea during 2000-12 is given, which assess the bilateral trade prospects between them. Similar to what we have observed in the case of China, the TCI1 shows an increasing trade overlap between India's exports to the world and Korea's import from the world since 2000. It is evident that TCI1 has increased steadily from 38 percent in 2000 to around 59 percent in 2008. Post global economic slowdown,

the trade pattern has declined marginally and reached around 57 percent in 2012. Thus, in terms of India's exports prospects, Korea has gradually emerging as a natural trading destination.

The calculation at the import side (TCI2) reveals that there has been an increasing overlap between India's import demand from the world and Korea's overall export supply to the world, as the index increased from 38 percent in 2000 to 46 percent by 2012. This suggests that Korea has the supply capabilities in those products for which demand is there in the Indian market. Looking at both indices, we can conclude that there is an overwhelming evidence of increasing trade integration between India and Korea in the recent past. The formation of CEPA has further accelerated this process, which is further elaborated in section 3.5.

3.3 Analysis of Export Opportunities

To analyse the export opportunities of India-Korea, the study uses disaggregate 6-digit trade data. The methodology consists of analysis of existing major exports as well as identification of potential export products. The details are as follows. First, India's major exporting HS 6-digit products to Korea have been identified and then these are categorized into low/high growth/share and/or competitive/non-competitive baskets[13]. For all the identified major exports, the global RCA (2009-2012) was calculated in order to assess the competitive position in the world market. The analysis reveals that there are 43 products identified as major exporting (existing) products from India to Korea (see Table A3.1).

3.3.1 Analysis of India's Major Exports to Korea

Out of the 43 products, large numbers of items (38 products) are found to be globally competitive. The study further computed the average share and growth performance of all competitive (38) and uncompetitive (5) products. Since high RCA values indicate that the products have been successful in maintaining market share, it is necessary to look into the products trend in the Korean market. For all these products, the growth rates and share has been computed to assess the overall trends in exports.

[13] Under the identified two digit products, all the 6-digit products have been listed. Based on the export trends during 2009 and 2012, the products that constituted 80% share of all exports in 2012 have been identified as Major exports. The share of each of the 6-digit product is calculated by taking India's exports of each 6-digit product to Korea by the total 6-digit exports of India to Korea in 2012 (%). The growth rates are based on CAGR during 2009-2012. The benchmark growth rate is 27.8 percent and the benchmark share is 1.7 percent.

It is found that only five competitive products, namely HS120740 (Sesamum seeds), HS230400 (Oil-cake and Other Solid Residuals), HS720241 (Ferro-chromium), HS760110 (Aluminum, not alloyed), and HS790111 (Zinc, not alloyed) have maintained high share and high growth rates during the reference period. It is evident that most of these products fall under low value category and as such, there is a need to further improve the export sophistication in order to maintain the export competitiveness in the future. There are 16 competitive products, whose growth rates has been higher but has low presence in the export basket. These are HS100590 (Other Maize), HS230690 (Other Oil Cakes), HS261400 (Titanium ores and concentrates), HS280300 (Carbon Blacks), HS290244 (Mixed xylene isomers), HS291619 (Unsaturated Monocarboxylic Acids), HS520524 & HS520512 (Single Yarn), HS520533 (Multiple or Cabled Yarn), HS720211 & HS720230 (Ferro-Silico-Manganese), HS720110 (Non-Alloy Pig Iron), HS722220 (Bars and Rods), HS780110 (Refined Lead), and HS780191 (Other Lead). These products fall under broadly in cereals, ores, chemicals, iron & steel and cotton. Several products belonging to chemicals (HS29), textiles (HS 52) machinery (HS 85) is found to have low growth rates.

One plausible reason behind the low growth and low share of most of the competitive products is the excessive protective policy measures adopted by Korea. This is evident from our analysis of tariff and non-tariff barriers (SPS & TBT) (see last three columns in Table A3.1). For instance, HS320416 (Synthetic Organic Coloring), a globally competitive product face an applied MFN duty rate of 8 per cent plus three NTB namely TBT1, TBT2 and TBT3. Similarly, HS520523 (Single Yarn, of Combed Fibers) faces an applied MFN duty rate of 8 per cent plus three NTBs. Generally, it is found that the protective instruments are applied throughout the competitive products of India. However, compared to China, the non-tariff barriers are comparatively less stringent across product groups.

Table A3.2 provides preferential tariff granted by Korea on India's top five competing countries. It is found that for 13 out of the 87 major existing exporting products, India faces competition mainly from China under the Asia-Pacific Trade Agreement (APTA). For instance, out of the top four suppliers namely China, Thailand, Indonesia and Switzerland, due to the Asia-Pacific Trade Agreement (APTA), Chinese exports of HS320416 (Synthetic Organic Colouring) enter the Korean market at an applied preferential duty rate of 6.2 per cent. On the other hand, for other supplying countries, the MFN applied rates are at 8 per cent. Thus, the

proliferation of preferential agreements and stringent standards and technical barriers has unfavorable consequences on India's major exports in recent period.

3.3.2 Analysis of India's Potential Exports to Korea

To assess the potential export opportunities for India, an analysis of Korea's world imports and India's world exports has been carried out at disaggregated 6-digit product level for the period 2009-12. The premise here is that if domestic demand in Korea is expanding and India has supply capability for these products, then opportunities for export expansion will also arise for India. As such, the trend in major world imports (80 percent) has been mapped against the major world exports of India (top 80 percent). This provide us the common traded products for the analysis.

Table 3.5
India's export potential products to Korea at the HS 2-digit product category

2 Digit	Description
02	Meat and edible meat offal
03	Fish & crustacean & other aquatic invertebrate
27	Mineral fuels, oils & product of their distillation; etc.
29	Organic chemicals
30	Pharmaceutical products
39	Plastics and articles thereof
40	Rubber and articles thereof
44	Wood and articles of wood; wood charcoal
52	Cotton
54	Man-made filaments
71	Natural/cultured pearls, precious stones & metals, coin etc.
72	Iron and steel
73	Articles of iron or steel
74	Copper and articles thereof
76	Aluminum and articles thereof
80	Tin and articles thereof
81	Other base metals; cermets; articles thereof
82	Tool, implement, cutlery, spoon & fork, of base metal etc.
84	Nuclear reactors, boilers, machinery & mechanical appliance; parts thereof
85	Electrical machinery equipment parts thereof; sound recorder etc.
94	Furniture; bedding, mattress, mattress support, cushion, etc.

Description of each HS 2-digit product is collected from UN COMTRADE (WITS) database

It is found that there are 40 products were demand is expanding in Korea and supply capabilities exist in India. These products fall into 21 HS 2-digit brought product categories (see Table 3.5). India would be able to realize the potential export opportunities, if these products are globally competitive. Therefore, based on RCA values, these identified products are classified into three categories: category I, category II and category III products.

Category-I product group comprises of those products that Korea is importing from the world, and India is exporting to the world but not to Korea. Category-II comprises of those products that Korea imports from the world and India but the import share of these products from India is at least 5 percent or more. Category-III comprises of those products that Korea imports from the world and India but the import share of these products from India is less than 5 percent (see Table A3.3). If India succeeds in securing an average market share of 5 percent for Category I and Category III products, then the export value will increase by $0.98 billion. If only the competitive products are considered, the 5 percent share for category I and category III is $0.11 billion.

It is evident that out of the 40 identified HS 6-digit products, there are 10 products in the first category (see Table A3.3 in the appendix). These products largely belong to raw material, intermediate and capital goods categories. There are high value and sophisticated machinery products (HS 841112, 842650) under this category. However, since products identified in this group are not competitive, India needs to build it manufacturing capacity to meet the export needs of Korea in future. In category II, the study identified three products, out of which aluminum and Iron & steel products (HS 760110 and 720241) were found to be competitive in the world market. These products are expected to grow further as the export share is found to be reassuring. The final category III is where India needs to focus much of its strategy. Out of the 27 identified products, only seven items are competitive, which largely consists of intermediate and raw material products. Looking at the rest of the products, it is promising that there are several high value products which India has supply capability. There are around 14 products belonging to machinery sectors are under the identified list. If sufficient incentive programs are implemented, then India can expect to see an improvement in the export prospects of these products in the near future.

To understand why India, despite having supply capability, fails to enter the Korean market, the study also examined the trade barriers (tariffs and non-tariff barriers) by Korea on India's identified potential products (see last three columns in table A3.3). Generally, both tariffs and non-tariff barriers are widespread and especially the latter is high for most of the products in category I and category III. Thus, the prevalence of SPS and TBT results in unfair trade barriers for Indian exporters in the Korean market. The pattern of competitive pressure from top five rival economies in the Korean market is examined in Table A3.4). Across the three categories, Korea grants an applied preferential duty rates only for seven products. For these products

(HS440710 from category-I; HS760110 and HS720241 from category-II; and HS853669, HS940540, HS820900 and HS760120 from category-III) India faces competition mainly from China under the Asia-Pacific Trade Agreement (APTA). For instance, because of APTA, Chinese exports of HS853669 enter the South Korean market at an applied preferential duty rate ranging from 0 to 4 per cent, compared to the exports from Germany, USA, Japan, and Thailand, which enter the Korean market at an applied MFN rate of 0-8 per cent.

Thus, the section clearly indicates India's over dominance of low value and income inelastic products in the export baskets. In order to succeed in the Korean market, India has to improve the sophistication of export basket and improve competitive performance. India has domestic capability in serving these products but suffer from low market share and trade barriers and untenable quality standards. Once these anomalies are addressed, India can expect to improve the export performance and reduce the persistent trade deficits.

3.4 Analysis of India's Imports from Korea

India's total imports from Korea increased from a mere US$ 817.1 million in 2000 to US$13675 million in 2012 registering a 17-fold increase. During 2000-2012, share of India's imports from Korea with respect to its total world imports increased from 1.5 percent to 3.4 percent. As before, the broad structure of the import product composition is examined using aggregate 2-digit classification followed by detailed disaggregate 6-digit product classification. Examining the major imports clearly reveals India's heavy reliance on high valued sophisticated products like machinery (HS 84 & HS 85), Iron & Steel (HS 72) and transport structures (HS 89). Out of the 10 products, machinery items (both HS 84 and 85) account around 26 percent of total imports into India in 2012. The large surge in machinery imports can be mainly attributed to the Inverted Duty Structure (IDS) following the implementation of CEPA with Korea from 1st January 2010. Under the scheme, the duty structure for raw materials is higher, ranging from 2.5 to 10 percent, while it is zero for the final product. This has allowed domestic user industries like automobiles, engineering manufactures to source machinery and tools from Korea instead from domestic manufactures. The fall in demand has adversely impact on the competitiveness of the domestic machinery sector.

The detailed disaggregate level analysis further corroborate the findings at the 2-digt level. Accordingly, there are 52 six digit level products, of which 12 products are from HS39, and 11 products each are from HS72, and HS84 (see table A3.5). These 52 identified products not only

have CAGR greater than the average CAGR for all products during 2009-2012 but also have a higher share in the overall imports in 2012. Using the 2012 data it is seen that out of 52 top 80 percent imports, 18 products are machinery items (35 percent). In terms of end-use category, the largest components are capital goods (23 products) followed by intermediate goods (27). This further substantiates our earlier observation regarding India's heavy dependency on some of the critical sectors.

Table 3.6
India's top 80% imports from Korea at HS 2-digit product category US $ Million (%)

2 Digit	Description	2000	2005	2010	2012
84	Non-Electrical machinery	158.74 (19.43)	640.19 (14.59)	1603.20 (16.16)	2097.25 (15.34)
72	Iron and Steel	61.72 (7.55)	326.37 (7.44)	1310.10 (13.20)	1658.86 (12.13)
85	Electrical machinery and equipment	136.38 (16.69)	1699.54 (38.75)	1718.35 (17.32)	1430.45 (10.46)
89	Ships, boats and floating structures.	-	273.04 (6.22)	16.97 (0.17)	1205.52 (8.82)
39	Plastics and articles thereof.	74.28 (9.09)	263.60 (6.01)	820.93 (8.27)	1037.69 (7.59)
29	Organic chemicals	63.47 (7.77)	149.43 (3.41)	702.21 (7.08)	948.46 (6.94)
27	Mineral fuels, oils & product	5.30 (0.65)	0.04 (0.001)	693.32 (6.99)	898.07 (6.57)
87	Vehicles other than railway or tramway rolling-stock, parts & accessories thereof	17.24 (2.11)	270.78 (6.17)	784.43 (7.91)	753.24 (5.51)
99	UN special code	17.03 (2.08)	-	455.35 (4.59)	654.78 (4.79)
71	Natural or cultured pearls, stones	5.64 (0.69)	22.81 (0.52)	40.24 (0.41)	573.81 (4.20)

Note: Figures in parenthesis are the respective shares of each HS 2 2-digit product category in total imports from Korea for a given year (%).
Source: Authors calculation using data from UN COMTRADE (WITS) database. Figures in the table have been sorted in descending order on year 2012.

There are two effects of capital goods imports on domestic industrial sector. There can be some user industries, which depends heavily on imported machines to improve its productivity and efficiency. In addition, there can be some import-competing segment of the machinery-producing units, which compete directly with these foreign capital goods, resulting loss in competitiveness and ultimately the market share. There is some evidence to support the latter argument. For example, the Pressure vessel reactors/Towers and Chemical storage tanks (HS 84798910), a major non-electrical engineering segment is facing competitive disadvantage due to the Inverted Duty Structure (IDS). Due to CEPA, the custom duty is zero while the other countries imports face a duty of 7.5 percent. This resulted in large imports from Korea and creating unwarranted competitive pressure on the indigenous domestic manufactures.

Table 3.7
Relative position of India's imports from Korea at the HS 2-digit product category *(%)*

2 Digit	Description	2000	2005	2010	2012
89	Ships, boats and floating structures.	-	14.69	0.47	19.57
87	Vehicles other than railway or tramway rolling-	4.37	27.21	19.85	15.13
72	Iron & Steel	6.18	6.15	12.24	12.07
39	Plastics and articles thereof.	10.90	10.86	11.17	11.14
29	Organic chemicals	3.98	2.93	5.80	6.22
84	Non-Electrical Machinery	3.77	4.97	5.71	5.72
99	UN special code	2.31	-	5.18	5.44
85	Electrical machinery	5.07	15.35	6.82	4.90
71	Natural or cultured pearls, stones	0.06	0.10	0.06	0.70
27	Mineral fuels, oils & product	0.03	0.0001	0.63	0.48

Note: Relative position of India's imports from Korea at the HS 2-digit product category is calculated as India's imports of product i from Korea with respect to India's imports of product i from the world.
Source: Authors calculation from UN COMTRADE (WITS) database.

Finally, a look at the relative importance reveals that India depends heavily on Korea for ships & boats (HS 89), railway & vehicles apparatus (HS 87), Iron & steel (HS 72) and plastic products (HS 39) (see Table 3.7). All these products have at least 10 percent or more share (India's import from Korea *vis-a-vis* to the world) in 2012. It is evident that some of the products, like ships & boats apparatus, railway & vehicles apparatus, iron & steel, organic chemicals, non-electrical machinery, the share has witnessed an increasing trend during 2000-2012. Carrying out similar calculation at the 6-digit reveals that since 2000 Korea has emerged as a major supplier to India for 3 products, namely HS390330, HS721070, and HS390220 (see table A3.6).

3.4.1 Intra-Industry Trade between India & Korea

The intra-industry trade or two way trade between India and Korea for the identified products at the exports and imports are given in Table 3.8. It can be seen that high amount of trade between similar products is prevalent across mineral fuels, aluminium, organic chemicals, natural stones and zinc articles during 2000-12. Products such as oil seeds and organic chemicals witnessed large decline in IIT. Similar to what is observed in India-China; it is evident that between IIT is concentrated across few products. This implies that there is scope of further enhancing the trade prospects between these two countries so that both will enjoy product specialisation and exploit economies of scale. This is especially relevant in the context of the formulation of free trade agreement between the two in recent period.

Table 3.8
India's Intra-Industry Trade with Korea

HS 2Digits	Description	2000-02	2010-12
10	Cereals	0.00	0.00
12	Oil Seeds	0.89	0.09
23	Food Waste	0.02	0.03
27	Mineral Fuels & Oils	0.19	0.72
29	Organic Chemicals	0.87	0.56
39	Plastics	0.07	0.07
52	Cotton	0.05	0.06
71	Natural/cultured stones	0.63	0.55
72	Iron & Steel	0.60	0.41
76	Aluminium	0.93	0.68
79	Zinc Articles	0.02	0.45
84	Non-Electrical Machinery	0.10	0.10
85	Electrical Machinery	0.07	0.06
87	Vehicles, railway & parts	0.17	0.06
89	Ships & Boats	0.00	0.00

Note: The exports and imports data are the cumulative figures for the given period
Source: Authors calculation from UN COMTRADE (WITS)

The analysis so far suggests a clear case of heavy dependence of India on Korea for technology intensive, knowledge based product groups. It is evident that India has not been successful in emerging as a leading producer of these sophisticated products even though the domestic production has been in place for a long period of time. Therefore, it is necessary that India improve the manufacturing capability in order to meet the growing user demand and supply quality products in the Korean market. The issue of competitiveness and efficiency is even more important in the context of the recent formation of CEPA between the two countries. In the following section, we provide a brief introduction to CEPA and its implication on India's exports and imports.

3.5 Formation of CEPA and Its Implication for India's Trade with Korea

India and Korea signed Comprehensive Economic Partnership Agreement (CEPA) in 7th August 2009, which came into effect on 1st January 2010. The agreement has twelve chapters covering issues on goods, services, investments, bilateral cooperation, intellectual property rights and competition. Under the CEPA agreement, tariffs will be reduced or eliminated on 93% of Korea's and 85% of India's tariff lines. It will also facilitate trade in services through additional commitments made by both countries to ease movement of Independent Professional and Contractual Service Suppliers (IPCSS). Both countries have committed to provide national treatment and protect each other's investments to give a boost to bilateral investments in all sectors. Since its implementation, the two way trade has increased from US$ 12 billion in 2009-10 to US$ 17 billion in 2012-13 and expected to reach around US$ 40 billion by 2015 (Taneja,

et al 2014). Through the effects of CEPA, Korea wants to grow as the economic and logistic hub in East Asia, and India wants to diversify its trade partners from traditional Western countries to Asian countries. The CEPA allows 75 percent of Korean export goods to India to face no tariff or an eight-year phasing out of tariffs. India's tariffs on another 10 percent of goods will be phased out after 8-10 years (Tayal and Yoon, 2014).

The impact of CEPA on India's exports and imports is assessed by a comparative assessment of MFN rates and CEPA concession rates across Indian exports (Table A3.7 and A3.8) and India's major imports (Table A.3.9). It is evident that large number of identified products is covered under the CEPA concession rates. Since the base rates are expected to reduce in successive periods, India can hope to improve market access for number of existing and potential products in the future. On the import side, also it is found that CEPA provides tariff concessions to number of products leading to an overall surge in imports in Indian market. As examined earlier, some of the domestic import competing sectors are facing unwarranted competitive pressure because of the implementation of inverted duty structure scheme under CEPA. These aspects needs to be addressed the future dialogue between India and Korea.

Apart from these developments, a recent study by Taneja, *et al* (2014) looked at the inclusion of service trade in India-Korea CEPA. In services, both India and Korea have undertaken liberalising commitments in 11 service sectors along with additional commitments in audio-visual, financial and telecommunication services. The study finds that there are strong complementarities in services sectors such as IT, transportation, construction and audio-visual services which can be accentuated by further liberalising trade and movement of natural persons. In addition, as India has a competitive advantage in information technology, it can provide sophisticated testing, consulting and system solutions to Korean clients and on the other hand, the Korean construction firms can have huge investment opportunities in Indian market.

3.6 Summary

Being a High Performing Asian Economy (HPAE), Korea has emerged as a successful outward oriented country with superior growth performance. The state-led manufacturing policies has transformed the traditional agrarian economy into an effective high technology intensive manufacturing sector. In recent period, because of the rapid expansion of international trade, Korea has emerged as major player in the Asian region. In this context, there has been massive

increase in the bilateral trade flows between India and Korea. The superior comparative advantage of Korea in manufacturing has resulted in large amount of imports relative to India's exports to South Korea. As a result, the trade balance has deteriorated resulting widening trade deficit.

The study find that India's export baskets to Korea is more diversified than China but dominated by traditional labour intensive products such as mineral fuels, cereals, food wastes, oil seeds and cotton products. On the other hand, the high-income elastic products like Iron & Steel, zinc articles and machinery items are found to be either low growth or low share in the overall export basket. The study reveal that most of the high share products have competitive advantage in the global market. However, products like electrical machinery and non-electrical machinery and transport equipments, which enjoys the largest linkages and positive spillover in the overall manufacturing, are largely uncompetitive or has low growth rates. One plausible reason can be the prevalence of large amount of tariff and Non-Tariff Barriers (TBT/SPS) and the preferential trade agreements granted to some of the trade partners of Korea.

In the import case, the study clearly shows the heavy dependence of India on capital goods and intermediate goods on Korea. Similar to what is observed in China, India source most of the machinery items from Korea. The net effect of these import surges on domestic industry depends on many factors. This is because some of the user industries can benefit from the low cost quality imported machines although the import competing industries can have adverse impact. In this scenario, it is essential that industry improve the quality and cost competitiveness through investment in technology and skill upgradation.

The issue is more relevant in recent time with the formation of CEPA in 2010. In the export case, for number of products, India will benefit from reduction in base rates. However, in the case of imports, the study finds that the tariff reduction and introduction of specific schemes like IDS has significantly increased the import of intermediate and capital goods leading to loss in competitiveness in the domestic import competing segment. This has further accelerated the trade imbalances. Thus, to correct the trade deficit and maintain a healthy trade relation between Korea, it is necessary that India further strengthen the domestic capability and invest further in high value and sophisticated products in the near future.

APPENDIX

Table A3.1
India's major exports to Korea at the HS 6-digit product category

6Digit	Description	Relative position	Growth Status	Global Competitiveness	Applied MFN Tariff (%)	SPS/TBT	Number of SPS/TBT
120740	Sesamum seeds	High Share	High Growth	Competitive	0-0	SPS1-SPS5, SPS7-SPS11	10
230400	Oil cake and residues from soya bean oil	High Share	High Growth	Competitive	1.8-1.8	SPS1-SPS5, SPS7-SPS11	10
720241	Ferro-chromium	High Share	High Growth	Competitive	2-2	TBT1-TBT3	3
760110	Aluminum, not alloyed	High Share	High Growth	Competitive	1-5	TBT1-TBT3	3
790111	Zinc, not alloyed	High Share	High Growth	Competitive	3-3	TBT1-TBT3	3
100590	Other	Low Share	High Growth	Competitive	328-630	SPS1-SPS11	11
230690	Other	Low Share	High Growth	Competitive	5-5	SPS1-SPS5, SPS7-SPS11	10
261400	Titanium ores and concentrates.	Low Share	High Growth	Competitive	0-0	TBT1-TBT3	3
280300	carbon blacks	Low Share	High Growth	Competitive	5-5.5	TBT1-TBT3	3
290244	Mixed xylene isomers	Low Share	High Growth	Competitive	3-3	TBT1-TBT3	3
291619	Other acyclic monocarboxylic acids	Low Share	High Growth	Competitive	6.5-6.5	TBT1-TBT3	3
520524	Single yarn, of combed fibres	Low Share	High Growth	Competitive	8-8	TBT1-TBT3	3
520533	Multiple (folded) or cabled yarn	Low Share	High Growth	Competitive	0.8-0.8	TBT1-TBT3	3
520512	Single yarn, of uncombed fibres	Low Share	High Growth	Competitive	0-0	TBT1-TBT3	3
530599	Other	Low Share	High Growth	Competitive		No Information Available	
720230	Ferro-silico-manganese	Low Share	High Growth	Competitive	5-5	TBT1-TBT3	3
720110	Non-alloy pig iron	Low Share	High Growth	Competitive	0-0	TBT1-TBT3	3
722220	Bars and rods	Low Share	High Growth	Competitive	0-0	TBT1-TBT3	3
720211	Ferro-manganese	Low Share	High Growth	Competitive	5-5	TBT1-TBT3	3
780110	Refined lead	Low Share	High Growth	Competitive	3-3	TBT1-TBT3	3
780191	Other lead & articles	Low Share	High Growth	Competitive	3-3	TBT1-TBT3	3
230640	Of rape or colza seeds	High Share	Low Growth	Competitive		No Information Available	
271000	Petroleum oils and oils	High Share	Low Growth	Competitive		No Information Available	

290124	Unsaturated- Buta	High Share	Low Growth	Competitive	0-0	TBT1-TBT3	3
520523	Single yarn, fibres decitex	High Share	Low Growth	Competitive	8-8	TBT1-TBT3	3
711290	Other	High Share	Low Growth	Competitive		No Information Available	
240120	Tobacco, stemmed/stripped	Low Share	Low Growth	Competitive	20-20	SPS1-SPS5, SPS7-SPS11	10
260111	Iron ores and concentrates	Low Share	Low Growth	Competitive	0-0	TBT1-TBT3	3
294200	Other organic compounds.	Low Share	Low Growth	Competitive	6.5-6.5	TBT1-TBT3	3
294190	Other	Low Share	Low Growth	Competitive	2-6.5	TBT1-TBT3	3
320416	Synthetic organic colouring matter	Low Share	Low Growth	Competitive	8-8	TBT1-TBT3	3
320417	Synthetic organic matter thereon	Low Share	Low Growth	Competitive	8-8	TBT1-TBT3	3
330190	Other	Low Share	Low Growth	Competitive	8-754.3	TBT1-TBT7	7
410620	Parchment-dressed	Low Share	Low Growth	Competitive		No Information Available	
520522	Single yarn decitex	Low Share	Low Growth	Competitive	8-8	TBT1-TBT3	3
710239	Non-industrial :-- Other	Low Share	Low Growth	Competitive	5-5	TBT1-TBT3	3
722240	Angles, shapes and sections	Low Share	Low Growth	Competitive	0-0	TBT1-TBT3	3
854511	Electrodes	Low Share	Low Growth	Competitive	5-5	TBT1-TBT3, TBT13	4
730459	Other, of other alloy steel	Low Share	High Growth	Uncompetitive	0-5	TBT1-TBT3	3
760120	Aluminum alloys	Low Share	Low Growth	Uncompetitive	1-3	TBT1-TBT3	3
840999	Other	Low Share	Low Growth	Uncompetitive	5-8	TBT1-TBT3, TBT8-TBT12	8
848180	Other appliances	Low Share	High Growth	Uncompetitive	8-8	TBT1-TBT3	3
870899	Other parts and accessories	Low Share	High Growth	Uncompetitive	8-8	TBT1-TBT3,TBT14-TBT17	7

Note: 'No information available' means that the product is not listed in the WTO tariff database, MFN or non-MFN, and non-tariff databases for South Korea or the product is listed and there is no information available on it. Applied MFN tariff (%) data is for the year 2013 while no year pertains for the SPS/TBT data. Applied MFN Tariff is based on the min-max format.

Source: Author's calculation from Compendium of India's Trade Portal, Government of India, WTO database, and UN COMTRADE (WITS) database.

Table A3.2
Tariff preferences granted by Korea on India's existing major products at the HS 6-digit product category

6Digit	Top 5 Competing Countries	Applied MFN Tariff (%)	Preferential Applied Tariff Granted by South Korea to Trading Partner(s)	
			Preferential Trading Partner(s)	Applied Preferential Tariff (%)
100590	Brazil, Argentina, Ukraine, Romania, France	328-630	No Information Available	
120740	China, Pakistan, Ethiopia, Mexico, India	0-0	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA) Preferential duty rate for the Trade Negotiations among Developing Countries in WTO (Pakistan, Mexico) Least Developed Countries (LDC) duties (Ethiopia)	No Information Available
230400	Brazil, Argentina, China, Netherlands, India	1.8-1.8	No Trade Preferences for the Listed Competing Countries	
230690	China, Indonesia, Malaysia, Spain, India	5-5	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	5-5
240120	Brazil, Germany, Tanzania, Philippines, India	20-20	Preferential duty rate for the Trade Negotiations among Developing Countries in WTO (Brazil) Least Developed Countries (LDC) duties (Philippines)	
260111	Australia, Brazil, Canada, China, India	0-0	No Information Available	
261400	Australia, China, Spain, Netherlands, India	0-0	No Information Available	
280300	China, Japan, Singapore, Thailand, India	5-5.5	No Trade Preferences for the Listed Competing Countries	
290124	Indonesia, Singapore, China, Brazil, India	0-0	No Information Available	
290244	Japan, China, Philippines, Netherlands, India	3-3	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	1.5-1.5
291619	China, Germany, Japan, Netherlands, India	6.5-6.5	Not Applicable	
294190	China, Japan, Italy, Denmark, India	2-6.5	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	2-6.5
294200	China, Japan, Germany, Netherlands, India	6.5-6.5	No Trade Preferences for the Listed Competing Countries	
320416	China, Thailand, Indonesia, Switzerland, India	8-8	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	6.2-6.2
320417	Japan, China, Germany, Switzerland, India	8-8	No Trade Preferences for the Listed Competing Countries	
520512	Pakistan, China, Indonesia, Guatemala, India	2-8	No Trade Preferences for the Listed Competing Countries	
520522	China, Pakistan, Thailand, Japan, India	8-8	No Trade Preferences for the Listed Competing Countries	
520523	China, Pakistan, Turkey, Thailand, India	8-8	No Trade Preferences for the Listed Competing Countries	

520524	China, Indonesia, Thailand, Switzerland, India	8-8	No Trade Preferences for the Listed Competing Countries	
520533	China, Pakistan, Indonesia, Italy, India	8-8	No Trade Preferences for the Listed Competing Countries	
710239	Israel, Japan, Belgium, Thailand, India	5-5	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	2.5-2.5
720110	China, Japan, Russia, Brazil, India	0-0	No Information Available	
720211	Australia, South Africa, Norway, Japan, India	5-5	No Trade Preferences for the Listed Competing Countries	
720230	Ukraine, Indonesia, Norway, India	5-5	No Trade Preferences for the Listed Competing Countries	
720241	Kazakhstan, Russia, China, Japan, India	2-2	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	1-1
722220	China, Italy, Japan, Germany, India	0-0	No Information Available	
722240	China, France, Japan, Italy, India	0-0	No Information Available	
730459	Japan, Germany, France, China, India	0-0	No Information Available	
760110	Australia, China, Malaysia, Russia, India	1-1	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	0.5-0.5
760120	Russia, Canada, Australia, China, Malaysia	1-3	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	0.5-1.5
780110	Australia, Malaysia, Mexico, New Zealand, India	3-3	No Trade Preferences for the Listed Competing Countries	
780191	Mexico, Malaysia, Russia, Germany, India	3-3	No Trade Preferences for the Listed Competing Countries	
790111	Malaysia, Australia, Thailand, Japan, India	3-3	No Trade Preferences for the Listed Competing Countries	
840999	Germany, Japan, Romania, China, Italy	5-8	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	2.5-4
848180	Japan, China, Italy, Germany, UK	8-8	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	4-4
854511	Japan, China, France, Spain, India	5-5	No Trade Preferences for the Listed Competing Countries	
870899	Singapore, China, Germany, Japan, Italy	8-8	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	0-0

Note: 'No information available' means that the product is not listed in the WTO tariff database, MFN or non-MFN, and non-tariff databases for South Korea or the product is listed and there is no information available on it. Data for both Applied Preferential Tariff (%) and Applied MFN tariff (%) is for the year 2013. Both Applied Preferential Tariff (%) and Applied MFN Tariff (%) is based on the min-max format. Top 5 competing countries are selected on the basis of their respective market share in total world exports to South Korea in 2012. APTA refers to the Asia-Pacific Trade Agreement and signatories to this agreement are Bangladesh, China, India, Republic of South Korea, Lao People's Democratic Republic, Sri Lanka, Nepal, Philippines, and Mongolia.

Source: Author's calculation from Compendium of India's Trade Portal, Government of India, WTO database, and UN COMTRADE (WITS) database.

Table A3.3
India's export potential products to Korea at the HS 6-digit product category

6Digit	Description	Global RCA	Applied MFN Tariff (%)	SPS/TBT	Number of SPS/TBT
Category-I					
440710	Coniferous	Uncompetitive	5-5	TBT1-TBT3	3
020714	Cuts and offal, frozen	Uncompetitive	27-20	SPS1-SPS5, SPS7-SPS12	12
441214	Plywood consisting solely	Uncompetitive		No Information Available	
841112	Turbo-jets :-- Of a thrust exceeding 25 kN	Uncompetitive	8-3	TBT1-TBT3, TBT8-TBT12	8
842630	Portal or pedestal jib cranes	Uncompetitive	0-0	TBT1-TBT3, TBT8-TBT12	8
722550	Other, cold-rolled (cold-reduced)	Uncompetitive	0-0	TBT1-TBT3	3
800120	Tin alloys	Uncompetitive	3-3	TBT1-TBT3	3
400122	Technically specified natural rubber (TSNR)	Uncompetitive	0-0	TBT1-TBT3	3
710610	Powder	Uncompetitive	3-3	TBT1-TBT3	3
Category-II					
270900	Petroleum oils crude minerals	Uncompetitive	3-3	TBT1-TBT3, TBT18	4
760110	Aluminium, not alloyed	Competitive	1-1	TBT1-TBT3	3
720241	Ferro-chromium	Competitive	2-2	TBT1-TBT3	3
Category-III					
740400	Copper waste and scrap.	Uncompetitive	0-0	TBT1-TBT3	3
854430	Ignition wiring sets used aircraft or ships	Uncompetitive	8-8	TBT1-TBT3, TBT13	4
847160	Input or output units, whether	Uncompetitive	0-0	TBT1-TBT3, TBT8-TBT12	8
760200	Aluminium waste and scrap.	Uncompetitive	0-0	TBT1-TBT3	3
290124	UnsaturatedButa-1,3-diene and isoprene	Competitive	0-0	TBT1-TBT3	3
722830	Other bars and rods,	Uncompetitive	0-0	TBT1-TBT3	3
392062	Of polycarbonates, alkyd resins	Competitive	6.5-6.5	TBT1-TBT3	3
520100	Cotton not carded or combed.	Competitive	0-0	TBT1-TBT3	3
843143	Parts for boring or sinking machinery	Uncompetitive	0-0	TBT1-TBT3, TBT8-TBT12	8
840890	Other engines	Competitive	0-8	TBT1-TBT3, TBT8-TBT12	8

840734	Reciprocating piston engines	Uncompetitive	8-8	TBT1-TBT3, TBT8-TBT12	8
730459	Other, of alloy steel :-- Other	Uncompetitive	0-0	TBT1-TBT3	3
842129	Filtering or purifying machinery and apparatus	Uncompetitive	0-8	TBT1-TBT3, TBT8-TBT12	8
300490	Other	Competitive	8-8	TBT1-TBT3, TBT5, TBT19-TBT20	6
841410	Vacuum pumps	Uncompetitive	3-8	TBT1-TBT3, TBT8-TBT12	8
841199	Parts	Uncompetitive	3-8	TBT1-TBT3, TBT8-TBT12	8
853669	Lamp-holders, plugs and sockets :-- Other	Uncompetitive	0-8	TBT1-TBT3, TBT13	4
390110	Polyethylene having a specific gravity	Uncompetitive	6.5-6.5	TBT1-TBT3	3
540233	Textured yarn :-- Of polyesters	Competitive	8-8	TBT1-TBT3	3
940540	Other electric lamps and lighting fittings	Uncompetitive	8-8	TBT1-TBT3	3
030749	Sepiola spp Other	Competitive	10-22	SPS1-SPS5, SPS7-SPS11	11
820900	Plates, sticks, tips and the like	Uncompetitive	8-8	TBT1-TBT3	3
760120	Aluminium alloys	Uncompetitive	1-3	TBT1-TBT3	3
840820	Engines of a kind used for the propulsion of vehicles	Uncompetitive	8-8	TBT1-TBT3, TBT8-TBT12	8

Note: Only those products whose information on tariff and NTB are listed in this table. 'No information available' means that the product is not listed in the WTO tariff database, MFN or non-MFN, and non-tariff databases for South Korea or the product is listed and there is no information available on it. Applied MFN tariff (%) data is for the year 2013 while no year pertains for the SPS/TBT data. Applied MFN Tariff is based on the min-max format.

Source: Author's calculation from Compendium of India's Trade Portal, Government of India, WTO database, and UN COMTRADE (WITS) database.

Table A3.4
Tariff preferences granted by Korea to the competitors of India's export potential HS 6-digit products

6-Digit	Top 5 Competing Countries	Applied MFN Tariff (%)	Preferential Applied Tariff Granted by South Korea to Trading Partner(s)	
			Preferential Trading Partner(s)	Applied Preferential Tariff (%)
Category-I				
440710	Canada, Chile, Russia, New Zealand, China	5-5	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	2.5-3.5
020714	Brazil, USA, Denmark, Chile, Singapore	20-27	No Information Available	
841112	UK, Ireland, France, Netherlands, Singapore	3-8	No Trade Preferences for the Listed Competing Countries	
842630	China, Norway, Japan, Belgium, USA	0-0	Not Applicable (The product is a free good)	
722550	Japan, Singapore, China, Germany, Argentina	0-0	Not Applicable (The product is a free good)	
800120	Philippine's, Germany, Belgium, Malaysia, Japan	3-3	No Trade Preferences for the Listed Competing Countries	
400122	Indonesia, Thailand, Malaysia, Vietnam, China	0-0	Not Applicable (The product is a free good)	
710610	Japan, USA, France, Germany, Singapore	3-3	No Trade Preferences for the Listed Competing Countries	
Category-II				
270900	Russia, UK, Norway, Indonesia, Australia	3-3	No Trade Preferences for the Listed Competing Countries	
760110	Australia, China, India, Malaysia, Russia	1-1	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	0.5-0.5
720241	South Africa, India, Kazakhstan, Russia, Vietnam	2-2	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	1-1
Category-III				
740400	Japan, Germany, France, India, China	0-0	Not Applicable (The product is a free good)	
854430	China, Vietnam, USA, Germany, UK	8-8	No Trade Preferences for the Listed Competing Countries	
847160	China, Japan, Singapore, Philippines, Malaysia	0-0	Not Applicable (The product is a free good)	
760200	USA, Australia, Thailand, Japan, UK	0-0	Not Applicable (The product is a free good)	
290124	Indonesia, Singapore, India, China, Brazil	0-0	Not Applicable (The product is a free good)	
722830	China, Japan, Singapore, USA, Germany	0-0	Not Applicable (The product is a free good)	
392062	Japan, Singapore, China, USA, Thailand	6.5-6.5	No Trade Preferences for the Listed Competing Countries	
520100	Brazil, USA, Australia, Malaysia, China	0-0	Not Applicable (The product is a free good)	
843143	Norway, USA, China, Singapore, Germany	0-0	Not Applicable (The product is a free good)	
840890	Japan, USA, Germany, China, UK	0-0	No Trade Preferences for the Listed Competing Countries	
840734	China, Austria, Japan, Australia, USA	8-8	No Trade Preferences for the Listed Competing Countries	

730459	Japan, Germany, France, India, China	0-0	Not Applicable (The product is a free good)	
842129	Germany, Japan, USA, Norway, France	0-8	No Trade Preferences for the Listed Competing Countries	
300490	Australia, USA, Switzerland, Germany, Belgium	8-8	No Trade Preferences for the Listed Competing Countries	
841410	Japan, Germany, France, Czech, China	3-8	No Trade Preferences for the Listed Competing Countries	
841199	Japan, USA, Switzerland, Germany, Norway	3-8	No Trade Preferences for the Listed Competing Countries	
853669	Germany, China, USA, Japan, Thailand	0-8	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	0-4
390110	Thailand, Sweden, Malaysia, Japan, China	6.5-6.5	No Trade Preferences for the Listed Competing Countries	
540233	China, India, Vietnam, Indonesia, Malaysia	8-8	No Trade Preferences for the Listed Competing Countries	
940540	China, Germany, UK, USA, Singapore	8-8	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	4-5.6
30749	Vietnam, Peru, New Zealand, China, Thailand	10-22	No Trade Preferences for the Listed Competing Countries	
820900	China, Japan, Germany, Singapore, UK	8-8	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	7.2-8
760120	Russia, Canada, Australia, China, Malaysia	1-3	Preferential duty rate for the signatories to the Asia-Pacific Trade Agreement (APTA)	0.5-1.5
840820	Poland, France, Japan, Italy, USA	8-8	No Trade Preferences for the Listed Competing Countries	

Note: No information available' means that the product is not listed in the WTO tariff database, MFN or non-MFN, and non-tariff databases for South Korea or the product is listed and there is no information available on it. Data for both Applied Preferential Tariff (%) and Applied MFN tariff (%) is for the year 2013. Both Applied Preferential Tariff (%) and Applied MFN Tariff (%) is based on the min-max format. Top 5 competing countries are selected on the basis of their respective market share in total world exports to South Korea in 2012. APTA refers to the Asia-Pacific Trade Agreement and signatories to this agreement are Bangladesh, China, India, Republic of Korea, Lao People's Democratic Republic, Sri Lanka, Nepal, Philippines, and Mongolia.

Source: Author's calculation from Compendium of India's Trade Portal, Government of India, WTO database, and UN COMTRADE (WITS) database.

Table A3.5

India's top 80% imports from Korea at the HS 6-digit product category US$ Million (%)

6 Digit	Description	Use-Based	2000	2005	2010	2012
271000	Petroleum oils and oils obtained	Consumer goods	431.24 (52.78)	563.20 (12.76)	772.48 (7.79)	786.18 (5.75)
840820	Engines of a kind used for the propulsion of vehicles of Chapter 87	Capital goods	54.67 (6.69)	89.48 (2.03)	177.67 (1.79)	275.67 (2.02)
710812	Non-monetary :-- Other unwrought forms	Intermediate goods	1.33 (0.16)	17.24 (0.39)	298.43 (3.01)	241.32 (1.76)
390421	Other polyvinyl chloride :-- Non-plasticised	Intermediate goods	93.67 (11.46)	144.92 (3.28)	201.64 (2.03)	239.96 (1.75)
843149	Of machinery of heading No. 84.26, 84.29 or 84.30	Capital goods	29.77 (3.64)	70.37 (1.59)	103.30 (1.04)	143.78 (1.05)
721070	Painted, varnished or coated with plastics	Intermediate goods	13.10 (1.60)	69.01 (1.56)	78.57 (0.79)	99.55 (0.73)
720839	Other, in coils, not further worked than hot-rolled :--	Intermediate goods	12.10 (1.48)	5.93 (0.13)	57.95 (0.58)	90.89 (0.66)
390330	Acrylonitrile-butadiene-styrene (ABS) copolymers	Intermediate goods	32.69 (4.00)	69.64 (1.58)	74.76 (0.75)	85.59 (0.63)
890800	Vessels and other floating structures for breaking up.	Intermediate goods	-	4.29 (0.10)	1.33 (0.01)	81.70 (0.60)
722511	Of silicon-electrical steel :-- Grain-oriented	Intermediate goods	37.97 (4.65)	47.06 (1.07)	52.22 (0.53)	74.08 (0.54)
846299	Other :-- Other	Capital goods	16.15 (1.98)	11.76 (0.27)	20.89 (0.21)	71.71 (0.52)
390130	Ethylene-vinyl acetate copolymers	Intermediate goods	17.61 (2.16)	24.66 (0.56)	20.52 (0.21)	63.58 (0.46)
722519	Of silicon-electrical steel :-- Other	Intermediate goods	4.54 (0.56)	26.41 (0.60)	68.76 (0.69)	61.02 (0.45)
848071	Moulds for rubber or plastics :-- Injection or compression types	Capital goods	14.12 (1.73)	25.38 (0.58)	48.61 (0.49)	58.59 (0.43)
845710	Machining centres	Capital goods	6.09 (0.74)	9.46 (0.21)	20.61 (0.21)	52.70 (0.39)
720837	Other, in coils, not further worked than hot-rolled :--	Intermediate goods	5.43 (0.66)	10.11 (0.23)	31.17 (0.31)	52.23 (0.38)
848180	Other appliances	Capital goods	11.70 (1.43)	18.85 (0.43)	43.43 (0.44)	41.08 (0.30)
846229	Bending, Other	Capital goods	11.26 (1.38)	5.17 (0.12)	3.97 (0.04)	35.91 (0.26)
870850	Drive-axles transmission components	Capital goods	23.02 (2.82)	21.03 (0.48)	19.88 (0.20)	35.25 (0.26)
853690	Other apparatus	Capital goods	16.12 (1.97)	24.45 (0.55)	26.86 (0.27)	32.33 (0.24)
841989	Other machinery, plant and equipment :-- Other	Capital goods	2.68 (0.33)	6.92 (0.16)	33.46 (0.34)	31.65 (0.23)
710813	Non-monetary :-- Other semi-manufactured forms	Intermediate goods	0.21 (0.03)	0.05 (0.0012)	2.27 (0.02)	31.24 (0.23)
721933	Not further worked than cold-rolled (cold-reduced)	Intermediate goods	10.13 (1.24)	22.87 (0.52)	25.08 (0.25)	29.27 (0.21)
842199	Parts :-- Other	Capital goods	10.21 (1.25)	12.28 (0.28)	21.15 (0.21)	26.03 (0.19)
390230	Propylene copolymers	Intermediate goods	7.97 (0.98)	12.68 (0.29)	13.82 (0.14)	25.44 (0.19)
870893	Other parts and accessories :-- Clutches and parts thereof	Capital goods	10.96 (1.34)	14.63 (0.33)	21.94 (0.22)	25.29 (0.18)
853890	Other	Capital goods	11.01 (1.35)	18.03 (0.41)	21.18 (0.21)	24.60 (0.18)
841790	Parts	Capital goods	1.66	1.61	3.62	24.01

			(0.20)	(0.04)	(0.04)	(0.18)
841590	Parts	Capital goods	6.35 (0.78)	39.06 (0.89)	28.54 (0.29)	23.74 (0.17)
890400	Tugs and pusher craft	Capital goods	-	11.15 (0.25)	26.31 (0.27)	23.60 (0.17)
721934	Not further worked than cold-rolled (cold-reduced)	Intermediate goods	2.68 (0.33)	7.67 (0.17)	20.62 (0.21)	23.25 (0.17)
720838	Other, in coils, not further worked than hot-rolled	Intermediate goods	4.32 (0.53)	4.87 (0.11)	24.85 (0.25)	23.14 (0.17)
390190	Other	Intermediate goods	7.28 (0.89)	14.18 (0.32)	15.34 (0.15)	22.26 (0.16)
720712	Containing by weight less than 0.25 % of carbon	Intermediate goods	0.28 (0.03)	0.67 (0.02)	34.62 (0.35)	21.75 (0.16)
854460	Other electric conductors, for a voltage exceeding 1,000 V	Consumer goods	2.82 (0.35)	10.08 (0.23)	24.69 (0.25)	21.72 (0.16)
850440	Static converters	Capital goods	3.12 (0.38)	3.27 (0.07)	10.24 (0.10)	20.23 (0.15)
870839	Brakes and servo-brakes and parts thereof :-- Other	Capital goods	8.60 (1.05)	11.39 (0.26)	16.19 (0.16)	18.17 (0.13)
720690	Other	Intermediate goods	0.22 (0.03)	-	-	17.39 (0.13)
290711	Monophenols :-- Phenol (hydroxybenzene) and its salts	Intermediate goods	0.01 (0.001)	3.96 (0.090)	3.24 (0.033)	17.36 (0.13)
721990	Other	Intermediate goods	4.17 (0.51)	10.15 (0.23)	14.45 (0.15)	16.92 (0.12)
853669	Lamp-holders, plugs and sockets :-- Other	Capital goods	3.66 (0.45)	4.19 (0.09)	7.66 (0.08)	16.70 (0.12)
851150	Other generators	Capital goods	7.19 (0.88)	13.48 (0.31)	10.79 (0.11)	16.34 (0.12)
853710	For a voltage not exceeding 1,000 V	Capital goods	3.08 (0.38)	2.76 (0.06)	8.36 (0.08)	16.31 (0.12)
390799	Other polyesters :-- Other	Intermediate goods	5.61 (0.69)	8.93 (0.20)	14.07 (0.14)	15.88 (0.12)
391990	Other	Intermediate goods	4.68 (0.57)	9.48 (0.21)	11.62 (0.12)	13.87 (0.10)
390220	Polyisobutylene	Intermediate goods	1.57 (0.19)	5.86 (0.13)	8.25 (0.08)	13.65 (0.10)
870894	Other parts and accessories :-- Steering wheels, steering columns and steering boxes	Capital goods	4.08 (0.50)	8.62 (0.20)	11.43 (0.12)	13.53 (0.10)
390610	Polymethyl methacrylate	Intermediate goods	6.07 (0.74)	7.67 (0.17)	10.87 (0.11)	13.28 (0.10)
390730	Epoxide resins	Intermediate goods	5.34 (0.65)	8.73 (0.20)	9.75 (0.10)	12.55 (0.09)
390740	Polycarbonates	Intermediate goods	3.84 (0.47)	16.08 (0.36)	10.84 (0.11)	12.10 (0.09)
390760	Polyethylene terephthalate	Intermediate goods	5.00 (0.61)	8.94 (0.20)	19.36 (0.20)	12.08 (0.09)
870892	Other parts Silencers and exhaust pipes	Capital goods	4.86 (0.59)	5.27 (0.12)	5.99 (0.06)	7.74 (0.06)

Note: Figures in parenthesis are the respective shares of each product in total imports of India from Korea for a given year (%).Figures in the table have been sorted in descending year on % share in year 2012.
Source: Authors using data from UN COMTRADE (WITS) database.

Table A3.6
Relative position of India's imports from South Korea at the HS 6-digit product category (%)

6 Digit	Description	2000	2005	2010	2012
390330	Acrylonitrile-butadiene-styrene (ABS) copolymers	31.61	59.39	68.41	70.76
721070	Painted, varnished or coated with plastics	43.23	63.48	82.79	66.41
390220	Polyisobutylene	13.44	56.66	61.07	64.62
848071	Moulds for rubber or plastics :-- Injection or compression types	23.10	30.78	23.90	37.85
390610	Polymethyl methacrylate	29.74	44.48	34.98	37.63
851150	Other generators	3.01	20.51	40.28	36.61
870892	Other parts and accessories :-- Silencers and exhaust pipes	0.49	81.16	39.37	32.89
721934	Not further worked than cold-rolled (cold-reduced) :-- Of a thickness of 0.5 mm or more but not exceeding 1 mm	0.29	11.54	26.17	31.92
854460	Other electric conductors, for a voltage exceeding 1,000 V	1.61	3.46	16.34	31.50
390130	Ethylene-vinyl acetate copolymers	14.20	13.22	12.24	30.21
720837	Other, in coils, not further worked than hot-rolled :- - Of a thickness of 4.75 mm or more but not exceeding 10 mm	11.70	5.37	4.28	29.26
870893	Other parts and accessories :-- Clutches and parts thereof	1.39	18.23	27.99	29.24
840820	Engines of a kind used for the propulsion of vehicles of Chapter 87	-	19.89	21.92	25.81
722519	Of silicon-electrical steel :-- Other	4.59	7.68	15.42	25.43
846299	Other :-- Other	1.90	4.54	14.87	24.87
843149	Of machinery of heading No. 84.26, 84.29 or 84.30 :-- Other	2.67	6.43	17.12	24.25
846229	Bending, folding, straightening or flattening machines (including presses) :-- Other	5.03	16.22	7.04	23.86
390421	Other polyvinyl chloride :-- Non-plasticised	18.97	18.71	23.12	23.33
721933	Not further worked than cold-rolled (cold-reduced) :-- Of a thickness exceeding 1 mm but less than 3 mm	0.11	13.79	44.55	22.95
720839	Other, in coils, not further worked than hot-rolled :- - Of a thickness of less than 3 mm	3.81	1.71	3.78	21.84
720690	Other	1.01	-	-	21.38
722511	Of silicon-electrical steel :-- Grain-oriented	1.24	1.60	13.46	20.44
720838	Other, in coils, not further worked than hot-rolled :- - Of a thickness of 3 mm or more but less than 4.75 mm	0.00	19.67	10.31	18.62
390230	Propylene copolymers	39.54	14.42	13.87	16.51
870850	Drive-axles with differential, whether or not provided with other transmission components	0.65	25.70	10.16	15.57
271000	Petroleum oils and oils obtained from bituminous minerals, other than crude	0.29	-	9.74	15.20
845710	Machining centres	3.57	6.62	4.51	14.96
890800	Vessels and other floating structures for breaking up.	-	-	3.99	14.64
721990	Other	1.60	3.94	11.61	13.72
870839	Brakes and servo-brakes and parts thereof :-- Other	1.19	18.42	10.36	12.60
390760	Polyethylene terephthalate	8.94	12.56	18.62	12.11
841790	Parts	0.68	5.82	1.89	12.02
390799	Other polyesters :-- Other	3.05	13.62	6.69	10.33

870894	Other parts and accessories :-- Steering wheels, steering columns and steering boxes	7.71	36.07	11.20	10.04
842199	Parts :-- Other	2.91	5.55	7.00	9.75
841989	Other machinery, plant and equipment :-- Other	1.84	0.75	4.31	9.73
853690	Other apparatus	4.39	3.43	10.54	9.19
720712	Containing by weight less than 0.25 % of carbon	-	-	0.45	9.18
390730	Epoxide resins	10.25	6.47	6.73	8.88
390190	Other	7.28	5.58	10.34	8.65
841590	Parts	43.03	20.49	13.72	7.92
290711	Monophenols	-	5.13	2.14	7.21
853669	Lamp-holders, plugs and sockets :-- Other	4.12	11.05	4.30	6.99
391990	Other	13.62	6.05	6.49	6.99
853710	For a voltage not exceeding 1,000 V	1.57	0.69	1.45	5.23
848180	Other appliances	1.29	3.07	3.63	5.03
853890	Other	1.87	2.28	3.71	4.36
390740	Polycarbonates	1.58	7.03	5.67	3.77
850440	Static converters	2.76	1.63	0.63	2.83
890400	Tugs and pusher craft.	-	2.61	1.26	2.00
710813	Non-monetary :-- Other semi-manufactured forms	-	0.01	0.005	0.84
710812	Non-monetary :-- Other unwrought forms	0.07	0.14	0.05	0.49

Note: Relative position of India's imports from South Korea at the HS 2-digit product category is calculated as India's imports of product *i* from South Korea with respect to India's imports of product *i* from the world. A '-' indicates that the relative position could not be calculated as there was no information available on the exports of product *i* from South Korea into India for that particular year. Figures in the table have been sorted in descending order on year 2012.

Source: Authors calculation using data from UN COMTRADE (WITS) database.

Table A3.7
Tariff Structure for India's major exports to Korea: CEPA & MFN Rates

Product Code	Average Applied MFN Tariff by Korea				Korea's Concession on Indian Imports as per CEPA		Benefit to India from CEPA
	2010		2013				
	AV (%)	Non AV	AV (%)	Non AV duties	Base Rate	Staging Category	
100590	428.7 (328-630)		428.7 (328-630)		328	SEN	Benefit
120740		630% or 6,660/kg		630% or 6,660/kg	630% or 6,660/kg	EXC	Excluded
230400	1.8		1.8		1.8	E-0	Benefit
230690	5	63% or 72won/kg	5	63% or 72won/kg	5	E-8	Benefit
240120	20		20		20	EXC	Excluded
260111	0		0		1	E-0	Benefit
261400	0		0		1	E-0	No Benefit
280300	5.5		5.4 (5-5.5)		5.5	E-0	Benefit
290124	0		0		0	E-0	No benefit
290244	3		3		5	E-0	Benefit
291619	6.5		6.5		6.5	E-0	Benefit
294190	5.9 (2-6.5)		5.9 (2-6.5)		6.5	E-0	Benefit
294200	6.5		6.5		6.5	E-0	Benefit
320416	8		8		8	E-5	Benefit
320417	8		8		8	E-5	Benefit
330190	68.9 (8-754.3)		68.9 (8-754.3)		8	RED	Benefit
520512	6.7 (4-8)		5.3 (0-8) 33.3% Duty Free		8	E-8	No benefit
520522	8		8		8	EXC	Excluded
520523	8		8		8	SEN	Benefit
520524	8		8		8	SEN	Benefit
520533	8		4 (0-8) 50% Duty Free		8	E-8	No benefit
710239	5		5		5	E-8	Benefit
720110	0		0		2	E-8	No benefit
720211	5		5		8	E-8	No benefit uptil 2013

720230	5	5	8	E-8	No benefit uptil 2013
720241	3	2	3	E-0	Benefit
722220	0	0	0	E-0	No benefit
722240	0	0	0	E-0	No benefit
730459	0	0	0	E-0	No benefit
760110	1	1	3	E-0	Benefit
760120	1.7 (1-3)	1.7 (1-3)	3	E-0	Benefit
780110	3	3	5	E-0	Benefit
780191	3	3	5	E-0	Benefit
790111	3	3	5	E-0	Benefit
840999	7.6 (5-8)	7.6 (5-8)	5	E-0	Benefit
848180	8	8	8	E-5	Benefit
854511	5	5	5	E-0	Benefit
870899	8	8	8	E-0	Benefit

Note: 1) E-5 (To be abolished within 5 years), E-8 (to be abolished within 8 years), SEN (to be reduced by 50% within 10 years), RED (to be reduced to 1-5% within 8 years).

Source: Authors calculation from WTO database & CEPA document.

Table A3.8
India's potential exports to South Korea at the HS 6-digit product category: CEPA & MFN Rates

Product Code	Average Applied MFN Tariff by Korea (AV duties, %)		Korea's Concession on Indian Imports as per India-Korea CEPA		Benefit to India from India-Korea CEPA
	2010	2013	Base Rate	Staging Category	
Category-I					
020714	21.6 (20-27)	21.6 (20-27)	20	EXC	Excluded
400122	0	0	1	E-0	No benefit
440710	5	5	5	SEN	Benefit
710610	3	3	3	E-0	Benefit
722550	0	0	0	E-0	No benefit
800120	3	3	3	E-0	Benefit
841112	6.3 (3-8)	6.3 (3-8)	8	E-0	Benefit
842630	0	0	0	E-0	No benefit
Category-II					
270900	3	3	5	E-5	Benefit after 2012
720241	3	2	3	E-0	Benefit
760110	1	1	3	E-0	Benefit
Category-III					
030749	13 (10-22)	15.3 (10-22)	10	EXC	Benefit
290124	0	0	0	E-0	No benefit
300490	8	8	8	E-5	Benefit
390110	6.5	6.5	6.5	E-0	Benefit
392062	6.5	6.5	6.5	E-0	Benefit
520100	0	0	1	E-0	No benefit
540233	8	8	8	E-5	Benefit
722830	0	0	0	E-0	No benefit
730459	0	0	0	E-0	No benefit
740400	0	0	0	E-0	No benefit
760120	1.7 (1-3)	1.7 (1-3)	3	E-0	Benefit
760200	0	0	1	E-0	No benefit
820900	8	8	8	E-5	Benefit
840820	8	8	8	E-0	Benefit
840890	5.9 (0-8) 14.3% of Tariff Line Duty Free	5.9 (0-8) 14.3 % of Tariff Line Duty Free	0	E-0	Benefit
841410	6.3 (3-8)	6.3 (3-8)	8	E-0	Benefit
842129	6.4 (0-8) 20% of Tariff Line Duty Free	6.4 (0-8) 20% of Tariff Line Duty Free	8	E-0	Benefit
843143	0	0	0	E-0	No benefit

847160	0	0	0	E-0	No benefit
853669	4 (0-8) 50% of Tariff Line Duty Free	4 (0-8) 50% of Tariff Line Duty Free	0	E-0	Benefit
854430	8	8	8	E-5	Benefit
940540	8	8	8	E-0	Benefit

Note: 1) E-5 (To be abolished within 5 years), E-8 (to be abolished within 8 years), SEN (to be reduced by 50% within 10 years), RED (to be reduced to 1-5% within 8 years).

Source: Authors calculation from WTO database & CEPA document.

Table A3.9
India's top 80% imports from Korea at the HS 6-digit product category: CEPA & MFN Rates

Product Code	Use-Based Classifications	Average Applied MFN Tariff by India (AV duties, %)		India's Concession on Korean Exports as per India-Korea CEPA		Benefit to India from India-Korea CEPA
		2010	2013	Base Rate	Staging Category	
290711	Intermediate goods	7.5	7.5	12.5	EXC	Excluded
390130	Intermediate goods	5	5	5	E-5	Benefit
390190	Intermediate goods	6.3 (5-7.5)	6.3 (5-7.5)	5	RED	Uncertain
390220	Intermediate goods	7.5	7.5	12.5	EXC	Excluded
390230	Intermediate goods	5	5	5	EXC	Excluded
390330	Intermediate goods	5	5	5	EXC	Excluded
390421	Intermediate goods	7.5	7.5	5	EXC	Excluded
390610	Intermediate goods	7.5	7.5	12.5	RED	Uncertain
390730	Intermediate goods	7.5	7.5	12.5	E-8	No Benefit
390740	Intermediate goods	5	7.5	12.5	E-5	Benefit from 1st January 2013
390760	Intermediate goods	7.5	7.5	12.5	EXC	Excluded
390799	Intermediate goods	7.5	7.5	12.5	E-5	Benefit from 1st January 2012
391990	Intermediate goods	10	10	12.5	E-8	Benefit from 1st January 2012
710812	Intermediate goods	10	10	7.5	E-8	Benefit
710813	Intermediate goods	10	10	7.5	E-8	Benefit
720690	Intermediate goods	5	5	5	E-8	Benefit

720712	Intermediate goods	5	5	5	E-8	Benefit
720837	Intermediate goods	5	7.5	5	E-8	Benefit
720838	Intermediate goods	5	7.5	5	E-8	Benefit
720839	Intermediate goods	5	7.5	5	E-8	Benefit
721070	Intermediate goods	5	7.5	5	E-5	Benefit
721933	Intermediate goods	5	5	7.5	RED	Uncertain
721934	Intermediate goods	5	5	7.5	E-8	Benefit from 1st January 2013
721990	Intermediate goods	5	5	7.5	RED	Uncertain
722511	Intermediate goods	5	5	7.5	E-8	Benefit from 1st January 2013
722519	Intermediate goods	5	5	7.5	E-8	No benefit up til 31st December 2013
840820	Capital goods	7.5	7.5	12.5	RED	No benefit
841590	Capital goods	10	10	12.5	RED	Uncertain
841790	Capital goods	7.5	7.5	12.5	E-8	No benefit
841989	Capital goods	6.7 (0-7.5) 11.1% duty free	7.5	12.5	E-0	Benefit
842199	Capital goods	7.5	7.5	12.5	E-5	Benefit from 1st January 2013
843149	Capital goods	7.5	7.5	12.5	E-5	Benefit from 1st January 2013
845710	Capital goods	7.5	7.5	12.5	E-5	Benefit from 1st January 2012
846229	Capital goods	7.5	7.5	12.5	E-8	No benefit
846299	Capital goods	7.5	7.5	12.5	E-8	No benefit up til 31st December 2013
848071	Capital goods	7.5	7.5	12.5	E-0	Benefit
848180	Capital goods	7.5	7.5	12.5	E-5	Benefit from 1st January 2013
850440	Capital goods	5.8 (0-10) 33.3% duty free	8.3 (7.5-10)	12.5	EXC	Excluded
851150	Capital goods	7.5	7.5	12.5	EXC	Excluded
853669	Capital goods	5 (0-10) 50% duty free	10	12.5	E-0	Benefit
853690	Capital goods	5.6 (0-7.5) 25% duty free	7.5	12.5	SEN	No benefit
853710	Capital goods	7.5	7.5	12.5	RED	Uncertain
853890	Capital goods	3.8 (0-7.5) 50% duty free	7.5	12.5	E-0	Benefit

854460	Consumer goods	7.5	7.5	12.5	RED	Uncertain
870839	Capital goods			12.5	EXC	Excluded
870850	Capital goods	10	10	12.5	EXC	Excluded
870892	Capital goods	10	10	12.5	EXC	Excluded
870893	Capital goods	10	10	12.5	EXC	Excluded
870894	Capital goods	10	10	12.5	EXC	Excluded
890400	Capital goods	10	10	12.5	E-8	Benefit from 1st January 2012
890800	Intermediate goods	10	5	5	E-8	Benefit

Note: 1) E-5 (To be abolished within 5 years), E-8 (to be abolished within 8 years), SEN (to be reduced by 50% within 10 years), RED (to be reduced to 1-5% within 8 years).

Source: Authors calculation from WTO database & CEPA document.

Table A3.10
List of SPS and TBT restrictions: Korea

SPS/TBT	Description
SPS1	Annex
SPS2	Import Procedures in South Korea
SPS3	Note
SPS4	Equivalence Recognition & Management Procedures for Processed Organic Foods
SPS5	Note on Equivalence Recognition & Management Procedures for Processed Organic Foods
SPS6	Phytosanitary Certificate
SPS7	Note on Food Additives Database
SPS8	Attachment 1 MRLs for Pesticides in Foods hwp
SPS9	Attachment 2 Notice No 2011 159 hwp
SPS10	Attachment 3 Notice No 2011 189 hwp
SPS11	Guidelines on MRLs of Pesticides and Veterinary Drugs in Food hwp
TBT1	Customs Act
TBT2	Import Customs System
TBT3	Technical Standards
TBT4	Cosmetics Act
TBT5	Enforcement Decree Toxic Chemicals Control Act
TBT6	Toxic Chemicals Control Act
TBT7	Note for Cosmetics Act
TBT8	Construction Machinery Management Act
TBT9	Noise and Vibration Control Act
TBT10	Presidential Decree for the Construction Machinery Management Act
TBT11	Construction Machinery Management Act Note
TBT12	Noise and Vibration Control Act Note
TBT13	Electric Appliances Safety Control Act
TBT14	Automobile Management Act
TBT15	Noise and Vibration Control Act
TBT16	Automobile Management Act Note
TBT17	Noise and Vibration Control Act Note

Chapter IV India-Indonesia Bilateral Trade Developments

4.1 Introduction

Historically, Indonesian economy is a natural resource endowed economy with heavy dependence on the agriculture and allied activities (OECD, 2012).The focus of development policy was to achieve self-sufficiency in agriculture and allied activities. During the late 1960s and 1970s, a gradual process of industrialization and urbanisation followed as the policy focus shifted towards manufactured exports (Goeltom 2007). The initial phase was characterised by severe restriction on imports as foreign exchange was relatively scarce and resources were used to build indigenous manufacturing industries. From the mid-1980s, trade barriers were reduced and the Indonesian economy became more globally integrated (Elias and Noone, 2011).Foreign and domestic investment was gradually deregulated during 1986-94, especially for export oriented FDI. The rapid growth of Indonesian manufacturing industry occurred in almost all of its modern industry, which generally comprising of big scale production units with total labour of 100 people or more and middle scales industry employing 20 to 99labours (Thee, 1999).

The Indonesian economy has expanded significantly in recent decades and become the fourth largest economy in the East Asia– after China, Japan and South Korea – and the 15thlargest economy in the world on a purchasing power parity (PPP) basis (Elias and Noone, 2011). The economy has also been supported by the dynamism of its small firms, which have accounted for most of the job creation and half of the production growth since 2008 (OECD, 2012). Gains in total factor productivity have been increasing over time, a pattern that is observed in many other countries in the region (Park, 2010). As Indonesia emerged as Newly Industrialised Countries (NIC) in the Asian region, the international trade has also expanded to other neighbouring countries including India. Recently, India's bilateral trade with Indonesia has increased at steady rates.

The, bilateral trade flows between India and Indonesia during 2000-2012 in table 5.2. Compared to the bilateral trade with China, India's overall trade with Indonesia is negligible. For instance, in 2000, out of total world exports, India supply only 1 percent to Indonesian market. Since then, the share has improved only marginally and by 2012 reached around 2 percent. This suggests that there exist high scope and opportunities for India to increase its export basket to the Indonesian market. Similarly, the share of Indonesian imports in India's

total world imports have remained marginal (around 2-3 percent during 2000-2012). However, as the import volumes is considerably higher than the exports volumes, the balance of trade is negative during the entire period (see table 4.1). For example, the trade balance have worsened from -596 US $ million in 2000 to -8046 US $ million by 2012. The widening trade balance has resulted large bilateral trade deficit for India.

Table 4.1
Bilateral Trade Flows between India & Indonesia: 2000-2012 Million US$

Year	India's exports to Indonesia	India's import from Indonesia	Total Trade	Balance of Trade
2000	390.4 (0.92)	985.8 (1.86)	1376.2	-595.5
2005	1390.1 (1.39)	3018.9 (2.14)	4409.0	-1628.9
2010	4557.1 (2.07)	9695.3 (2.77)	14252.4	-5138.2
2012	6021.9 (2.08)	14068.3 (2.88)	20090.2	-8046.4

Note (a) Figures in brackets represent percent share of India's exports (imports) to (from) Indonesia in India's total world exports (imports).
Source: Authors calculation based on UN COMTRADE (WITS)

The chapter is organised as follows. In the second section (5.2), the overall trade pattern between these two countries is discussed. The export development and identification of potential exports for India into Indonesia is provided in section 5.3. In the following section (5.4), the discussion focuses on the import of products from Indonesia at aggregate and disaggregate level. The last section (5.5) provides a brief summary of the entire study.

4.2 India-Indonesia Trade Pattern

The growing trade deficit is reflected in the poor terms of trade for India with Indonesia, which is stagnated around the range of 0.39 to 0.61 (see table 4.2).

Table 4.2
India & Indonesia's Trade Pattern: Terms of Trade & Relative Position (2000-2012)

Year	India's Terms of Trade	Indonesia Terms of Trade	India's trade in Indonesia Total Trade (% Share)	India's trade to Indonesia as proportion of India's trade with the World (%)
2000	0.40	2.19	1.44	1.44
2005	0.46	2.74	3.08	1.83
2010	0.47	3.01	4.86	2.50
2012	0.43	2.90	5.27	2.58

Source: Authors calculation based on UN COMTRADE, accessed from WITS

In contrast, the terms of trade for Indonesia is above unity (range from 1.97 to 3.36) and witnessed improvement during 2000-12. Further, during the same period Indonesia's share in India's total trade has increased marginally from 1.4 percent to 2.6 percent while India's share in Indonesia's total trade has increased markedly from 1.4 percent to 5.3 percent.

To examine the structure of trade basket, we looked at the trade flows at 2-digit HS classification (see table 4.3). In the case of export basket, the major (top 80 percent) products consist of eleven products among them the major items were mineral fuels(26 percent), Organic Chemicals (12 percent), Ships & Boats (10 percent), Cereals (10 percent) and Nuclear reactors (5 percent). Among them, for ships & boats and oil seeds, Indonesia is the major export market for India. Thus, compared to China and Korea, India's export basket is diversified. Since the technology intensive products like electrical and non-electrical machinery holds roughly around 10 percent share, there is high scope for India to improve market share by enhancing competitiveness.

Table 4.3
India's Major Traded Product Groups with Indonesia: by 2-Digit Classification

2Digit	Description	2000	2005	2012	Share of total exports to Indonesia (% in 2012)	Share of Indonesia in India's total World exports (% 2012)
(A)	**India's Exports to Indonesia (Million US$)**					
27	Mineral fuels	8.7	183.0	1571.7	26.1	2.9
29	Organic chemicals	56.8	309.3	730.1	12.1	5.8
89	Ships & Boats	0.1	10.2	608.8	10.1	14.8
10	Cereals	1.1	1.4	580.4	9.6	6.6
84	Non-Electrical Machinery	14.4	77.4	271.5	4.5	2.5
12	Oil seeds	41.6	57.1	228.1	3.8	12.7
87	Transport vehicles	18.2	20.5	221.7	3.7	1.8
72	Iron & Steel	22.5	185.0	210.1	3.5	2.7
85	Electrical Machinery	7.4	26.8	198.8	3.3	1.8
39	Plastics	13.3	26.2	145.5	2.4	2.9
73	Articles of Iron & Steel	6.2	20.0	144.0	2.4	1.9
(B)	**India's Import from Indonesia (Million US$)**					
2Digit	**Description**	**2000**	**2005**	**2012**	**Share in total imports from Indonesia (% in 2012)**	**Share of Indonesia in India's total World imports (% 2012)**
27	Mineral Fuels	110.1	778.3	5634.9	40.1	3.0 (7.9)
15	Animal/Veg Oil	377.0	1082.5	5372.4	38.2	48.8 (23.7)
26	Ores, Slag & ash	43.0	188.5	412.4	2.9	6.4 (8.9)

Note: (a) The reported products constitute around 80% of India's exports (imports) to (from) Indonesia in 2012. (b) Figures in parenthesis in the last column in B shows the proportion of the total exports of each of the products by Indonesia to India by the total exports of each of the products by Indonesia to the World (% share).This gives us the relative importance of Indian market for Indonesia.
Source: Authors calculation based on UN COMTRADE, accessed from WITS

In contrast to the export scenario, the major import items consist of mainly primary products groups, namely, mineral fuels (40 percent), animal oils (38 percent) and Ore and Slags (3 percent). This reflects the comparative advantage of Indonesia in supplying agricultural and allied commodities. In the case of Animal & vegetable oil, Indonesia supplies almost 50 percent of India's world import and from Indonesian perspective, India is a significant market (around 24 percent share) (see the figures in parenthesis in seventh column in Table 4.3 (B)).

Table 4.4
Trade Complementarity index between India & Indonesia (2000-2012)

TCI	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
TCI1	44.1	49.1	48.9	49.8	51.3	51.9	57.7	58.9	63.6	59.6	63.0	63.4	62.9
TCI2	56.7	57.6	57.8	60.5	60.1	59.7	60.1	57.7	57.1	59.1	59.2	61.8	61.7

Note: TCI 1 based on India's exports to the world and Indonesia imports from the world; TCI2 is based on India's imports from the world and Indonesia exports to the world
Source: Authors calculation based on UN Comtrade database, WITS

To analyse the prospect of sustainable bilateral trade agreement between the two, the study calculated the Trade Complementarity Index (TCI) at the export side (TCI1) and import side (TCI2) for the period 2000-12 (see Table 4.4). It is found that, compared to the TCI between India-China and India-Korea, the trade prospects between India and Indonesia is relatively higher. In both the export side and import side, the TCI has continuously increased since 2000. For instance, TCI1 has increased from 44 percent in 2000 to 63 percent in 2012 while TCI2 has improved from 57 percent to 62 percent during the same period. Thus, given the magnitude of TCI, the scope of mutual trade between India and Indonesia is highly favorable in the near future.

4.3 Analysis of Export Opportunities

As before, the analysis of disaggregate exports of India to Indonesia is carried out to identify the major exports and potential exports. Given the structure of exports, the diversification of India's export basket is possible if export share of major exports and potential exports is increased. For analytical purposes, the analysis based on simple statistical tools like the overall share of each products in total exports to Indonesia, the corresponding growth rates based on CAGR during 2009-2012 and export competitiveness based on global RCA values for the period 2009-2012[14].

4.3.1 Analysis of India's Major Exports to Indonesia

There are 47 major exported items under 6-digit category, which falls under top 80 percent of overall exports of India to Indonesia in the year 2012 (see table A4.1). Six products namely, HS100590 (Other Cereals), HS100630 (Semi-Milled or Wholly-Milled Rice), HS120220 (Shelled, Whether or Not Broken), HS271000 (Petroleum Oils and Oils Obtained from), HS290243 (p-Xylene), and HS730511 (Line Pipe), not only have high share and growth rates, but also are globally competitive. In fact, out of 47 products, 40 products are found to be

[14]For details, see the methodology part of the report in the appendix of the chapter III. The share is calculated by taking India's exports of each 6-digit product to Indonesia by the total 6-digit exports of India to Indonesia in 2012 (in %). The benchmark growth rate is 27.6 percent and the benchmark share is 1.5 percent.

competitive. However, products that have high share like cereals, milled rice and ground nuts are largely primary products having low income elasticity. Although the growth rates of most of the transport, vehicles, and machinery items are high, the share is markedly low. This signifies our earlier observation that there is a need to enhance India's production capability in these high-income elastic products to penetrate effectively in the Indonesian market.

A plausible factor behind the low share of India's competitive products can be attributed to wide pervasiveness of various restrictive measures adopted by Indonesia. The trade restrictiveness is examined by looking at tariff and Non-Tariff Measures (SPS &TBT) on India's major exports (see Table A4.1) It is found that both measures are applied across products. For instance, both HS 870321 and HS870322 (Other vehicles, with spark-ignition), a globally competitive high-growth but low-share export product, faces an applied MFN duty rate ranging from 10 to 40 per cent plus two non-tariff barriers (TBT1 and TBT2). Compared to TBT, the SPS are prevalent across number of primary products of India. Although the restriction is widespread, the relative magnitude is less severe than China.

Examining the extent of competitive pressure from the rival economies, it is evident that across all the major exporting products, India face competition from China because of the ASEAN-China FTA, and Korea because of the ASEAN-Korea FTA (see Table A4.2). To illustrate, because of the FTA, the Chinese, Singaporean, and Malaysian exports of HS120740 (Sesamum seeds) enter the Indonesian market at a preferential duty rate of zero per cent. On the other hand, the FTA signed between India and ASEAN allow the Indian exports to enter the market at a preferential duty rate of 4.65 per cent.

4.3.2 Analysis of Potential Exports to Indonesia

Export potential products are identified by mapping the major (top 80 per cent) world imports of Indonesia and major world exports of India at HS 6 digit products for the years 2009 to 2012 and common products are identified. The growth of these common products reflects expanding domestic demand in Indonesia and expanding supplying capability of India. There are 84 HS 6 digit products that are identified as common products which fall into 27 HS 2-digit broad product category. This is listed in the table 5.5. It is significant to note that India has huge potential in supplying several technology intensive high-income elastic manufacturing products.

Table 4.5
India's export potential products to Indonesia: By HS 2-digit product category

2 Digit	Description
09	Coffee, tea, mate and spices
10	Cereals
27	Mineral fuels, oils & product of their distillation; etc.
29	Organic chemicals
32	Tanning or dyeing extract; tannins and their derivatives
38	Miscellaneous chemical products
39	Plastics and articles thereof
40	Rubber and articles thereof
42	Articles of leather; saddlery and harness; travel goods, handbags
44	Wood and articles of wood; wood charcoal
54	Man-made filaments
60	Knitted or crocheted fabrics
64	Footwear, gaiters and the like; parts of such articles
69	Ceramic products
72	Iron and steel
73	Articles of iron or steel
74	Copper and articles thereof
76	Aluminum and articles thereof
82	Tool, implement, cutlery, spoon and fork, of base metal; parts thereof of base metal
83	Miscellaneous articles of base metal
84	Non-Electrical Machinery
85	Electrical machinery equipment parts thereof
87	Vehicles other than railway or tramway rolling-stock, parts and accessories thereof
89	Ships, boats and floating structures
90	Optical, photographic, cinematographic, measuring, checking
94	Furniture; bedding, mattress, mattress support, cushions and similar stuffed furnishings

Note: The description of each HS 2-digit product is collected from UN COMTRADE (WITS) database

These 84 identified HS 6-digit products are classified into three categories namely category-I, category-II, and category-III products. Category-I comprises of those products that Indonesia is importing from the world, and India is exporting to the world but not to Indonesia. Category-II comprises of those products that are imported by Indonesia from the world and India but the import share of these products from India is 5 per cent or more. Category-III comprises of those products that Indonesia imports from the world and India but the import share of these products from India is less than 5 per cent. Even while the scope for increasing the market share for Category II products exist, the export potential is highest for Category I and Category III products. If India succeeds in securing an average market share of 5 percent for Category I and Category III products then the export value will increase by $0.78 billion. If we consider only the competitive products, the 5 percent share for category I and category III is $0.17 billion. The identified export potential products by 2 digit is given in table A4.3.

There are 11 products that Indonesia is importing from the world, and India is exporting to the world but not to Indonesia (category-I). There are 4 products that Indonesia is importing from the world and India but the import share of these products from India is 5 per cent or more (category-II). There are 69 products, which Indonesia imports from both the world and India, but the import from India is either 5 per cent or less. Out of all the selected products, there are only 18 products (only one product from category-I and 13 products from category-III) in which India has a revealed comparative advantage, i.e. they are globally competitive.

Examining the trade restrictiveness, it is evident that with the exception of globally competitive Food and Agricultural Product (HS100590 in category-II), both tariff and non-tariff barriers are relatively high across most of the products for category-I and category-III. (See table A4.3). Therefore, it appears that imposing such high tariffs and non-tariff barriers by Indonesia is having a negative impact on the market access for the export potential products of India. To develop export opportunities, India needs to be strengthen the competitive position as several countries have entered preferential agreement with Indonesia (see Table A4.4). It can be seen that from the 84 identified HS 6-digit products across the three categories on which information is available, India faces competition mainly from ASEAN member states.

Thus, we can see that the export basket of India has several high value products that can have significant growth prospects in the future. It needs to be seen whether India has the supply capability and necessary policy environment to meet the growing Indonesian domestic demand. Once the policy constraint and market distortions are corrected, the export opportunities can be realised in full potential.

4.4 Analysis of India's Import from Indonesia

In contrast to China and Korea, India's import from Indonesia consists of largely primary products like coal, palm oil and copper ore and since 2010, the value of all three categories have gone up considerably (see Table 4.3B). Among these three broad categories, the mineral fuels and animal & vegetable oils have largest share (almost 78 percent). The import composition at the 6-digit level for the identified products[15] are given in Table 4.6.

[15] The selection of products were based on growth rates (growth rates greater than the average CAGR for the year 2009-2012) and higher average share in respective 2 digit imports from Indonesia for the year 2012. This provide us three products in the 6-digit product category.

Table 4.6
India's top 80% imports from Indonesia at the HS 6-digit product category US$ Million (%)

6 Digit	Description	Use-Based	2000	2005	2010	2012
151190	Other Palm oil	Consumer goods	197.65 (52.43)	324.71 (30.0)	594.78 (15.31)	1259.17 (23.44)
260300	Copper Ore	Raw materials	43.04 (100.0)	188.10 (99.70)	685.72 (99.80)	406.46 (98.55)
270119	Other coking coal	Raw materials	85.03 (77.24)	769.62 (98.88)	2874.61 (93.97)	5480.28 (97.60)

Note: Figures in parenthesis are the respective shares of each product in respective 2digit import of India from Indonesia for a given year (%).
Source: Authors calculation using data from UN COMTRADE (WITS) database.

All the identified products have witnessed sharp increase from 2000. Both copper ore (HS 260300) and other coal (HS 270119) are the main component of HS 26 and HS27 (almost 100 percent during 2000-12). The share of Palm oil (HS 151190) is found to have declined from 52 percent in 2000 to 23 percent in 2012. In addition, it is evident that the import baskets consist largely of unsophisticated products, which are used as raw materials (copper ore and coal) or as consumer goods (Palm Oil). This is given in column three of table 4.6.

Table 4.7
Relative dependency of India's import from Indonesia (%)

6 Digit	Description	Use-Based	2000	2005	2010	2012
151190	Other Palm oil	Consumer goods	29.18 (33.45)	71.26 (12.88)	70.82 (12.22)	74.10 (14.00)
260300	Copper ores & concentrates.	Raw materials	16.91 (5.19)	23.16 (19.85)	15.04 (14.15)	8.32 (17.37)
270119	Other Coking coal	Raw materials	9.64 (4.33)	22.87 (20.42)	31.05 (21.42)	36.60 (31.05)

Note: The figures adjacent to parenthesis is calculated by taking India's imports of product i from Indonesia with respect to India's imports of product i from the world. The figures in parenthesis is calculated by taking Indonesia's exports of product i to India /total world exports of product i from by Indonesia (%).
Source: Authors calculation using data from UN COMTRADE (WITS) database.

To understand the extend of dependency of India on Indonesia for these products, the relative import dependency were calculated for each of the three identified products. The result reveal that in 2012, India depends heavily on Indonesia for of palm oil products (74 percent) and coking coal (37 percent). For both palm oil and coal, the import dependency share has increased considerably whereas for copper ores, the relative importance has decelerated during 2000-2012. However, Indonesia's preference for Indian market for Palm oil has declined over the years (see figures in parenthesis in Table 4.7). On the other hand, the relative importance of copper ore and other cooking coal has increased considerably over the years. This reflects the strong natural comparative advantage of Indonesia in resource based products.

Finally, in the sub-section 4.4.1, we examine the bilateral intra-industry trade between the two to explore the future trade prospects.

4.4.1 Intra-Industry Trade between India and Indonesia

The IIT between India and Indonesia is provided in table 4.8. Out of the 13 products, only six products, namely organic chemicals (0.97), electrical machinery (0.91), non-electrical machinery (0.87), plastics (0.65) and mineral fuels (0.60) reported high IIT during 2000-02. In the later period (2010-12), all products except mineral fuels experienced decline in IIT. The major sectors having very high IIT during this period were Iron & steel articles (0.99), ships and boats (0.88), electrical machinery (0.86), non-electrical machinery (0.68) and plastics (0.58). Apart from these five products, rest of the sectors experienced inter-industry trade in the period under consideration.

Table 4.8
India's Intra-Industry Trade with Indonesia (IIT_II)

HS 2Digits	Description	2000-02	2010-12
10	Cereals	0.00	0.00
12	Oil Seeds	0.03	0.02
15	Animal/Veg Fats	0.01	0.00
26	Ores, Slag & ashes	0.00	0.00
27	Mineral Fuels & Oils	0.60	0.61
29	Organic Chemicals	0.97	0.44
39	Plastics	0.65	0.58
72	Iron & Steel	0.13	0.37
73	Articles of Iron & Steel	0.50	0.99
84	Non-Electrical Machinery	0.87	0.68
85	Electrical Machinery	0.91	0.86
87	Vehicles, railway & parts	0.29	0.23
89	Ships & Boats	0.06	0.88

Note: The exports and imports data are the cumulative figures for the given period
Source: Authors calculation from UN COMTRADE (WITS)

Thus, this reflect a huge untapped potential of expansion of trade between these two countries and enjoy the benefit of varieties and economies of scale. Thus, the analysis of imports and export products reveal that India has high prospects in establishing niche market in Indonesia provided it improve the domestic capability. The heavy dependency of Indian consumers on Indonesian products reflect the comparative advantage of the latter in natural resource products.

4.5 Summary

The present case study explored the bilateral trade flows between India and Indonesia. The study explored the potential export opportunity products for India and examined the nature of external dependence on Indonesian products by India at 6-digit HS classification level. Being a NIE, Indonesian economy has performed remarkably well in the recent decade. The per capita

GDP is significantly larger than India in the past two decades. Since 2000, India's import from Indonesia has been larger than its exports resulting large bilateral trade deficits.

The study find that the present export basket of India consist of variety of products consisting of primary products like cereals, oil seeds to advanced technology intensive products like electrical & non-electrical machinery, transport equipment etc. India does have a comparative advantage in most of the less sophisticated manufacturing products and therefore able to maintain market presence. However, for most of the skill intensive products like machinery and equipment, India lack the competitive advantage and as a result, exports growth are largely abysmal. This will further constrain its future export prospects. Moreover, the export opportunities are also hampered by the imposition of various tariff and Non-Tariff barriers (TBT/SPS) by Indonesia.

The analysis of imports clearly reflects the relative comparative advantage of Indonesia in supplying natural resource products like palm oil and mineral fuels. These products are primarily used as consumer goods or raw materials in domestic economy. Since the composition of imports are not as severe as China and Korea, it is essential that the policy should focus on enhancing the export prospects of its manufacturing products especially the high growth oriented machinery and transport apparatus.

APPENDIX

Table A4.1
India's major exports to Indonesia at the HS 6-digit product category

6 Digit	Description	Relative Position	Growth Status	RCA	Applied MFN Tariff (%)	SPS/TBT	Number of SPS/TBT
090420	Fruits of the genus	Low Share	Low Growth	Competitive		No Information Available	
100630	Semi-milled or wholly milled rice	High Share	High Growth	Competitive	0-0	SPS1-SPS11	11
120220	Shelled, whether or not broken	High Share	High Growth	Competitive		No Information Available	
120740	Sesamum seeds	Low Share	Low Growth	Competitive	5-5	SPS1-SPS8, SPS12-SPS13	10
130232	Mucilages and thickeners, whether	Low Share	High Growth	Competitive	5-5	SPS1-SPS8	8
230640	Of rape or colza seeds	Low Share	Low Growth	Competitive		No Information Available	
240110	Tobacco, not stemmed/stripped	Low Share	High Growth	Competitive	5-5	SPS1-SPS8	8
240120	Tobacco	Low Share	High Growth	Competitive	5-5	SPS1-SPS8	8
271000	Petroleum oils	High Share	High Growth	Competitive		No Information Available	
280300	Carbon (carbon blacks	Low Share	Low Growth	Competitive	5-5	TBT1-TBT3	3
280920	Phosphoric acid	Low Share	High Growth	Non- Competitive	0-5	TBT1-TBT3	3
290124	Unsaturated:-- Buta	Low Share	High Growth	Competitive	0-0	TBT1-TBT3	3
290220	Benzene	Low Share	High Growth	Competitive	0-0	TBT1-TBT3	3
290241	Xylenes:-- o-Xylene	Low Share	Low Growth	Competitive	0-0	TBT1-TBT3	3
290242	Xylenes:-- m-Xylene	Low Share	High Growth	Competitive	5-5	TBT1-TBT3	3
290243	p-Xylene	High Share	High Growth	Competitive	0-0	TBT1-TBT3	3
294200	Other organic compounds.	Low Share	Low Growth	Competitive	5-5	TBT1-TBT3	3
320416	Synthetic organic colouring matter	Low Share	Low Growth	Competitive	5-5	TBT1-TBT3	3
320417	Synthetic organic colouring matter	Low Share	High Growth	Competitive	0-5	TBT1-TBT3	3
380810	Insecticides	Low Share	Low Growth	Competitive		No Information Available	
381710	Mixed alkylbenzenes	Low Share	High Growth	Competitive		No Information Available	
390210	Polypropylene	Low Share	Low Growth	Competitive	10-10	TBT1-TBT2, TBT4	3
390290	Other plastics	Low Share	High Growth	Non- Competitive	5-5	TBT1-TBT2, TBT4	3
401120	Of a kind used on buses or lorries	Low Share	High Growth	Competitive	15-15	TBT1-TBT2	2
520100	Cotton, not carded or combed.	Low Share	Low Growth	Competitive	0-0	TBT1-TBT2	2
520523	Single yarn, of combed fibres :--	Low Share	High Growth	Competitive	5-5	TBT1-TBT2	2
550410	Of viscose rayon	Low Share	High Growth	Competitive	5-5	TBT1-TBT2	2
560749	Of polyethylene	Low Share	High Growth	Competitive	5-5	TBT1-TBT2	2
720110	Non-alloy pig iron	Low Share	Low Growth	Competitive	0-0	TBT1-TBT2, TBT5	3
721913	Not further worked	Low Share	High Growth	Non- Competitive	0-0	TBT1-TBT2	2
721914	hot-rolled, in coils	Low Share	High Growth	Non- Competitive	0-0	TBT1-TBT2	2
722220	Bars and rods, not further	Low Share	High Growth	Competitive	5-5	TBT1-TBT2	2

730511	Line pipe of a kind used for oil	High Share	High Growth	Competitive	15-15	TBT1-TBT2	2
760110	Aluminum, not alloyed	Low Share	Low Growth	Competitive	0-0	TBT1-TBT2	2
790111	Zinc, not alloyed	Low Share	High Growth	Competitive	0-0	TBT1-TBT2	2
842619	Other Overhead travelling cranes	Low Share	High Growth	Non- Competitive	5-5	TBT1-TBT2, TBT6	3
851790	Parts of machinery equipment	Low Share	High Growth	Non- Competitive		No Information Available	
852520	Transmission apparatus	High Share	Low Growth	Competitive		No Information Available	
870321	Other vehicles, with spark-ignition	Low Share	High Growth	Competitive	10-40	TBT1-TBT2	2
870322	Other vehicles, with spark-	Low Share	High Growth	Competitive	10-40	TBT1-TBT2	2
870600	Chassis fitted with engines,	Low Share	Low Growth	Competitive		No Information Available	
870899	Other parts and accessories	High Share	High Growth	Non- Competitive	10-10	TBT1-TBT2	2
890110	Cruise ships	Low Share	High Growth	Competitive	5-5	TBT1-TBT2	2
890400	Tugs and pusher craft	Low Share	High Growth	Competitive	0-5	TBT1-TBT2	2
890590	Other	Low Share	Low Growth	Competitive	0-5	TBT1-TBT2	2

Note: 'No information available' means that the product is not listed in the WTO tariff database, MFN or non-MFN, and non-tariff databases for Indonesia or the product is listed and there is no information available on it. Applied MFN tariff (%) data is for the year 2012 while no year pertains for the SPS/TBT data. Applied MFN Tariff is based on the min-max format.

Source: Author's calculation from Compendium of India's Trade Portal, Government of India, WTO database, and UN COMTRADE (WITS) database.

TableA4.2

Tariff preferences granted by Indonesia on India's major export products at the HS 6-digit product category

6 Digit	Top 5 Competing Countries	Applied MFN Tariff (%)	Preferential Applied Tariff Granted by Indonesia to Trading Partner(s)	
			Preferential Trading Partner(s)	Applied Preferential Tariff (%)
090420	India, China, Malaysia, Thailand, Korea	No Information	Preferential duty rate for ASEAN members, India under ASEAN-India FTA, and China under ASEAN-China FTA	0-0
100590	India, Argentina, Brazil, Pakistan, United States	5-5	No Trade Preferences for the Listed Competing Countries	
100630	Vietnam, Thailand, India, Singapore, Pakistan	0-0	Not Applicable (The product is a free good)	
120220	India, Singapore, Tanzania, Malaysia, Mozambique	No Information	Preferential duty rate for ASEAN members, and India under ASEAN-India FTA	0-0
120740	India, Sudan, Singapore, China, Malaysia	5-5	Preferential duty rate for ASEAN members, China under ASEAN-China FTA	0-0
			Preferential duty rate for India under ASEAN-India FTA	4.65-4.65
130232	India, Malaysia, United States, Italy, Singapore	5-5	Preferential duty rate for ASEAN members, China under ASEAN-China FTA	0-0
			Preferential duty rate for India under ASEAN-India FTA	0-0
230400	Argentina, Brazil, India, United States, Paraguay	0-5	No Information Available	
230640	India, Canada, Pakistan, Australia, Thailand		No Information Available	
240110	Turkey, China, India, EU, Brazil	5-5	Preferential duty rate for India under ASEAN-India FTA	2-4.5
240120	China, Brazil, United States, EU, Italy	5-5	No Trade Preferences for the Listed Competing Countries	
271000	Singapore, Korea, China, Malaysia, India		No Information Available	
280300	China, Korea, India, Malaysia, Singapore	5-5	Preferential duty rate for India under ASEAN-India FTA	2-4.5
280920	Morocco, Jordan, China, India, South Africa	0-5	Preferential duty rate for India and China under ASEAN-India, and ASEAN-China FTA	0-0
290242	India, Germany, European Union	5-5	Preferential duty rate for India under ASEAN-India FTA	0-0
290243	India, Singapore, Oman, Thailand, Malaysia	0-0	Not Applicable (The product is a free good)	
294200	India, Singapore, China, Australia, Korea	5-5	Preferential duty rate for ASEAN members, China under ASEAN-China FTA, and Korea under ASEAN-Korea FTA	0-0

320416	India, China, Thailand, Korea, Singapore	5-5	Preferential duty rate for India under ASEAN-India FTA	0-0
			Preferential duty rate for ASEAN members, China under ASEAN-China FTA, and Korea under ASEAN-Korea FTA	0-0
320417	China, India, Japan, European Union, Korea	0-5	Preferential duty rate for India under ASEAN-India FTA	0-0
			Preferential duty rate for China and Korea under ASEAN-China, ASEAN-Korea FTA	0-0
390210	Singapore, Thailand, Malaysia, Vietnam, India	10-10	Preferential duty rate for India under ASEAN-India FTA	0-0
			Preferential duty rate for ASEAN members	0-0
390290	India, Singapore, China, Japan, Malaysia	5-5	Preferential duty rate for India under ASEAN-India FTA	9.25-9.25
			Preferential duty rate for ASEAN members	0-0
401120	China, India, Japan, Thailand, Singapore	15-15	Preferential duty rate for India under ASEAN-India FTA	2-4.5
			Preferential duty rate for ASEAN members	0-0
520100	Brazil, Australia, United States, Malaysia, EU	0-0	Preferential duty rate for India under ASEAN-India FTA	12-12
			Not Applicable (The product is a free good)	
520523	India, South Korea, China, Vietnam, Sri Lanka	5-5	Preferential duty rate for ASEAN members, China under ASEAN-China FTA, and Korea under ASEAN-Korea FTA	0-0
			Preferential duty rate for India under ASEAN-India FTA	2-2
550410	China, Thailand, India, Japan, Korea	5-5	Preferential duty rate for ASEAN members, China under ASEAN-China FTA, and Korea under ASEAN-Korea FTA	0-0
			Preferential duty rate for India under ASEAN-India FTA	3-3
560749	India, China, Malaysia, Korea, Singapore	5-5	Preferential duty rate for ASEAN members, China under ASEAN-China FTA, and Korea under ASEAN-Korea FTA	0-0
720110	India, Japan, Ukraine, Brazil, Africa	0-0	Not Applicable (The product is a free good)	
721913	India, China, Japan, Korea, Singapore	0-0	Not Applicable (The product is a free good)	
721914	India, China, Singapore, Thailand, Australia	0-0	Not Applicable (The product is a free good)	

722220	India, Japan, European Union, Thailand, Italy	5-5	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for India under ASEAN-India FTA	4.5-4.5
730511	Japan, India, Germany, EU, Korea	15-15	Preferential duty rate for India under ASEAN-India FTA	14-14
842619	Singapore, China, India, Japan, Malaysia	5-5	Preferential duty rate for India under ASEAN-India FTA	4.5-4.5
			Preferential duty rate for ASEAN members	0-0
870321	India, Singapore, EU, France, United States	10-40	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for India under ASEAN-India FTA	10-40
870322	Thailand, Japan, Korea, Malaysia, India	10-40	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for Korea under ASEAN-Korea FTA	0-40
			Preferential duty rate for India under ASEAN-India FTA	10-40
870600	Japan, Brazil, EU, India, Spain	5-40	No Trade Preferences for the Listed Competing Countries	
870899	Japan, Thailand, Singapore, India, Philippines	10-10	Preferential duty rate for ASEAN members	0-0
890110	Japan, Philippines, India, Korea, EU	5-5	Preferential duty rate for ASEAN members, India under ASEAN-India FTA, and Korea under ASEAN-Korea FTA	0-0
890400	Malaysia, India, China, Australia, Korea	0-5	Preferential duty rate for ASEAN members, India under ASEAN-India FTA, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
890590	China, Thailand, Japan, India, Malaysia	0-5	Preferential duty rate for ASEAN members, India under ASEAN-India FTA, and China under ASEAN-China FTA	0-0

Note: 'No information available' means that the product is not listed in the WTO tariff database, MFN or non-MFN, and non-tariff databases for Indonesia or the product is listed and there is no information available on it. Data for both Applied Preferential Tariff (%) and Applied MFN tariff (%) is for the year 2012. Both Applied Preferential Tariff (%) and Applied MFN Tariff (%) is based on the min-max format. Top 5 competing countries are selected on the basis of their respective market share in total world exports to Indonesia in 2012. FTA refers to Free Trade Agreement. ASEAN members include Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

Source: Author's calculation from Compendium of India's Trade Portal, Government of India, WTO database, and UN COMTRADE (WITS) database.

Table A4.3
Indonesia's Tariff and Non-Tariff Barriers on India's Potential Exports

6Digit	Description	MFN Tariff	SPS/TBT	No of SPS/TBT
Category I				
721061	Plated or coated with aluminium	0-0	TBT1-TBT2,TBT8-TBT9	4
842720	Other self-propelled trucks	8-8	TBT1-TBT2, TBT6	3
890120	Tankers	0-0	TBT1-TBT2	2
090700	Cloves (whole fruit, cloves and ste	8-8	No Requirement	
740400	Copper waste and scrap.	0-0	TBT1-TBT2	2
841112	Turbo-jets :-- Of a thrust exceedin	3-8	TBT1-TBT2, TBT6	3
291736	Aromatic polycarboxylic acids, thei	3-6.5	TBT1-TBT3	3
722530	Other, not further worked than hot-	0-0	TBT1-TBT2	2
830242	Other mountings, fittings and simil	8-8	TBT1-TBT2	2
Category II				
290243	Xylenes:-- p-Xylene	3-3	TBT1-TBT3	3
890520	Floating or submersible drilling or	5-5	TBT1-TBT2	2
100590	Other	328-630	SPS1-SPS8	8
Category III				
842952	Mechanical shovels, excavators and	0-0	TBT1-TBT2, TBT6	3
870829	Other parts and accessories of bodi	8-8	TBT1-TBT2	2
870421	Other, with compression-ignition in	10-10	TBT1-TBT2	2
732690	Other	8-8	TBT1-TBT2	2
870850	Drive-axles with differential, whet	8-8	TBT1-TBT2	2
390120	Polyethylene having a specific grav	6.5-6.5	TBT1-TBT2,TBT4	3
400219	Styrene-butadiene rubber (SBR); car	8-8	TBT1-TBT2	2
870894	Other parts and accessories :-- Ste	8-8	TBT1-TBT2	2
840890	Other engines	0-8	TBT1-TBT2, TBT6	3
722830	Other bars and rods, not further wo	0-0	TBT1-TBT2	2
731815	Threaded articles :-- Other screws	8-8	TBT1-TBT2	2
290220	Benzene	3-3	TBT1-TBT3	3
320611	Pigments and preparations based on	6.5-6.5	TBT1-TBT3	3
847780	Other machinery	8-8	TBT1-TBT2, TBT6	3
842951	Mechanical shovels, excavators and	0-0	TBT1-TBT2, TBT6	3
847810	Machinery	8-8	TBT1-TBT2, TBT6	3
845710	Machining centres	8-8	TBT1-TBT2, TBT6	3
842619	Overhead travelling cranes, transpo	0-0	TBT1-TBT2, TBT6	3
842890	Other machinery	0-0	TBT1-TBT2, TBT6	3
847420	Crushing or grinding machines	0-0	TBT1-TBT2, TBT6	3
841459	Fans :-- Other	8-8	TBT1-TBT2, TBT6	3
843999	Parts :-- Other	8-8	TBT1-TBT2, TBT6	3
731816	Threaded articles :-- Nuts	8-8	TBT1-TBT2	2
842839	Other continuous-action elevators a	0-0	TBT1-TBT2, TBT6	3
841360	Other rotary positive displacement	8-8	TBT1-TBT2, TBT6	3

090111	Coffee, not roasted :-- Not decaffe	2-2	SPS1-SPS8	8
940540	Other electric lamps and lighting f	8-8	TBT1-TBT2	2
870870	Road wheels and parts and accessori	8-8	TBT1-TBT2,TBT10	3
761699	Other	8-8	TBT1-TBT2	2
820559	Other hand tools (including glazier	8-8	TBT1-TBT2	2
870880	Suspension shock-absorbers	8-8	TBT1-TBT2	2
847730	Blow moulding machines	8-8	TBT1-TBT2, TBT6	3
902830	Electricity meters	8-8	TBT1-TBT2,TBT11	3
851140	Starter motors and dual purpose sta	3-8	TBT1-TBT2, TBT6	3
845011	Machines, each of a dry linen capac	8-8	TBT1-TBT2, TBT6	3
850720	Other lead-acid accumulators	8-8	TBT1-TBT2, TBT6	3
392062	Of polycarbonates, alkyd resins, po	6.5-6.5	TBT1-TBT2,TBT4	3
841939	Dryers :-- Other	3-8	TBT1-TBT2, TBT6	3
848220	Tapered roller bearings, including	8-8	TBT1-TBT2, TBT6	3
640419	Footwear with outer soles of rubber	13-13	TBT1-TBT2, TBT7	3
940510	Chandeliers and other electric ceil	8-8	TBT1-TBT2	2
870892	Other parts and accessories :-- Sil	8-8	TBT1-TBT2	2
690220	Containing by weight more than 50 %	8-8	TBT1-TBT2	2
392330	Carboys, bottles, flasks and simila	6.5-6.5	TBT1-TBT2,TBT4	3
841810	Combined refrigerator-freezers, fit	8-8	TBT1-TBT2, TBT6	3
848120	Valves for oleohydraulic or pneumat	8-8	TBT1-TBT2, TBT6	3
390210	Polypropylene	6.5-6.5	TBT1-TBT2,TBT4	3
401120	Of a kind used on buses or lorries	5-5	TBT1-TBT2	2
870600	Chassis fitted with engines, for th	8-8	No Requirement	
290124	Unsaturated:-- Buta-1,3-diene and i	0-0	TBT1-TBT3	3
420292	Other :-- With outer surface of pla	8-8	TBT1-TBT2	2
100630	Semi-milled or wholly milled rice,	5-5	SPS1-SPS8	8
870423	Other, with compression-ignition in	10-10	TBT1-TBT2	2
840820	Engines of a kind used for the prop	8-8	TBT1-TBT2, TBT6	3
290531	Diols:-- Ethylene glycol (ethanedio	3-3	TBT1-TBT3	3
940190	Parts	8-8	TBT1-TBT2	2
722540	Other, not further worked than hot-	0-0	TBT1-TBT2	2
290511	Saturated monohydric alcohols:-- Me	2-2	TBT1-TBT3	3
720838	Other, in coils, not further worked	0-0	TBT1-TBT2	2
841221	Hydraulic power engines and motors	8-8	TBT1-TBT2, TBT6	3
842940	Tamping machines and road rollers	0-0	TBT1-TBT2, TBT6	3
844520	Textile spinning machines	5-5	TBT1-TBT2, TBT6	3
390290	Other	6.5-6.5	TBT1-TBT2,TBT4	3
721914	Not further worked than hot-rolled,	0-0	TBT1-TBT2	2

Table A4.4
Tariff preferences granted by Indonesia to the competitors of India's export potential HS 6-digit products

6 Digit	Top 5 Competing Countries	Applied MFN Tariff (%)	Preferential Applied Tariff Granted by Korea to Trading Partners	
			Preferential Trading Partners	Preferential Applied Tariff (%)
Category-I				
721061	Vietnam, Korea, China, Singapore, Japan	12.5-12.5	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for Korea under ASEAN-Korea FTA	10-10
842720	Japan, China, Singapore, Korea, Sweden	5-5	Preferential duty rate for ASEAN members, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
890120	China, Japan, Thailand, Australia, Singapore	0-0	Not Applicable (The product is a free good)	
90700	Singapore, Madagascar, Tanzania, Netherlands, China	No Information	Preferential duty rate for China under ASEAN-China FTA	0-0
740400	Pakistan, Thailand, South Africa, USA, UK	0-0	Not Applicable (The product is a free good)	
841112	UK, Singapore, Belgium, Ireland, Pakistan	0-0	Not Applicable (The product is a free good)	
291736	Thailand, Korea, Japan, Germany, Belgium	0-0	Not Applicable (The product is a free good)	
852830	Singapore, China, Canada, Malaysia, Italy		No Information	
722530	Japan, China, Korea, Singapore, Malaysia	0-0	Not Applicable (The product is a free good)	
830242	China, Singapore, Thailand, Italy, Japan	10-10	Preferential duty rate for ASEAN members, and China under ASEAN-China FTA	0-0
Category -II				
290243	India, Singapore, Oman, Thailand, Malaysia	0-0	Not Applicable (The product is a free good)	
890520	India, Singapore, China, Netherlands, Oman	0-0	Not Applicable (The product is a free good)	
100590	India, Argentina, Brazil, Pakistan, USA	5-5	Preferential duty rate for Korea under ASEAN-Korea FTA	0-5
Category-III				
842952	Thailand, Japan, Korea, China, Singapore	10-10	Preferential duty rate for ASEAN members, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
870829	Japan, Thailand, Singapore, China, Germany	10-10	Preferential duty rate for ASEAN members	0-0
870421	Thailand, Korea, UK, Germany, Japan	10-40	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for Korea under ASEAN-Korea FTA	0-40
732690	Thailand, Japan, China, Malaysia, Singapore	7.5-7.5	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0

870850	Japan, Thailand, China, Malaysia, Korea	0-10	Preferential duty rate for ASEAN members, and China under ASEAN-China FTA	0-0
			Preferential duty rate for Korea under ASEAN-Korea FTA	0-10
390120	Singapore, Thailand, Malaysia, Japan, Korea	15-15	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for Korea under ASEAN-Korea FTA	10-10
400219	Korea, Japan, China, Poland, Singapore	5-5	Preferential duty rate for ASEAN members, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
870894	Japan, Thailand, Malaysia, China, Germany	10-10	Preferential duty rate for ASEAN members, and China under ASEAN-China FTA	0-0
840890	Japan, China, Singapore, UK, USA	0-10	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for China under ASEAN-China FTA	0-10
722830	China, Japan, Korea, India, Singapore	5-5	Preferential duty rate for ASEAN members, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
			Preferential duty rate for India under ASEAN-India FTA	4.5-4.5
870839	Japan, Thailand, China, Singapore, USA		No Information	
731815	Japan, China, Singapore, Thailand, Malaysia	12.5-12.5	Preferential duty rate for ASEAN members, and China under ASEAN-China FTA	0-0
320611	China, Australia, Singapore, Japan, Malaysia	5-5	Preferential duty rate for ASEAN members, and China under ASEAN-China FTA	0-0
847780	China, Germany, Japan, Korea, Austria	0-0	Preferential duty rate for Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
842951	Japan, China, USA, Singapore, Finland	10-10	Preferential duty rate for China under ASEAN-China FTA	0-0
847810	Italy, Malaysia, Singapore, India, China	5-5	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
			Preferential duty rate for India under ASEAN-India FTA	2-2
845710	Japan, Singapore, Korea, China, USA	5-5	Preferential duty rate for ASEAN members, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
842619	Singapore, China, India, Japan, Malaysia	5-5	Preferential duty rate for ASEAN members, and China under ASEAN-China FTA	0-0
			Preferential duty rate for India under ASEAN-India FTA	4.5-4.5
380830	China, USA, Australia, Korea, Singapore		No Information	
842890	Japan, Germany, China, Singapore, Korea	5-5	Preferential duty rate for ASEAN members, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
847420	China, Germany, Japan, Australia, Korea	5-5	Preferential duty rate for Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
841459	Japan, China, Germany, Singapore, Korea	5-10	Preferential duty rate for ASEAN members, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
843999	Finland, Singapore, France, China, Germany	5-5	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
731816	Japan, China, Thailand, Singapore, Sweden	12.5-12.5	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0

842839	China, Japan, Korea, Germany, Singapore	5-5	Preferential duty rate for ASEAN members, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
841360	China, Japan, Singapore, Germany, USA	5-7.5	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
90111	Vietnam, Brazil, Papua New Guinea, Tanzania, India	5-5	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for India under ASEAN-India FTA	2-2
940540	China, Singapore, USA, Korea, Germany	5-10	Preferential duty rate for Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
870870	China, Japan, Thailand, Singapore, Germany	0-10	Preferential duty rate for ASEAN members	0-0
761699	Singapore, USA, China, Thailand, Malaysia	5-15	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
820559	Singapore, China, Japan, Korea, Germany	5-5	Preferential duty rate for ASEAN members, Korea under ASEAN-Korea FTA, and China under ASEAN-China FTA	0-0
870880	Japan, China, Thailand, Korea, USA	10-10	Preferential duty rate for China under ASEAN-China FTA	0-0
847730	Japan, France, Germany, China, Italy	0-0	Not Applicable (The product is a free good)	
940380	China, USA, Singapore, Italy, Thailand		No Information	
902830	China, Singapore, France, India, South Africa	5-5	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
			Preferential duty rate for India under ASEAN-India FTA	4.5-4.5
851140	Thailand, Japan, China, Singapore, Germany	5-10	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
845011	China, Vietnam, Thailand, Turkey, India	5-10	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for India under ASEAN-India FTA	0-10
850720	China, Singapore, India, USA, France	10-10	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
			Preferential duty rate for India under ASEAN-India FTA	12-12
392062	China, India, Thailand, Japan, USA	10-10	Preferential duty rate for ASEAN members	0-0
841939	Japan, China, Germany, Singapore, USA	5-5	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
848220	Japan, Singapore, China, Italy, Thailand	5-5	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
640419	China, Singapore, Vietnam, Malaysia, Korea	25-25	Preferential duty rate for ASEAN members, and Korea under ASEAN-Korea FTA	0-0
			Preferential duty rate for China under ASEAN-China FTA	15-15
940510	China, Singapore, Germany, Thailand, Malaysia	5-10	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
870892	Thailand, Japan, USA, Germany, China	10-10	Preferential duty rate for ASEAN members	0-0
690220	China, UK, India, France, Japan	5-5	Preferential duty rate for China under ASEAN-China FTA	0-0

			Preferential duty rate for India under ASEAN-India FTA	4.5-4.5
392330	Malaysia, Thailand, China, Singapore, Vietnam	15-15	Preferential duty rate for ASEAN members	0-0
841810	Thailand, China, Korea, Singapore, Japan	10-10	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
			Preferential duty rate for Korea under ASEAN-Korea FTA	0-0
848120	Japan, Singapore, Germany, USA, Italy	5-5	Preferential duty rate for ASEAN members	0-0
390210	Singapore, Thailand, Malaysia, Vietnam, India	10-10	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for India under ASEAN-India FTA	9.25-9.25
401120	China, India, Japan, Thailand, Singapore	15-15	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for India under ASEAN-India FTA	12-12
870600	Japan, Brazil, India, Spain, China	5-40	No Trade Preferences for the Listed Competing Countries	
420292	China, Singapore, Korea, Malaysia, Vietnam	15-15	Preferential duty rate for ASEAN members and Korea under ASEAN-Korea FTA	0-0
870423	Japan, Singapore, Germany, China, Sweden	5-40	Preferential duty rate for ASEAN members	0-0
840820	Japan, Thailand, Singapore, Australia, Korea	0-15	Preferential duty rate for ASEAN members and Korea under ASEAN-Korea FTA	0-0
940190	Japan, China, Thailand, Philippines, Germany	10-10	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
290511	Malaysia, Australia, India, Brunei, Singapore	5-5	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for India under ASEAN-India FTA	4.5-4.5
720838	Korea, Japan, Kazakhstan, Belgium, Malaysia	5-5	Preferential duty rate for ASEAN members	0-0
841221	Japan, China, USA, Italy, Singapore	5-5	Preferential duty rate for ASEAN members and China under ASEAN-China FTA	0-0
842940	China, Singapore, Japan, Germany, France	5-10	Preferential duty rate for India under ASEAN-India FTA, and China under ASEAN-China FTA	0-0
844520	Japan, China, Germany, India, Italy	0-5	Preferential duty rate for India under ASEAN-India FTA, and China under ASEAN-China FTA	0-0
390290	India, Singapore, China, Japan, Malaysia	5-5	Preferential duty rate for ASEAN members	0-0
			Preferential duty rate for India under ASEAN-India FTA	2-4.5

Note: 'No information available' means that the product is not listed in the WTO tariff database, MFN or non-MFN, and non-tariff databases for Indonesia or the product is listed and there is no information available on it. Data for both Applied Preferential Tariff (%) and Applied MFN tariff (%) is for the year 2012. Both Applied Preferential Tariff (%) and Applied MFN Tariff (%) is based on the min-max format. Top 5 competing countries are selected on the basis of their respective market share in total world exports to Indonesia in 2012. FTA refers to Free Trade Agreement. ASEAN members include Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

Source: Author's calculation from Compendium of India's Trade Portal, Government of India, WTO database, and UN COMTRADE (WITS) database.

Table A4.5
List of SPS and TBT Restrictions: Indonesia

SPS/TBT	Description
SPS1	Food Safety Quality and Nutrition
SPS2	Indonesian Food Act 1996
SPS3	List of Documents for Food Registration
SPS4	Summary of Indonesian Food Regulations
SPS5	Note
SPS6	Indonesian Standard for Food Additives
SPS7	Regulation 881 MENKES SKB VIII 1996
SPS8	Note for Pesticides and Drug Residues
SPS9	Provision on the Import and Export of Rice
SPS10	Provision on the Import and Export of Rice 1st Amendment
SPS11	Provision on the Import and Export of Rice 2nd Amendment
SPS12	Phytosanitary Certificate
SPS13	Import Requirements
SPS14	Import of Pet Foods
TBT1	Prohibited Hazardous Substances for Food
TBT2	General Import Regulations and Requirements
TBT3	Import Requirements of Chemical Products
TBT4	Import of Petroleum and Petroleum Products
TBT5	Flat Rolled Products of Iron or non-alloy Steel
TBT6	Import Requirements of Machinery Products
TBT7	Footware Import Guidelines
TBT8	Cold Rolled Steel Sheet and RollsBottom of Form
TBT9	Note on Cold Rolled Steel Sheet and Rolls
TBT10	10 4836 00 x
TBT11	Import of Medical Devices

Chapter V Foreign Investment Regimes and Opportunities for India

5.1 Introduction

In the economic literature, Foreign Direct Investment (FDI) is considered as catalyst for economic growth as it not only increases the domestic capital formation or investments but also serve as a vehicle for transferring advanced knowledge, technology and other managerial experience to the recipient country. All of these factors are expected to augment production and better economic growth rates in the long-run (OECD, 2002). In general, some of the expected positive outcome of FDI includes employment generation, the acquisition of new technology and knowledge, human capital development, contribution to international trade integration, creation of a more competitive business environment and enhanced local/domestic enterprise development, and increased tax revenues from corporate profits (Klein *et al*., 2001; Tambunan, 2005). However, critiques argue that FDI can also bring significant cost to the host economy by increasing the market power of large firms and their associated ability to generate supernatural profits and finally, the increasing interference of multinational corporates in the domestic political regime (NCAER, 2009).

One can gauge the importance of FDI by looking at the fact that currently, the Transnational Corporations (TNCs), being the main vehicle of FDI, control over the 60 percent of total world production (World Investment Report, 2012). From $4.8 trillion sales in 1991, the TNC sales has increased to $28 trillion by 2011. In fact, the overall volume of global FDI flows has reached to $1.2 trillion which is around 35 percent higher than 2005 (World Investment Report, 2012). Increasing internalisation, rapid privatization programmes of East European countries and favourable foreign investment policies (tax holidays, import duty exemptions etc.) undertaken by Asian countries has led to this enormous growth of FDI in recent decades.

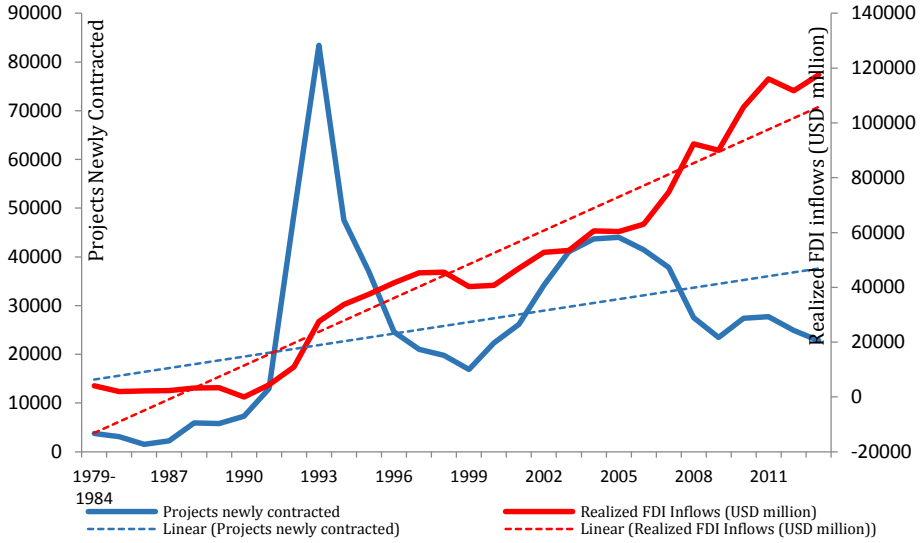
The objective of this chapter is to examine the nature and extent of FDI in China, Korea and India and identify the area of future investment opportunities in India. The basic purpose of allowing FDI is to provide a competitive environment in the manufacturing sector to improve the industry structure and to provide a source of technology and R&D activity along with the international networking to improve productivity and export performance. Since upgrading domestic

technological capability is essential for industrial competitiveness, the study argues that inward FDI can augment this process and help the Indian companies to compete successfully in the export market and thus reduce the widening trade deficit in future.

5.2 FDI Regime in China: Lessons and Opportunities

China has always welcomed and encouraged FDI ever since the implementation of an open-door policy adopted in 1978. Since then China has been receiving large amounts of foreign direct investment (FDI). From receiving as little as US$41404 million FDI inflows during the period 1979 -84, the total inflow increased to US$ 117586 by 2013. In fact, China surpassed the United States to become the world's largest recipient of global foreign direct investment by 2012.[16]

Figure 5.1
FDI Trend in China (1980-2013)



The main reason behind this huge increase is the Chinese investment friendly policy regime over the years. Since 1978, China has gradually built a framework that provides a relatively complete environment for foreign direct investment practises. The body of legislations relating to foreign direct investment/foreign-invested enterprises take the form of separate legislative enactments for each form of FDI, together with some laws, which apply to all FDI. Some of the major laws and regulations examined briefly here.

[16] http://www.chinadaily.com.cn/business/2012-10/29/content_15854372.htm.

5.2.1 Chinese Institutional Policy Framework towards FDI

The first foreign direct investment law in China was the *Law* of the People's Republic of China on Chinese-Foreign Equity Joint Ventures [17] disseminated in 1979. Government sequentially promulgated the Law of the People's Republic of China on Foreign-Capital Enterprises[18] in 1986 and on Chinese-Foreign Contractual Joint Venture[19] in 1988. To ensure smooth implementation of these three investment laws, the State Council implemented three *regulations or rules* namely (i) Regulations for the Implementation of the Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures[20] in 1983; (ii) Rules for the Implementation of the Law of the People's Republic of China on Foreign-Capital Enterprises[21] in 1990; and (iii) Rules for the Implementation of the Law of the People's Republic of China on Chinese-Foreign Contractual Joint Ventures[22] in 1995. Thus, the three investment laws and the regulations governing them constitute the basic framework of Chinese FDI laws. Besides these, there are special laws governing foreign invested enterprises such as *Article 18 of the Company Law*, the detailed Rules for the Implementation of the Provisions on Administering Foreign-Invested Construction Engineering Design Enterprises[23] implemented in 2007, Promulgation of the Provisions on M&A of a Domestic Enterprise by Foreign Investors on 22nd June 2009, to name a few.

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[17] Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures was adopted on 1st July 1979 and promulgated on 8th July, 1979. It witnessed two revisions. First, on the 4th of April 1990. Second, on the 15th of March 2001. The revised law can be read at http://www.fdi.gov.cn/1800000121_39_2447_0_7.html.

[18] Law of the People's Republic of China on Foreign-Capital Enterprises was adopted on 12th April 1986, and later revised and adopted on 31st October, 2000. The revised law can be read at http://www.fdi.gov.cn/1800000121_39_2517_0_7.html.

[19] Law of the People's Republic of China on Chinese-Foreign Contractual Joint Ventures was adopted on 12th April 1986, and later revised and adopted on 31st October, 2000. The revised law can be read at http://english.mofcom.gov.cn/article/lawsdata/chineselaw/200301/20030100065891.shtml.

[20] Regulations for the Implementation of the Law of the People's Republic of China on Chinese-Foreign Equity Joint Ventures promulgated on 20th September 1983 went through several revisions. The first revision was on 15th January 1986, second was on 21st December 1987, and third was on 22st July 2001. The revised regulations can be read at http://www.fdi.gov.cn/1800000121_39_2381_0_7.html. The Decree is available only in Chinese at http://www.gov.cn/zhengce/content/2014-02/28/content_8687.htm.

[21] Rules for the Implementation of the Law of the People's Republic of China on Foreign-Capital Enterprises promulgated on 21st December 1990 went through a revision on 12th April 2001. The revised rules can be read at http://www.fdi.gov.cn/1800000121_39_2435_0_7.html. The Decree is available only in Chinese at http://www.gov.cn/zhengce/content/2014-02/28/content_8687.htm.

[22] Rules for the Implementation of the Law of the People's Republic of China on Chinese-Foreign Contractual Joint Ventures were promulgated on 4th September 1995. The same can be read at http://www.fdi.gov.cn/1800000121_39_3049_0_7.html. The Decree is available only in Chinese at http://www.gov.cn/zhengce/content/2014-02/28/content_8687.htm.

[23] http://www.fdi.gov.cn/1800000121_39_3575_0_7.html

Currently, foreign investors are encouraged to do business in China through (1) Chinese-foreign equity joint ventures; (2) foreign-capital enterprises; (3) Chinese-foreign contractual joint ventures; (4) branches of foreign companies; (5) companies limited by shares with foreign investment; (5) investment companies by foreign investment; (6) foreign-funded partnership; and (7) mergers and acquisitions (Gao and Jiang, 2014). The most prominent FDI is through wholly foreign-owned enterprises/foreign-capital enterprises, which account around 76 per cent of total inward FDI in 2013 (See table 5.1). This is followed by the Chinese-foreign equity joint ventures whose share has declined from 29 per cent in 2003 to 20 per cent by 2013 followed by the Chinese-foreign contractual joint venture whose share has declined from 8 per cent in 2003 to 2 per cent in 2013.

Table 5.1
Mode of utilizing FDI (actually utilized FDI in USD Million)

Years	Chinese-foreign equity joint venture	Chinese-foreign contractual joint venture	Foreign-capital enterprises	FDI shareholdings
2005	146.14	18.31	429.61	9.18
	(24.23)	(3.04)	(71.22)	(1.52)
2010	224.98	16.16	809.75	6.46
	(21.28)	(1.53)	(76.58)	(0.61)
2012	217.06	23.08	861.32	15.7
	(19.43)	(2.07)	(77.10)	(1.41)
2013	237.72	19.44	895.89	22.81
	(20.22)	(1.65)	(76.19)	(1.94)

Figures in parenthesis represents percentage share of each form of FDI in total FDI.
Source: Authors calculation from China Statistical yearbook

Article 3 of the Regulations for Implementation of the Law of China on Chinese-Foreign Equity Joint Ventures (implemented in 1983) stipulates that the main industries in which Chinese-foreign equity joint ventures are permitted to be established are energy development, machine manufacturing, electronics and computer industries, light industry, agriculture, tourism and services trade. The State Council and its responsible departments in 1995 promulgated the Interim *Provisions on Guiding Foreign Investment Direction* divided the foreign investment projects into prohibited, restricted, permitted and encouraged categories. Subsequently, on 1st April 2002, Article 3 of the Provisions promulgated the *Guiding Catalogue* and the *Catalogue of Priority* (Advantaged) Industries for Foreign Investment in the Central-Western Region to serve as the

basis for reviewing, evaluating and approving foreign investment projects and enterprises[24]. The Guiding Catalogue published in 1997 added 15 industries to the 'encouraged' category, and following the WTO commitments, 75 industries were added to the 'encouraged' category and 36 industries were removed from the 'restricted' category in the 2002 revisions. The revisions not only reflect an expansion in the investment scope but also highlight priority industries alongside the principles of according with structural adjustments, contributing to the introduction of advanced technology, and fully embodying engagement in the central and western areas.

Table 5.2
Sectoral distribution of FDI inflows: Selected Years (%)

Description	2004	2008	2010	2012	Avg (2004-2012)
Manufacturing	71.0	54.0	46.9	43.7	55.7
Services sector	17.4	24.6	28.6	32.8	24.9
Real Estate	9.8	20.1	22.7	21.6	17.9
Agriculture, Forestry, Animal Husbandry	1.8	1.3	1.8	1.9	1.5

Source: Authors calculation from China's Statistical Yearbook, National Bureau of Statistics of China

Despite the additions and subtraction of sectors observed in the Guiding Catalogue, the manufacturing sector continues to receive a major chunk of the total inward FDI (see table 5.2). For the period 2004-2012, manufacturing sector received on an average 56 per cent of the total inward FDI followed by the service sector (25 percent), real estate sector (18 per cent) and agriculture and allied activities (2 percent). In the manufacturing sector, the capital goods producing industries received on an average 52 per cent of the total inward FDI during the period 2001-2005 (see table 5.3). These top three sectors were Electrical Machinery (28 per cent), Non-Electrical machinery (16 percent) and Transport Equipment (9 percent). The strong presence of Chinese in these technology segments can be attributed to the growing FDI in these segments.

The Chinese government has been active in promoting FDI in manufacturing for the development of the central and western regions. To facilitate, the Chinese government promulgated The Catalogue of Priority (Advantaged) Industries for Foreign Investment in the Central-Western Region in 2000[25], which was then subsequently revised in 2004, 2008 and in 2013[26]. There are

[24] The Guiding Catalogue is a nationwide directory of industries for foreign investment that divides foreign investment projects into prohibited, restricted, permitted and encouraged categories. The Guiding Catalogue, since its publication in 1995, has been revised five times, in 1997, 2002, 2004, 2007, and most recently in 2011.
[25] See http://www.fdi.gov.cn/1800000121_39_2521_0_7.html.
[26] Catalogue of Priority Industries for Foreign Investment in the Central and Western Region (amended in 2013) can be found at http://www.china-briefing.com/news/2013/05/16/china-updates-catalogue-of-priority-industries-for-foreign-investment-in-central-and-western-regions.html.

two key features to each revision of the Catalogue. First, that the number of 'encouraged' industries has increased from 256 in 2000 to 268 in 2005 to 412 in 2008, and 500 in 2013. Second, not only has the 'encouraged' category gradually broadened but also some of the newly added industries are now available for the entire Central-Western region (Gao and Jiang, 2014). The industries in this catalogue are chosen according to the peculiarities of each province in terms of environment, natural resources, production, technology, human resources, domestic market, some of the industries also include restrictions on management or equity shares.

Table 5.3
Distribution of FDI across Manufacturing Sector (2001-2005)

Manufacturing Sector	2001	2002	2003	2004	2005	Average
						% share in total value added by foreign firms
Machinery, electric	28.40	28.20	26.27	27.10	28.08	27.61
Machinery, except electrical	14.19	14.72	16.87	15.46	16.82	15.61
Transport equipment	8.34	9.06	9.84	8.97	7.47	8.74
Industrial chemicals	8.48	7.65	7.40	7.07	6.74	7.47
Food Products	5.80	5.70	5.50	6.00	6.34	5.87
Iron and steel	2.21	2.82	2.89	3.83	4.25	3.20
Textiles	3.35	3.60	3.28	3.27	3.19	3.34
non-metallic mineral products	2.03	2.24	2.77	3.09	2.73	2.57
Fabricated metal products	2.05	2.30	2.40	2.64	2.68	2.41
Beverages	3.75	3.61	3.23	2.99	2.63	3.24
Rubber products	3.09	2.82	2.53	2.46	2.32	2.64
Leather products	2.10	1.96	1.86	1.60	1.91	1.89
Other manufactured products	2.17	2.09	1.77	1.83	1.89	1.95
Paper and products	2.65	2.64	2.33	1.88	1.83	2.26
Wearing apparel, except footwear	2.08	1.89	1.74	1.90	1.82	1.88
scientific equipment	1.37	1.17	1.83	1.90	1.72	1.60
Other chemicals	1.34	1.05	1.05	1.24	1.43	1.22
Non-ferrous metals	0.98	1.12	1.05	1.49	1.25	1.18
Plastic products	1.22	1.12	1.25	1.13	1.14	1.17
Footwear, except rubber or plastic	0.90	0.80	0.81	0.80	0.93	0.85
Furniture, except metal	0.56	0.56	0.77	0.95	0.79	0.73
Glass and products	0.78	0.63	0.60	0.63	0.50	0.63
Printing and publishing	0.67	0.74	0.58	0.68	0.49	0.63
Miscellaneous coal products	0.38	0.37	0.43	0.43	0.43	0.41
Pottery, china, earthenware	0.27	0.33	0.27	0.22	0.23	0.27
Petroleum refineries	0.17	0.20	0.16	0.11	0.18	0.16
Wood products, except furniture	0.60	0.54	0.45	0.28	0.17	0.41
Tobacco	0.05	0.06	0.05	0.04	0.01	0.04
Total (100 million Yuan)	2290186	2290186	3544899	4108325	4645650	3375849

Note: The dataset covers over 20,000 manufacturing firms for the period 2001 to 2005. In terms of value added, these manufacturing firms represent, on an average, approximately 35 per cent of the total manufacturing output in China, and in terms of employment they represent approximately 18 per cent of the total manufacturing employment in China.
Source: Authors computation from the annual accounting reports of ORIANA database compiled by Bureau Van Djik.

Accordingly, we see that even though the coastal region continues to receive the highest share of total inward FDI, the share of central and western regions have risen over the period 2000-2013 (see table 5.4). From 86.6 per cent in 2000, the share of coastal region in total inward FDI has reduced to 67 per cent in 2013 while the share of both central and western region in total inward

FDI have more than doubled from a mere 8.9 and 4.6 per cent in 2000 to 22 and 11 per cent in 2013 respectively.

Similarly, China provides several incentive laws to the neighbouring Asian countries like Hong Kong, Macao and Taiwan. Accordingly, the majority of foreign direct investment comes from Hong Kong with its share increasing from 38.07 per cent in 2000 to 58.69 per cent in 2013 thus accounting for more than 50 per cent of the total inward FDI in China (see table 5.5). Moreover, the share of investment from Hong Kong, Macao and Taiwan together in total inward FDI in Mainland China has also increased from 44.56 per cent in 2000 to 61.68 percent in 2013. Interestingly the bulk share of foreign direct investments that came in China from the United States reduced from 10.77 per cent in 2000 to 2.33 percent in 2013.

Table 5.4
Distribution of inward FDI across regions USD billion *(%)*

Regions	2000	2005	2010	2012	2013
Coastal	34.9 (86.6)	66.7 (82.5)	129.2 (73.5)	162.5 (69.9)	172.6 (67.0)
Central	3.5 (8.9)	10.0 (12.2)	28.4 (16.2)	45.3 (19.4)	56.6 (22.0)
Western	1.7 (4.6)	4.3 (5.3)	18.1 (10.2)	24.5 (10.5)	28.4 (11.0)

Source: Authors calculation from DB research on China's provinces.

Table 5.5
Top 10 source countries of total inward FDI (% share in total inward FDI)

Countries	2000	2005	2010	2012
Hong Kong, China	38.07	29.75	57.28	58.69
Virgin Islands	9.41	14.96	9.88	7.01
Japan	7.16	10.82	3.86	6.58
Singapore	5.34	3.65	5.13	5.64
Republic of Korea	3.66	8.57	2.55	2.72
Taiwan, China	5.64	3.57	2.34	2.55
United States	10.77	5.07	2.85	2.33
Cayman Islands	1.53	3.23	2.36	1.77
Samoan	0.70	2.24	1.68	1.56
Germany	2.56	2.54	0.84	1.30
Macao, China	0.85	1.00	0.62	0.45
India	0.03	0.04	0.05	0.04

Source: Authors calculation from various years of China Statistical Yearbook available at National Bureau of Statistics of China.

The inward FDI has enabled China to integrate gradually into global manufacture networks, as well as contribute not only to employment, technology, and institutional reforms but also to exports. The Chinese formulated number of laws to promote exports and export oriented FDI. For instance, Article-3 of the Law of the People's Republic of China on Foreign-Capital Enterprises

(2000 revision) states "*...The State may encourage the establishment of foreign-capital enterprises that are export-oriented or technologically advanced*." Article-4 of the Law on Chinese-Foreign Contractual Joint Ventures (2000 revision) states, "*The State shall encourage the establishment of productive contractual joint ventures that are export-oriented or technologically advanced*." As a result, the total trade by foreign firms, which were only 4.07 per cent of China's total trade in 1986, shoot up to 46.13 per cent in 2013, after peaking at 58.48 per cent in 2005 (see table 5.6). The exports by foreign firms that made up only 1.94 per cent of China's total exports in 1986, climbed to 47.25 per cent in 2013 after peaking at 55.94 per cent in 2009.

Table 5.6
International Trade by Foreign Firms in China (US$)

Years	Trade			Exports			Imports		
	National	Foreign	Share (%)	National	Foreign	Share (%)	National	Foreign	Share (%)
1986	73.8	3.0	4.07	30.9	0.6	1.94	42.9	2.4	5.59
1990	115.4	20.1	17.42	62.1	7.8	12.56	53.3	12.3	23.08
1995	280.8	109.8	39.10	148.8	46.9	31.52	132.0	62.9	47.65
2000	4742.82*	2367.14	49.91	2491.99	1194.41	47.93	2250.92*	1172.73	52.10
2005	1422.25*	831.73	58.48	761.94	444.21	58.30	660.17*	387.52	58.70
2010	29727.62	16003.07	53.83	15779.32	8623.06	54.65	13948.3	7380.01	52.91
2011	36420.59	18601.56	51.07	18986.00	9953.30	54.42	17434.59	8648.26	49.60
2012	38667.61	18939.97	48.98	20489.35	10227.48	49.92	18178.26	8712.49	47.93
2013	41603.31	19190.93	46.13	22100.42	10442.73	47.25	19502.89	8784.2	44.86

Note: Years represent from January to December. * represents data that is calculated by the author by using the following formula: [(100*Foreign in US$)/Share]. National and Foreign values are given in US$ 100,000,000 while the share is given in % representing the per cent share of foreign in national.
Source: Authors calculation from various yearly announcements on international trade and foreign direct investment at www.fdi.gov.cn where the source mentioned is "Information by the Foreign Investment Department of the Ministry of Commerce (MOFCOM) and Long (2005)

In addition, the foreign-invested firms are largely dominant in processing zones, accounting for 100 per cent of exports out of export processing zones, 95 per cent of processing exports out of high-tech zones, and 67 per cent of processing exports from the rest of China (Wang and Wei, 2008). While state-owned enterprises account for the bulk of the remaining of the processing trade, wholly and partly foreign-owned firms handle most of the processing exports. Further, foreign firms also engage in non-processing (normal/ordinary) exports, accounting for 40 per cent of non-processing exports out of high-tech zones and for 24 per cent of normal trade outside policy zones in 2004 (Wang and Wei, 2008). Thus, it is apparent that Chinese encourage and facilitate large number of inward investments from abroad, which has been instrumental in its overall exports and growth.

5.3 FDI Regime in Korea: Trends and Lessons for India

Since the onset of financial crisis in 1997, the Korean government has been active in its efforts to attract more FDI. The Foreign Investment Promotion Act in 1998 opened up 99.8 per cent of Korea's industries to foreign investment and provided significant protection for foreign investors' interest. Moreover, under the Act, foreign investors' received several incentives including tax breaks, cash grants and affordable lands. As a result, FDI flows into South Korea nearly doubled from US$ 6522.30 in 2001 (which is 1.29 per cent of GDP) to US$ 12220.70 in 2013 (which is 1 per cent of GDP), even though it has remained more or less constant in the recent years, around USD$ 9-10 million (See figure 5.2).

Figure 5.2
Inward FDI in South Korea (US Dollars in millions)

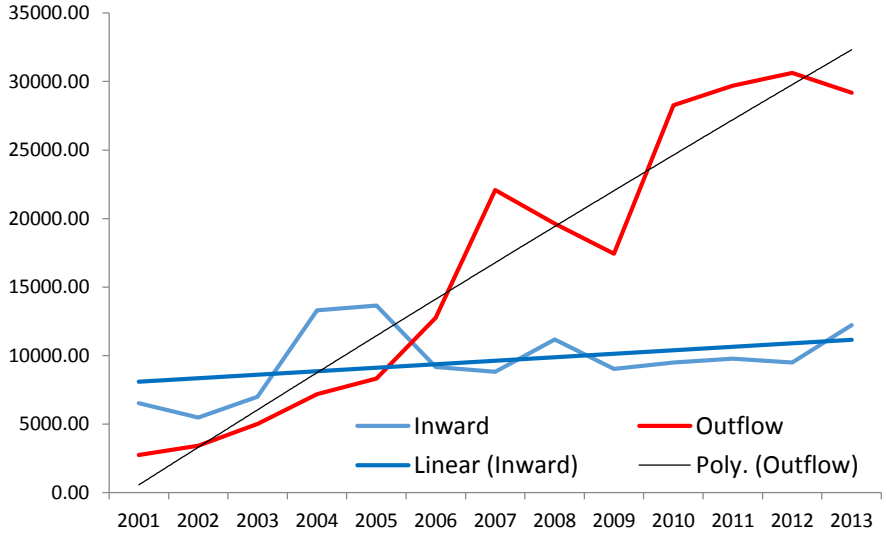


Table 5.7
Top ten source countries of FDI flow into Korea (% of World Inflows into Korea)

Country	2001	2005	2010	2011	2012
Japan	12.69	20.57	31.01	21.60	37.09
United States	8.55	24.85	18.76	15.21	19.33
Netherlands	25.47	3.04	2.39	8.51	9.62
Singapore	1.48	4.52	5.09	4.70	8.66
United Kingdom	4.33	31.43	14.49	6.29	7.05
Hong Kong, China	1.48	0.07	2.13	2.85	4.09
Ireland	3.29	0.52	4.69	1.03	2.76
Sweden	0.24	0.40	0.91	1.38	2.43
Cayman Islands	1.21	3.18	1.05	1.97	2.39
China	1.14	0.03	1.28	1.54	2.21

Source: Authors compilation from UNCTAD Bilateral FDI statistics.

The source country wise distribution highlights that over the years, the major investing nations were from OECD countries like Japan, USA and UK (see Table 5.7). Notably, the Korea's industrial dynamism has been largely contributed by the presence of these superior technological leaders. Recently, there has been some attempt by Indian companies (e.g. Tata Motors) to invest in Korea through Mergers and Acquisitions (M&A). Indian IT sector also sees many opportunities in Korea in the future (Sahoo *et al*, 2009).

Thus, the Korean experience in upgrading technology and manufacturing capability through inward investment offers valuable lesson for India. The FDI has been instrumental in transforming the manufacturing sector in China and Korea. The policy framework of China, for instance, has provided ample incentives for foreign investors to establish large production networks in the host country. In this context, it is essential to examine the policy regime of India towards FDI and the past trends and composition to assess the future investment opportunities. This is attempted in section 5.4.

5.4 FDI Regime in India: Trends and Opportunities

Since independence, the policy attitude towards foreign collaboration, including foreign financial and foreign technical collaborations have gone through different phases[27] and for more than four decades, the policy remained more or less selective, with varying degree of restriction on foreign collaboration (See Goyal, 1979). For examining the policy changes, the entire period can be divided into two phases: (a) FDI policy regime during pre-reform period and (b) FDI policy regime since post reform period. This is given in Box 5.1.

BOX 5.1 India's FDI Policy Regime

(a) Pre-Reform Period

Until the late 1960s, the government of India promoted technology import and foreign investment and technological collaboration in high technology areas. In low technology intensive sectors foreign investment were severely restricted to nurture and develop local industries (Rao *et al*, 1999). However, since the late 1960s, large amount of foreign exchange outgo resulted due to high royalty, technical and dividend payments and profit remittance by foreign affiliates in high technology sectors. This, coupled with the infant industry argument, resulted in several stringent measures towards FDI. This includes restrictions on FDI on those coming without technical collaboration, foreign companies that seek more than 40 percent equity participation and cap on payment of royalties and technical fees on certain limits. Technical collaborations and

[27] According to Kumar (1998), there are four distinct phase of FDI policy in India: Phase 1 (1948-1967) represented cautious and selective attitude; Phase II (1968-1979) marked intensive restriction; Phase III (1980-1990) initiated a partial liberalization; and Phase IV (1991 and onwards) began a full-fledged liberalization process during 1991 and subsequent modifications brought about thereafter (See Kumar (1998) for further details).

technology import were allowed in only to those industries having strong domestic technological base (Alse and Srinivasan, 2008). Moreover, to limit the majority ownership of foreign companies in India, government established Foreign Exchange Regulation Act (FERA), which required the foreign companies to undergo compulsory registration under Indian corporate legislation up to a foreign equity holding of 40 percent.

The industrial policy of 1980 and 1982 and technology policy of 1983 brought some liberal attitude towards FDI. To modernize industrial sector and promote export oriented FDI, several relaxation were initiated. Some of the major initiative were: (i) setting up of four new Export Processing Zones (EPZs) for attracting foreign companies, (ii) relaxation of FERA for 100 percent export oriented units and (iii) relaxation of 40 percent ceiling on foreign ownership in some cases (Sahoo, *et al* 2005). Restrictions on technology transfer and royalty payments were relaxed and wherever attempts to acquire technology through licensing failed, foreign equity participation were allowed. Foreign equity participation in most of the industries increased to 74% and for the NRI, the investment limit went up to 100% from automatic route (Balasubramanyam and Mahambare, 2003).

(b) Post-Reform Period

The economic policy reform of 1991 explicitly recognised the need to attract FDI to promote efficiency and competitiveness in Indian industries, technological upgradation and creating sound base for exports promotion. The major highlights of policy changes in **1991** are the following:

- Introduction of the dual approval systems for FDI proposals viz., (i) through an automatic approval channel for FDI in 35 priority sectors by Reserve Bank of India (RBI) up to an equity participation of 51 percent and (ii) through formal Government of India channel via. Foreign Investment Promotion Board (FIPB) 'Secretariat for Industrial Assistance (SIA).
- Ceiling of 40 percent foreign equity under FFRA done away with.
- Existing companies were allowed to hike their foreign equity up to 51 percent in priority sector (capital goods and intermediate goods sectors).
- Removal of restrictions of FDI in low technology sectors.
- Automatic permission for technology agreement in high priority industries.
- Removal of condition for FDI with necessary technology agreements.
- Permission for Non-Resident Indians (NRIs) and Overseas Corporate Bodies (OCBs) under automatic route with repatriation of capital income to invest up to 100 percent equity in high priority industries.
- Automatic approval of foreign technology and royalty agreements and the need to have binding technology collaboration were relaxed (Athreye and Kapur, 2001).

These initial measures were underwent revision and further liberalisation initiatives were implemented subsequently after 1991. In **1997,** the industrial licensing requirement in industries of strategic and environmental concerns pruned further. Another 13 industries were brought under 51 percent foreign equity participation and 9 other high priority industries were earmarked in metallurgical and infrastructure sectors where equity participation has been raised up to 74 percent and 100 percent for NRls in select industries. A total 111 sectors were put under automatic approval with equity cap of up to 100 74/51/50 percent. Further, procedural simplification was brought in the automatic FDI approval channel.

In 2000, a number of new sectors were opened up subject to liberalised equity caps. The sectors for automatic approval expanded to include almost all sectors and equity cap raised to 100 percent in most manufacturing sectors barring a few negative lists, such as, industries requiring industrial licensing in strategic, environmental and locational grounds. Further, in 2000, government permitted 100 percent FDI. However, FDI limit of 24 percent continues for Small Scale Industries (SSIs) and 26 percent for defence equipment. In the case of consumer goods industries, dividend balancing conditions and its related exports obligation on foreign investors were completely withdrawn. In **2004**, it was decided to allow the new proposals for the foreign technical collaboration under the automatic route (Economic Survey, 2004-05). In **2008**, the government allowed FDI up to 26 percent and FII up to 23 percent in commodity exchange trading. 100 percent FDI under automatic route were granted for setting up and established industrial parks (Economic Survey 2008-09). The FDI caps in civil aviation sector were further relaxed and 100 percent FDI was allowed in aviation services and maintenance. Further, FDI in petroleum were rationalised and 100 percent FDI (with prior government approval) were granted in mining and mineral sector (Economic Survey, 2008-09). The policy statement of **2011** allowed FDI up to 100 in brownfield investments (i.e. investments in existing companies) in pharmaceutical sectors, under government approval route (Economic Survey, 2013). Since **2012**, government

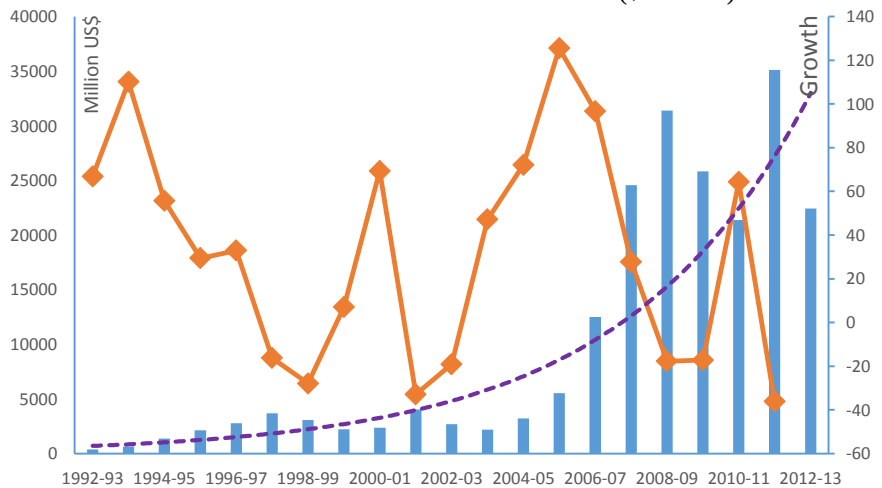
has decided to allow 51 percent FDI in single brand retail trading, subject to specified conditions (Economic Survey, 2013).

Thus, it is clear that foreign investment is permitted in virtually every sector, except those of strategic concern such as defence (opened up recently to a limited extent) and rail transport (NCAER 2009). Foreign companies are permitted to set up 100 per cent subsidiaries in India and no prior approval from the exchange control authorities (RBI) is required, except for certain specified activities (NCAER, 2009). Accordingly, the FDI in India is allowed in two channels. (i) *Automatic route*: Under this scheme, the foreign investors are not required to get any prior approval from either government or RBI and (ii) *Prior Government Approval Route*: For a limited number of sectors prior government approval is required. The Foreign Investment Promotion Board (FIPB) under the Department of Economic Affairs, Ministry of Finance, considers the investment proposals in a time-bound and transparent manner (NCAER, 2009). The Foreign Exchange Management Act, 1999, regulates the FDI under both these channels.

5.4.1 FDI Trends in India since Liberalisation

Since liberalization, India has been experiencing an increasing amount of inflow of actual FDI through various channels. The total FDI inflow has gone up to 22 billion in 2012-13 from merely 0.4 billion in 1992-93 (see figure 5.3). During 1990s, the inflow of FDI has been largely moderate (around $0.4 to $2.2 billion). As evident from the figure, the trend continued until the mid-2000[28]. Thereafter, there has been a significant rise in FDI inflows. From $12.5 billion in 2006 to $31.4 billion in 2008. Since then, the inward FDI decelerated amidst of global slowdown. In recent period, the trend revised and by 2012, India received $22 billion worth of foreign capital.

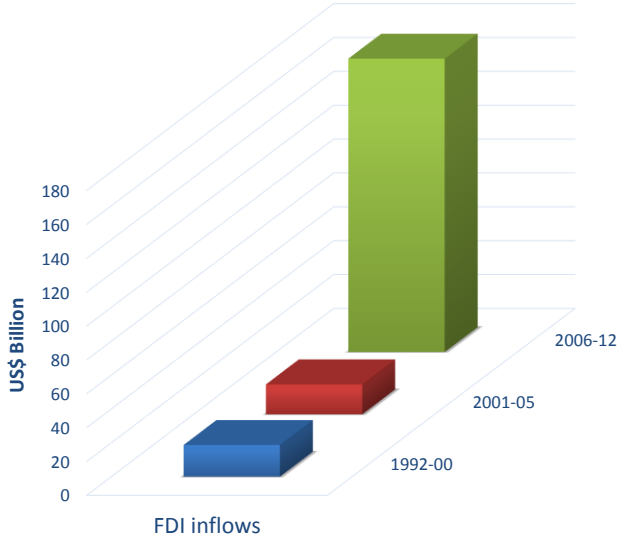
Figure 5.3
FDI trend since liberalisation: 1992-2012 ($ Million)



Source: Authors calculation based on SIA Newsletter (annual issues), Department of Industrial Policy & Promotion (DIPP), Government of India

[28] Prior to 2000, the FDI statistics compiled by RBI included only equity capital whereas the IMF definition of FDI includes not only equity capital but also reinvested/retained earnings and intra-company debt and loan transactions. Since 2000, RBI has revised the accounting system of FDI.

Figure: 5.4
Cumulative FDI inflows in India: 1992-2012 ($ Billion)



Source: Authors calculation based on SIA Newsletter (annual issues), Department of Industrial Policy & Promotion (DIPP), Government of India

The cumulative FDI inflows further substantiate our observation that there has been significant jump in FDI inflows since mid-2000 (see figure 5.4). This can be due to the flexible policy regime adopted by the government. As discussed before, since 2004, the foreign investors were allowed to invest through automatic route in manufacturing and service sectors.

Table 5.8
Major Sector wise distribution of FDI in India (% Share in Total FDI inflows) 2008-12

Sl No	Sectors	2008-09	2009-10	2010-11	2011-12	2012-13	2008-12
1	Services Sector	22.4	16.8	17.0	14.9	21.6	18.5
2	Hotel & Tourism	1.6	2.9	1.6	2.8	14.5	4.7
3	Construction Activities	7.4	11.1	5.7	10.0	7.2	8.3
4	Automobile Industry	4.2	4.7	6.7	2.6	6.9	5.0
5	Metallurgical Industries	3.5	1.6	5.7	5.1	6.5	4.5
6	Drugs & Pharmaceuticals	0.7	0.8	1.1	9.2	5.0	3.4
7	Non-Conventional Energy	0.3	1.9	1.1	1.3	4.9	1.9
8	Trading	2.3	2.2	2.6	2.2	3.2	2.5
9	Rubber Goods	0.3	0.1	0.1	0.5	2.9	0.8
10	Power	3.6	5.6	6.5	4.7	2.4	4.6
11	Industrial Machinery	0.3	1.4	2.4	1.8	2.2	1.6
12	Software & Hardware	6.1	3.6	4.0	2.3	2.2	3.6
13	Information & Broadcasting	2.8	1.9	2.1	1.9	1.8	2.1
14	Food Processing Industries	0.4	1.1	1.0	0.5	1.8	0.9
15	Telecommunications	9.4	9.9	8.6	5.7	1.4	7.0
16	Chemicals	2.7	1.4	2.1	11.5	1.3	3.8
17	Hospital & Diagnostic centres	0.9	0.5	1.3	0.9	1.1	1.0
18	Miscellaneous Industries	5.4	4.1	7.6	2.3	1.0	4.1
19	Petroleum & Natural gas	1.5	1.1	2.9	5.8	1.0	2.4
	Total Share	**76.0**	**72.6**	**79.9**	**86.0**	**89.8**	**80.9**

Source: Author's calculation based on SIA newsletters, DIPP (Government of India).

From a sectoral perspective (see table 5.8), FDI in India is mainly directed into services sector (with an average share of 19 per cent for the period 2008-12). If we include other service sectors such as hotel & tourism, construction activities, the share of service sector increases from 35 percent in 2008 to 48 percent by 2012. In the manufacturing sector, FDI inflows are largely concentrated in Automobiles, metallurgical industries, Drugs & Pharmaceuticals, Rubber, power, industrial machinery and computer & software industries. Rest of the industries have less than 1 percent share in total inward FDI (see table A5.1 in the appendix for the detailed list).

In table 5.9, India's FDI inflows according to top 10 source countries are given. Apart from the well-known Mauritius routing of foreign capital to India (due to double taxation treaty), there has been significant increase in the share of the foreign companies in Singapore, USA, UK and Arab countries in Indian market. Overall, the countries categorized as tax havens accounted for much higher share (70 percent of the total FDI inflows) than their share until 2000 (40 percent of the total FDI inflows) in recent period (see Rao and Dhar, 2011).

Table 5.9
India's FDI equity inflow: Top 10 sourcing country (% share average over total FDI)

Country/Year	1991-2000	2001-2004	2005-2010
Mauritius	31.51	38.81	49.06
Singapore	2.76	2.22	11.52
USA	20.1	14.36	7.5
UK	5.44	7.8	5.24
Cyprus	0.2	0.18	4.54
Netherlands	5.19	9.48	3.87
Japan	7.41	7.32	3.85
Germany	5.61	4.13	2.52
UAE	0.08	0.66	1.55
France	2.59	3.22	1.14
Total	80.89	88.18	90.79

Source: Author's calculation based on SIA newsletters and Rao and Dhar (2011)

Thus, it is clear that India has substantial opportunities in expanding investment portfolio in the manufacturing sector. As the manufacturing sector has highest linkage with the rest of the sectors along with significant technological dynamism, increasing foreign capital can transfer technology to the host country and expand domestic production base so that the trade dependency can be reduced in the future. We can argue that there is high prospects for bilateral investment between India and China and India and Korea in number of sectors. These aspects are examined details in the following section.

5.5 Assessment of Investment Opportunities

The policy regime of India in recent period has initiated several steps to attract FDI in manufacturing. Almost all major sectors has been allowed 100 percent foreign equity participation. The bilateral trade imbalances can be mitigated through fresh investment opportunities. A report by KPMG and IMC (2013) have identified several cases of successful equity participation and areas of future investment corporation between India and China. For instance, the power generating manufacturing companies have been the major beneficiaries of planned capacity addition in the Indian power sector. Most of the Chinese investments in India are directed towards infrastructure, raw materials and electronics (KPMG and IMC, 2013). India need to expand the investment range to other technology intensive sectors such as automotive, pharmaceuticals and machine building sectors.

India has well established agriculture and food processing sector which can be a leading sector for investments opportunities for China, which already suffer from decline in competitiveness due to increasing labour cost. This will help China to focus on various issues of supply chains to improve efficiency and productivity in agri and allied sectors. In the Electronic sector, India is currently been transforming as manufacturing hub as most foreign players are established assembly networks (KPMG and IMC, 2013). The expanding domestic market provides large scope for Chinese companies, which has moved away from the producer of low-end electronic products in the early 1980s to world's largest manufacture of high-end electronic products. Also in sectors like transportation and logistics and pharmaceuticals, there is huge untapped bilateral potential but constrained by host of factors like regulation, capital consideration, trade barriers, procedures etc. (KPMG and IMC, 2013). The bilateral corporation through sharing their best technology will improve mutual growth rates in future.

India and Korea can expect to corporate in the IT sector, especially the electronic and hardware industry, to achieve joint leadership in the sector. Since cost of production has increased in Korea, and India has potential in outsourcing services, there is greater scope of outsourcing/subcontracting from Korea to India (Sahoo *et al* 2009). Similarly, in the Pharmaceutical sector, where Korea is focusing on R&D investments, India-Korea corporation can be formed in several area like biotech goods, vaccines, traditional medicines etc. (Sahoo *et al* 2009). Since the formation of CEPA, it is

expected that the bilateral investments will increase in host of manufacturing activities and both countries will benefit in the future.

5.6 Summary

The objective of this chapter is to examine the foreign investment regime in China and Korea and assess the relative FDI regime in India. In order to reduce the trade deficit, the study argue that foreign investment can provide as an alternative and viable policy option for India. Drawing from the Chinese and Korean experience, several policy options to attract FDI is discussed in this chapter.

The Chinese government has been implementing and proposing various legislative rules and regulations, which provides necessary incentives to foreign investors to invest and expand their business operations. As a result, FDI has been flowing significantly into many sector with highest share accrued to the manufacturing industries. Among manufacturing, the high technology-intensive capital goods producing segment has attracted the largest inward FDI. Since FDI has been largely export oriented and to a large extent explain the superior export performance of Chinese manufacturing in the machinery producing segment. Similarly, FDI has been also influential in Korea's overall industrial growth as it successfully attracted investment from advanced countries like Japan, UK and US.

India has been following liberal investment regime since the economic reforms in 1991. Although 100 percent FDI is permitted in virtually all segment of manufacturing, the volume and range of investment is largely insignificant compared to other emerging nations. FDI presence in the manufacturing sector is relatively low as most investments are attracted by the service sector. In this context, there is a need to attract foreign players in areas like electronics, machinery, automotive etc. where domestic demand is largely met from imports. This will not only benefit the recipient industries but also affect other segment through various backward and forward linkages. Therefore, we can recommend that it would be rationale for the policy makers to construct schemes and proposal to attract FDI in knowledge based sectors like machinery and transport equipments so that the growing deficit with China can be reduced in the near future.

APPENDIX

Table A5.1
Detailed Sector Wise distribution of FDI in India: 2008-2012 (% Share)

Sectors	2008-09	2009-10	2010-11	2011-12	2012-13	(2008-12)
Services sector	22.4	16.8	17.0	14.9	21.6	18.5
Hotel & tourism	1.6	2.9	1.6	2.8	14.5	4.7
Construction activities	7.4	11.1	5.7	10.0	7.2	8.3
Automobile industry	4.2	4.7	6.7	2.6	6.9	5.0
Metallurgical industries	3.5	1.6	5.7	5.1	6.5	4.5
Drugs & pharmaceuticals	0.7	0.8	1.1	9.2	5.0	3.4
Non-conventional energy	0.3	1.9	1.1	1.3	4.9	1.9
Trading	2.3	2.2	2.6	2.2	3.2	2.5
Rubber goods	0.3	0.1	0.1	0.5	2.9	0.8
Power	3.6	5.6	6.5	4.7	2.4	4.6
Industrial machinery	0.3	1.4	2.4	1.8	2.2	1.6
Computer software & hardware	6.1	3.6	4.0	2.3	2.2	3.6
Information & broadcasting	2.8	1.9	2.1	1.9	1.8	2.1
Food processing industries	0.4	1.1	1.0	0.5	1.8	0.9
Telecommunications	9.4	9.9	8.6	5.7	1.4	7.0
Chemicals (other than fertilizers)	2.7	1.4	2.1	11.5	1.3	3.8
Hospital & diagnostic centres	0.9	0.5	1.3	0.9	1.1	1.0
Miscellaneous industries	5.4	4.1	7.6	2.3	1.0	4.1
Petroleum & natural gas	1.5	1.1	2.9	5.8	1.0	2.4
Glass	0.1	0.0	0.0	0.1	0.9	0.2
Electrical equipments	1.4	2.5	0.8	1.6	0.9	1.4
Prime mover	0.0	0.0	0.9	0.9	0.8	0.5
Education	0.8	0.2	0.2	0.3	0.8	0.5
Agriculture services	0.0	5.1	0.2	0.1	0.7	1.2
Soaps, cosmetics & toilet preparations	0.1	0.1	0.5	0.6	0.7	0.4
Consultancy services	1.2	1.3	1.4	0.8	0.6	1.1
Vegetable oils and vanaspati	0.2	0.3	0.3	0.2	0.5	0.3
Fermentation industries	0.5	0.4	0.3	0.2	0.5	0.4
Textiles (including dyed,printed)	0.6	0.5	0.7	0.5	0.5	0.5
Machine tools	0.2	0.5	0.1	0.4	0.5	0.3
Agricultural machinery	0.0	0.0	0.0	0.0	0.4	0.1
Miscellaneous mechanical & engineering industries	0.5	0.6	0.6	3.7	0.4	1.1
Medical and surgical appliances	0.3	0.6	0.2	0.4	0.4	0.4
Scientific instruments	0.0	0.0	0.0	0.0	0.3	0.1
Sea transport	0.2	1.1	1.5	0.4	0.3	0.7
Mining	0.1	0.7	0.4	0.4	0.3	0.4
Diamond, gold ornaments	0.3	0.1	0.1	0.1	0.2	0.2
Leather, and pickers	0.0	0.0	0.0	0.0	0.2	0.1
Fertilizers	0.1	0.0	0.1	0.1	0.2	0.1
Electronics	0.3	0.2	0.3	0.6	0.2	0.3
Railway related components	0.1	0.1	0.4	0.1	0.1	0.2
Timber products	0.0	0.0	0.0	0.1	0.1	0.1
Commercial, office & household equipments	0.0	0.3	0.1	0.1	0.1	0.1
Retail trading (single brand)	0.1	0.6	0.1	0.0	0.1	0.2
Boilers and steam generating plants	0.0	0.0	0.0	0.1	0.1	0.0
Air transport (including air freight)	0.1	0.1	0.7	0.1	0.1	0.2
Printing of books	0.1	0.3	0.2	0.1	0.1	0.2
Cement and gypsum products	2.7	0.1	3.3	0.8	0.1	1.4
Sugar	0.0	0.0	0.0	0.0	0.1	0.0
Mathematical, surveying and drawing instruments	0.0	0.0	0.0	0.0	0.0	0.0
Earth-moving machinery	0.0	0.0	0.0	0.0	0.0	0.0
Paper and pulp (including paper products)	1.0	0.1	0.0	1.2	0.0	0.5
Ceramics	0.7	0.0	0.1	0.0	0.0	0.2
Industrial instruments	0.1	0.0	0.1	0.0	0.0	0.0
Defence industries	0.0	0.0	0.0	0.0	0.0	0.0
Tea and coffee (processing & warehousing)	0.1	0.0	0.0	0.0	0.0	0.0
Coir	0.0	0.0	0.0	0.0	0.0	0.0
Housing & real estate	10.3	11.0	6.3	0.0	0.0	5.5

Source: Author's calculation based on SIA newsletters, DIPP (Government of India).

Chapter VI Summary and Policy Recommendations

India's trade deficit with China, South Korea and Indonesia has doubled over the last five years and is becoming unsustainable. To balance this deficit, it is necessary to increase India's exports to these countries. At the same time, it is also necessary to assess the domestic capability of meeting the rising imports. Therefore, a detail analysis of compositional changes in exports and imports of these countries is necessary to manage the rising trade deficit. Thus, the present study provides a detailed statistical analysis of the bilateral trade pattern between India and its partner countries and identifies the possible approach of reducing the deficit in the future.

6.1 India-China Bilateral Trade

The bilateral trade relationship between India and China has changed dramatically since the mid-2000, and by 2008, china has become largest trading partner of India. However, the rapid growth in trade has led to unbalanced trade balance in favour of China. India's trade deficit with China had reached US$ 39.4 billion in 2012. The trade complementarity index revealed that over the years, the export pattern of India largely matches with Chinese overall imports, which suggests high favourable trade prospects between them.

India is exporting mainly cotton, ores, copper, mineral oils and chemicals products to China. The study finds that most of the export items are primary products like ores, or semi processed raw material like metals or chemical products. Further, it is evident that China is one of the important market destinations where India's export potential has not been adequately realised. The study identified 22 products at 6-digit level where demand is expanding and India has supply capability. However, for these products, India's share in Chinese imports is less than 5 percent. The products broadly fall in agricultural, mineral, chemical, pharmaceuticals, metals electrical and non-electrical machinery, automobile parts and medical instruments. If India achieves to increase its market share to 5 percent in these 22 products then this will result in export earnings increasing by US$42.3 billion. This will nullify trade deficit with China.

The reason for low penetration into Chinese market is due to high tariff and non-tariff barriers faced by India on these products and preferential treatment given to the competing countries. This is the case for globally competitive Indian products like agricultural products. China is sourcing much of its requirement from ASEAN region by engaging in Free trade agreements and offering preferential tariffs. Another point worth nothing is that some of the high technology intensive and high-income growth export potential products like machining centres, vehicle engines, surgical apparatus etc., are globally uncompetitive.

Bilateral imports from China are largely concentrated in electrical and non-electrical machinery, chemicals & fertilizers, and base metals, which are either capital goods or intermediate goods and generally highly technology intensive. The econometric estimation of the determinants of India's imports from China indicates India's domestic demand plays a major role in the imports. Contrary to the general belief of under-pricing of Chinese products did not find support in our econometric analysis. Although the imports are increasing, the domestic production of chemicals, electrical and non-electrical machinery sector has shown a healthy growth of above 20 percent. However, the domestic demand and supply mismatch suggests that India's import competing industries have failed to cater the growing demand of user industrial segment. Thus, there is a need to improve the quality and efficiency of machinery and allied sectors to meet the requirement of domestic user industries like automobiles, textiles, and other manufacturing. Though India depends heavily on Chinese imports, the trade complementarity index suggests only marginal overlap between India's imports and Chinese exports to the world.

(a) Information Technology Agreement

The increase imports from china of technology intensive products can be largely attributed to the Information Technology Agreement (ITA-1) of WTO. As per the agreement, tariffs were eliminated by signatory members, including India for 165 ITA products. India has brought down the duties on these products to zero by 2005. As per the estimates by Kallumal (2012) in 2010, the ITA products imported from China account for US$ 11.93 billion, which is approximately 29 percent of Indian imports from China. Overall, China has replaced USA, Japan, Singapore and Germany and established itself as a main source accounting for 46 percent of total ITA-1 imports into India. The countries that signed ITA-1 agreement had well developed electronics and semi-conductor sector, which India does not possess and resulted in high surge in imports.

(b) Inverted duty structure

Another plausible reason for the surge in Chinese imports is the existence of inverted duty structure where the domestic manufacturers have to pay higher price for raw material in terms of duty, while the finished product lands at lower duty and costs low. This prevents the possible value addition on imported parts and intermediaries there by denying chances of increased process trade. For example, due to tax laws, the set top box producers of India, though able to manufacture and export the product, is unable to sell in the domestic market as the domestic products are attracting heavy tax than the imported products.

(c) Anti-dumping duties

Since 1992, India has initiated around 159 anti-dumping duties against China for sectors such as chemicals and petrochemicals, pharmaceuticals, steel, fibres and consumer goods. This suggests that large number of Chinese products do not follow fair trade practices and provide artificial competitive advantage in the Indian market.

6.2 India-South Korea Bilateral Trade

The study find that India's export baskets to Korea is more diversified than China but dominated by traditional labour intensive products such as mineral fuels, cereals, food wastes, oil seeds and cotton products. On the other hand, the high-income elastic products like Iron & Steel, zinc articles and machinery items are found to be either low growth or low share. The study identified 40 export potential products, for which Korea has demand and India has supply capabilities. These products broadly fall under primary products like meat, fish, minerals, cotton, fibre and sophisticated items like machinery, iron & steel, aluminium etc. However, currently these products have low share and if India secures an average market share of 5 percent, the export value can rise by $0.98 billion. Products such as electrical machinery and non-electrical machinery and transport equipments, which enjoys the largest linkages and positive spillover in the overall manufacturing, are largely uncompetitive or has low growth rates. One plausible reason can be the prevalence of large amount of tariff and Non-Tariff Barriers (TBT/SPS) and the preferential trade agreements granted to some of the trade partners of South Korea. As revealed by the trade complementarity index, India's exports are gradually overlapping with Korea's imports over the years. This implies favourable trade prospects for India in the future.

In the import case, the study clearly shows the heavy dependence of India on capital goods like machinery and intermediate goods on Korea. The import surge is mainly due to the inverted duty structure, ITA-1 and non-competitive Indian high tech capital goods industry. The net impact of imports on Indian industry is difficult to assess as user industries can benefit from the low cost quality imported machines although the import competing industries can have adverse impact. The trade complementarity index reveals that the import pattern of India largely matches with overall exports of Korea to the world. The formation of CEPA, which grants substantial reduction in tariff and non-tariff barriers, will help to attract capital, human resources and market size not only between them but also in the region. The report finds that large number of import items from Korea is attributed to the reduction in tariff under CEPA.

6.3 India-Indonesia Bilateral Trade

The analysis reveal that the present export basket of India is diversified with products like cereals, oil seeds to advanced technology intensive products like electrical & non-electrical machinery, transport equipment. The study identified 84 six digit potential products that Indonesia source from abroad and India has supply capabilities. Broadly, these products fall under coffee & tea, cereals, mineral fuels, plastics, iron & steel, machinery items and vehicles. If India secures 5 percent market share, then the export value can increase $0.78 billion. India does have a comparative advantage in most of the less sophisticated manufacturing products and therefore able to maintain market presence. However, for most of the skill intensive products like machinery and equipment, India lack competitive advantage and as a result, export growth is abysmal. Moreover, the export opportunities are hampered by the imposition of various tariff and NTBs (TBT/SPS) by Indonesia. Compared to China and Korea, the export prospects for India is far greater with Indonesia, as suggested by high trade complementarity index between two.

The analysis of imports clearly reflects the relative comparative advantage of Indonesia in supplying natural resource products like palm oil and mineral fuels. These products are primarily used as consumer goods or raw materials in India. Since the composition of imports is not as severe as China and Korea, it is essential that the policy should focus on enhancing the export prospects of its manufacturing products especially the high technology oriented machinery and transport apparatus. The mutual trade between India and Indonesia is found to be far greater than other trade partners as the trade complementarity has been around 60 percent in recent period.

6.4 Policy Recommendations

1. Negotiations with China/Korea/Indonesia

India has a large and growing domestic market, which is of interest to these countries. To make the trade more balanced China should reduce the tariff and non-tariff barriers to trade. If the bias against India is removed, India can offer identified potential products to China at a competitive prices. Appropriate bilateral trading arrangement, which removes bias against India, between India and China can be beneficial for both the countries. As the negotiations on bilateral trading arrangements take time, India should immediately start negotiations with China on the market access issues and demand a steady reduction of tariff and SPS/TBT.

2. Other trade policy measures (Export Incentives)

Many of the potential Indian export products to china suffer from lack of global competitiveness. Apart from negotiating study reduction in tariff and nontariff barriers, the Indian government can take short and medium term measures through trade policy to improve competitiveness of Indian potential product exports to China. India should Include these products in market linked focus products scheme (MLFPS). Under this scheme government incentivise export of products that have high employment intensity in rural and semi urban areas, to offset infrastructure inefficiencies and other associated costs involved in marketing of these products at 2 percent duty credit of FOB value. Some of the potential products are already covered under the scheme, the eligible products in the potential category be given this benefit. Similarly, through Market Access Initiative (MAI) and Market Development Assistance (MDA), government should fund export firms of potential products to China through support the activities like market surveys, support for participation in exhibitions and fairs, supporting registration and product testing, supporting reverse visit of prominent buyers, establishing warehouses etc. These measures familiarize the Indian products to prospective buyers and also improve competitiveness of the Indian exports to China.

3. Rationalising the Tax System

3.1 Introduce Goods & Service Tax (GST)

The current indirect tax structure in India consists of differential multiple tax regime across sectors of production leads to distortions in allocation of resources and inefficiencies in domestic production. This erodes international competitiveness of export sectors, which would have been relatively efficient under distortion-free indirect tax regime. To remove the anomaly,

several countries have adopted Goods & service Tax (GST), a comprehensive value added tax on goods and services. This not only brings transparency but also improves the ease of doing business. It will lower the tax rate by broadening the tax base and exemptions minimisation, foster a common market across the country and reduce compliance costs. Since the tax is destination based and export prices do not include any taxes while imports are taxed at same rates as domestically produced goods, GST will boost exports.

4. Improve the domestic manufacturing capacity

4.1 Opportunity due to increasing wage differential between India and China

The labour productivity analysis for number of broad industrial groups of both the countries reveals that Indian industry is far behind the Chinese industries. However, India is doing better in the Electrical and Non-Electrical Machinery sectors. Also, the steady rise of Chinese wages over Indian wages since 2008 onwards has led to lower unit labour cost in India compared to China. Such wage differentials provides India some advantage to beat its lagging industrial productivity with respect to China and to cut its high import bill by emerging as a major manufacturer in the products hitherto being imported.

4.2 Opportunity due to favourable currency movements

The favourable currency movements for India further reinforce this advantage. The Yuan, Chinese currency, has appreciated over 7.2 per cent against the US dollar in the last three years. While the rupee, has dropped 26.7 per cent during the same period giving edge for Indian products. This situation provides India opportunity to emerge as manufacturing hub.

4.3 Greater Participation in Global Production Networks

China and Korea are in the forefront of global production networks, which are largely driven by Multinational corporations (MNCs). To derive the maximum benefit from availability of low cost labour, raw material and other comparative advantages of different locations, production process is divided into different stages and carry out at different locations. Often, MNCs outsource the low-tech and unskilled part of the production process to the local firms and retain the key stages of the process with them. In China, the FDI inflows has helped to entrench into global production networks. The foreign value added content of gross exports and re-exported intermediates imports, which are indicators of global value chain is 22 percent

and 25 percent for India and 33 percent and 50 percent for China. In textile sector, were both countries have strong production base, the share of re-exported intermediate imports is 80 percent and 33 percent for China and India respectively. Similarly, for Electrical and optical equipment, China exports 73 percent of its raw material imports and India exports 41 percent. These statistics indicate that India is still a small player in the global production networks. India with its good manufacturing base in textiles, machinery and automobiles can play greater role if appropriate domestic policies are followed.

4.4 Upgradation of technology content of exports/Upgrade manufacturing technology

Most of the Indian exports are semi processed raw materials or manufactured products with low technology. Lack of technology in the products where MSMEs operate is very apparent. For example, India exports human hair to china and it converts them to wigs with machinery. Same is the case with coir fibre, china imports fibre and exports value added products[29]. The technologies that MSME require are not very sophisticated, however due to want of capital and knowledge about the value addition process they are lacking. Government should either encourage established players from other sectors to enter these product categories or provide support for acquiring technology and knowhow. In electrical, non-electrical machinery, transportation, chemicals, and textile sectors require medium to high technology. This can be improved by investment in sophisticated machinery and acquiring the technical knowhow and skill upgradation of the workers. Government should motivate the firms to invest in R&D through tax incentives and subsidies and attract further technology oriented FDI.

4.5 Attract FDI

FDI is considered to bring in technology, managerial skills apart from much needed investment for export oriented sectors. Currently, most of the FDI is directed towards serving the domestic market. Compared to India, FDI in China is oriented towards exports. India can attract FDI in sectors like textiles, electrical and non-electrical machinery, due to increasing wage cost in China. If India positions itself as an alternative destination for investment, then eventually, FDI can increase Hi-tech exports from India. To attract the FDI inflows India needs improve manufacturing environment by creating quality roads, ports, electricity, water and availability

[29] Indian exports approximately US$ 400 million, and China exports US$ 5 billion.

of land for industrial purposes. Further, rationalizing laws governing business like labour law and streamlining procedures licenses and permits will boost FDI inflows.

4.5.1 FDI from China and Korea

With large trade surpluses, China is in a better position to invest in Indian infrastructure and manufacturing. This will not only reduce impact of possible instability of caused by burgeoning current account deficit but also provide much needed investment in the infrastructure of India. Currently, the Chinese investments in India are directed towards infrastructure, raw materials and electronics and therefore, there is a need for India to expand the investment scope in other technology intensive sectors. FDI can be further encouraged in agro-food processing sector, machinery buildings, transportation, logistics and pharmaceuticals for which India has well established production capabilities. In the same manner, India can encourage FDI from Korea in the IT sector, electronic and hardware industry and pharmaceuticals. The formation of CEPA is expected to boost mutual investment corporation in these areas.

Thus, the study finds that the growing trade deficit in India with China, Korea and Indonesia is largely on account of specialisation in unsophisticated export products and the heavy dependency on the technologically sophisticated products in the import category. To reduce the unsustainable trade deficit, the domestic industry needs to expand the capacity and improve product competitiveness.

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