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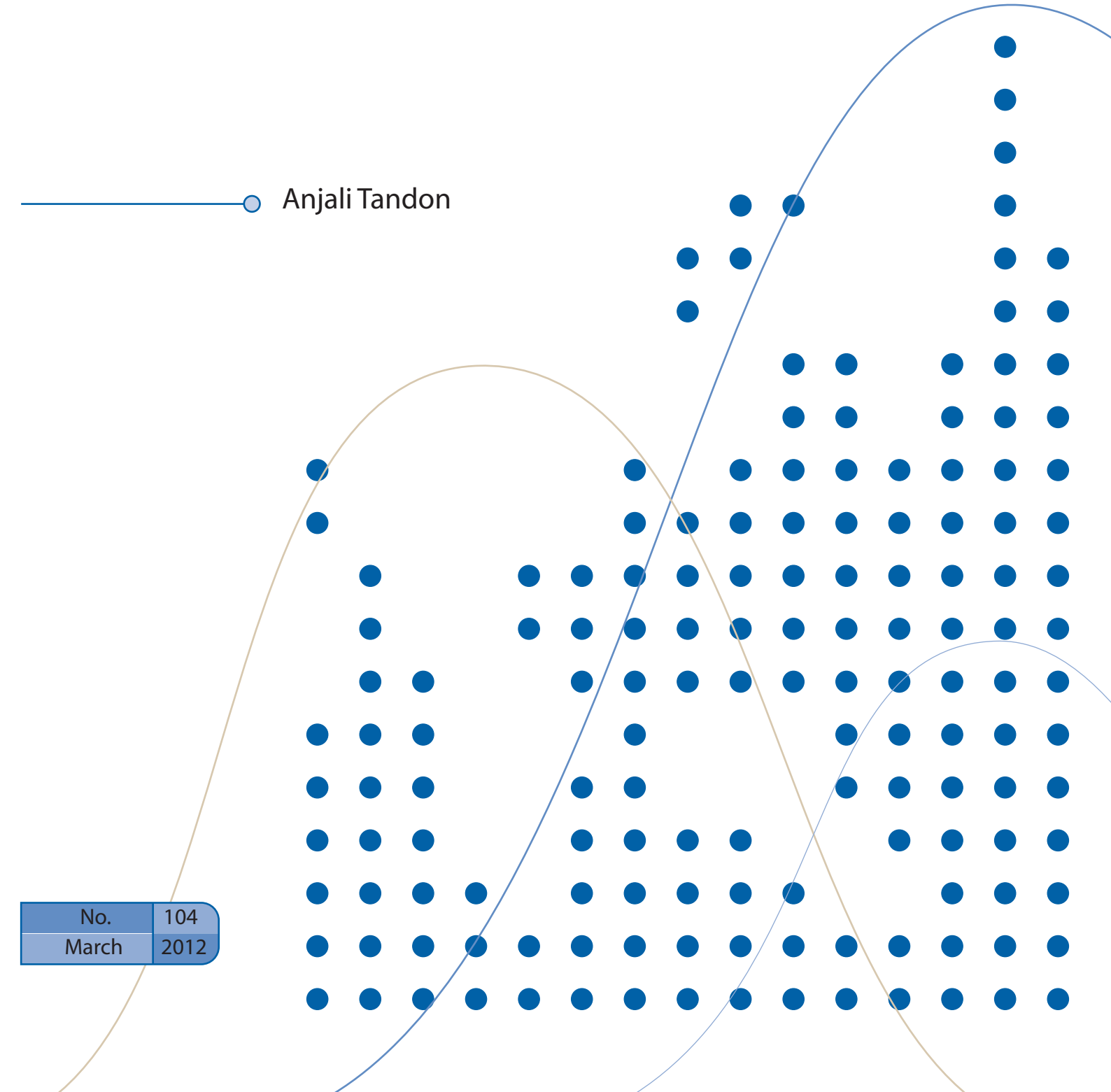

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China–India Merchandise Trade: Retrospect and Prospects[1]

Anjali Tandon[2]

Abstract

This paper studies the changes in the pattern of bilateral trade between China and India consequent to China's accession to WTO in 2001 and assesses the complementarities and challenges in trade.

Using data for Harmonized System (HS) 1996 trade classification, this paper shows that the trade pattern has transformed over the years albeit with a continued high concentration in a few areas. Analysis shows that China reveals bilateral comparative advantage vis-à-vis India in exports of 29 commodities at 2-digit level. China's bilateral comparative advantage vis-à-vis India is found to be consistent with international comparative advantage in as many as 47 products; and in 13 products both at bilateral and international levels. These belong to the export categories of textiles and textile products, ceramic products, and metals and their products. India is found to reveal bilateral comparative advantage in exports of only 16 products. Despite being internationally competitive, Indian exports in 26 categories did not perform well in terms of bilateral competitiveness. Such poor performance could be attributed to restrictive and prohibitive policies adopted by China vis-à-vis India. Many of these belong to vegetable and textile products. Based on HS 2-digit level analysis, this paper identifies that the number of products with trade complementarities exceed the number of competing products.

Key Words: International Trade, Merchandise Trade, Exports, Imports
JEL Classification: F14

1. Introduction

China and India are among the most dynamic economies of the world. Though bilateral trade between the two giants has traditionally been frail, they have widened their mutual trade in the recent past. Both are World Trade Organization (WTO) members and their intra-industry trade has strengthened. The political leadership is committed to enhancing the bilateral trade. The composition of bilateral trade reveals high concentration in a few commodities. About 89 per cent of India's exports consist of the top 15 commodities and the proportion of imports from China is 80 per cent (NCAER, 2005). The issues of similarities and complementarities are significant in view of the speculations on India–China free trade agreement (FTA). Industry players are speculative about the success of such an FTA, if smudged with some hasty findings without adequate ground work.

Several studies have been conducted on the likely impact of the integration of China and India on each other and globally. This paper assesses the competitiveness of the two nations and identifies and accesses the scope for enhancing bilateral trade between the two neighbours. The underlying purpose of the analysis is to provide inputs for a trade alliance between the two countries and also to highlight the strengths, weaknesses, complementarities and competitions that exist in the external sectors of the two economies.

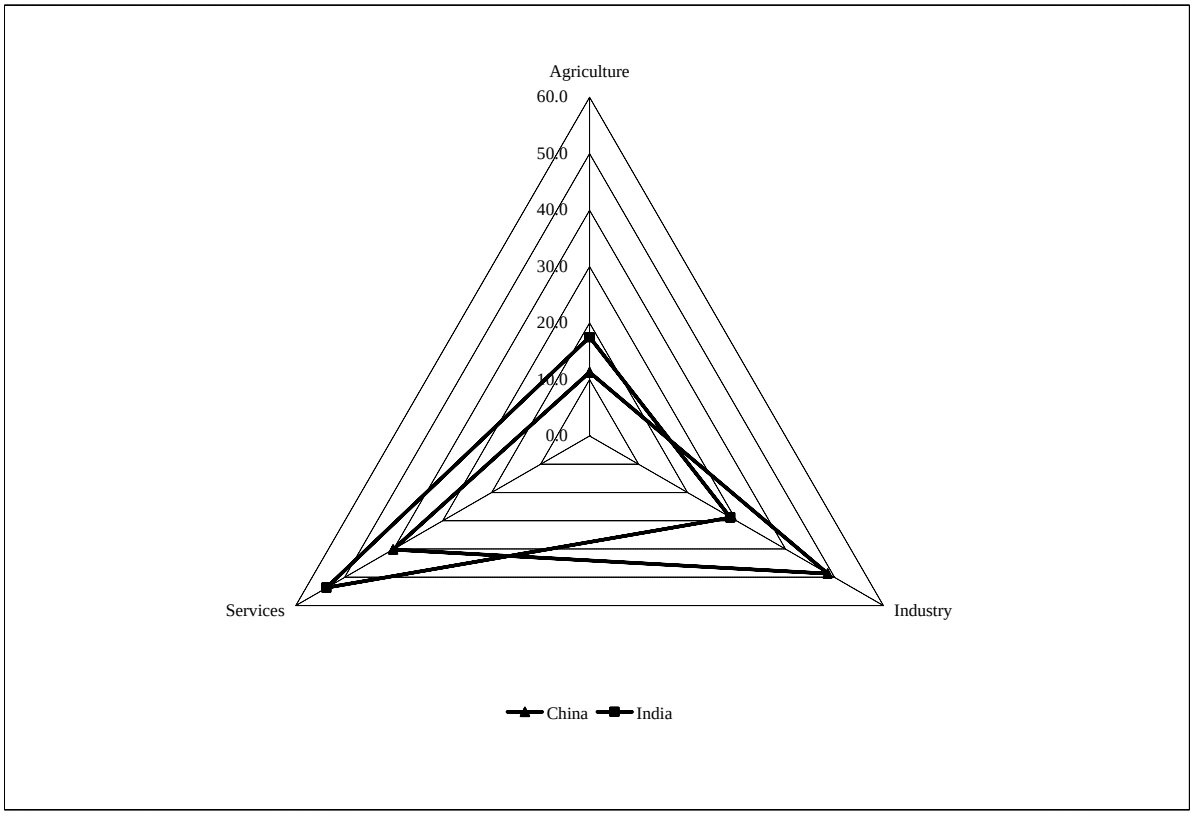
Section 2 of the paper presents a structure of the economies of China and India, whereas the composition of trade is discussed in Section 3. Section 4 reviews the studies in the area and Section 5, methodology. The changes in total bilateral trade are discussed in Section 6 while Section 7 presents a detailed structure of trade. Results of competitiveness and bilateral comparative advantage are discussed in Sections 8 and 9 respectively, followed by conclusions in Section 10.

2. Structure of the Economies of China and India

With a population of over 1.3 billion in 2008, China is the most populous country of the world. It has a labour force of 0.8 billion which constitutes 58.6 per cent of its population. China's is the fastest growing economy in the world with a Gross Domestic Product (GDP) of $4327 billion in 2008, when it registered a growth rate of 9 per cent. According to the World Bank's classification, China's Gross National Income (GNI) per capita is among those of the upper-middle income countries of the world.[3] The structure of the Chinese economy is industry centric. The industrial sector contributes 48.6 per cent value added in the GDP, followed by services sector which contributes 40.1 per cent and agriculture, only 11.3 per cent (Figure 1).

Despite its low contribution to GDP, more than half of the population depends on agriculture for a living.[4] In 2008 China's gross capital formation was measured at 44.4 per cent of the GDP and gross domestic savings at 52.5 per cent. Foreign investment in China has also increased manifold from almost negligible in the late seventies to $147.8 billion in 2008.[5]

Figure 1 Structure of the Economy: China and India, 2008



Source: World Bank 2010.
Note: The values on each axis represent the share of activity in the economy.

India is the second largest populous country of the world after China with head count exceeding 1 billion in 2008. It has a workforce of 0.4 billion, nearly half of that of China, which represents 40 per cent of the Indian population. The size of the Indian economy was $1159.2 billion in 2008 with a growth rate of 6.1 per cent. As per the World Bank's income classification criteria based on per capita GNI, India falls in the lower-middle income group of countries.[6] The tripolar Indian economy is dominated by the service sector as is evident from its 53.7 per cent share in GDP. While industry contributes 28.8 per cent to the GDP, agriculture trails with 17.5 per cent. Even then, more than 58 per cent of the country's population depends

on agriculture. During 2008, India's gross capital formation was 39.7 per cent of the GDP and the gross domestic savings, 34.3 per cent. Both these were lower than that of China during the same period. Net foreign investment inflows into India grew from $0.07 billion in 1991 to $41.2 in 2008.

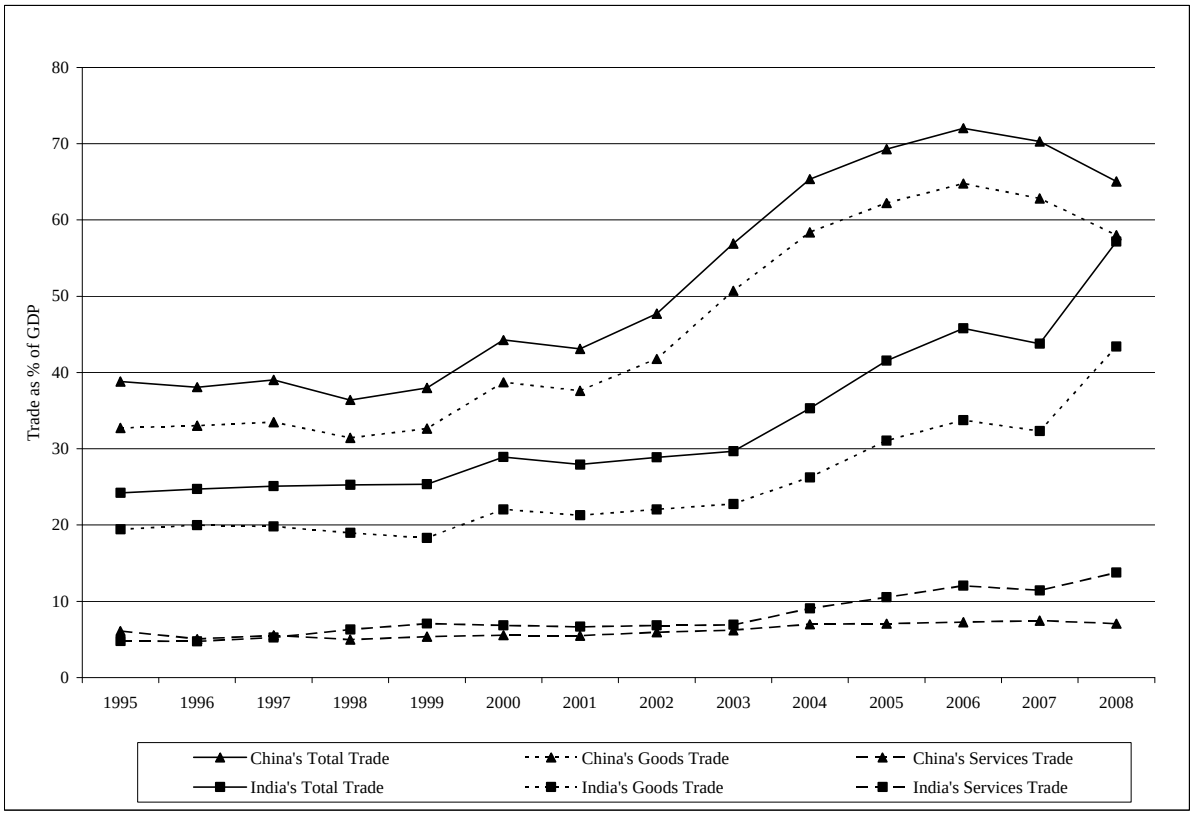
China was ahead of India in transforming its economy. The former initiated economic and structural reforms in 1978 while India embarked on the reform process only in 1991. During the transformation periods, both countries opened up to the outside world. Both countries promoted policies that essentially enhanced trade flows with the world. In addition, both governments realized the benefits of foreign investment in stimulating economic and social growth. Both countries responded positively to adoption of policies that promoted external trade. Total trade as percentage of GDP per cent in China increased from 13.8 per cent in 1978 to 69.3 per cent in 2005 (Table 1 and Figure 2).[7] However, it declined in 2008 when the trade to GDP ratio was 65 per cent. This was due to a slowdown in the global economy. For India, the same indicator increased from 18.7 per cent in 1991 to 57.2 per cent in 2008. Consequently, their respective shares in global trade also increased with China displaying better results than India.

Table 1 Structure of Trade: China and India

Item	China					India				
	1978	1991	2001	2005	2008	1978	1991	1995	2005	2008
As % of GDP										
Exports of goods and services	6.6	17.4	22.6	37.4	36.6	6.0	8.6	10.7	19.1	25.1
Goods exports	-	15.5	20.1	34.1	33.2	4.8	6.8	8.8	12.6	16.2
Service exports	-	1.8	2.5	3.3	3.4	1.2	1.8	1.9	6.5	8.9
Imports of goods and services	7.1	14.3	20.5	31.8	28.5	6.6	10.1	13.5	22.5	32.1
Goods imports	-	13.2	17.5	28.1	24.8	5.5	7.9	10.7	18.4	27.2
Service imports	-	1.1	3.0	3.7	3.7	1.1	2.2	2.9	4.0	4.9
Total Trade	13.8	31.7	43.1	69.3	65.0	12.6	18.7	24.2	41.6	57.2
Goods Trade	-	28.7	37.6	62.2	58.0	10.3	14.6	19.4	31.1	43.4
Services Trade	-	2.9	5.5	7.1	7.1	2.3	4.1	4.8	10.5	13.8
As % of World										
Exports of goods and services	-	1.5	3.9	6.5	8.1	0.5	0.5	0.6	1.2	1.5
Goods exports	-	1.7	4.3	7.4	9.1	0.5	0.5	0.6	1.0	1.2
Service exports	-	0.8	2.1	2.9	3.8	0.6	0.5	0.5	2.0	2.7
Imports of goods and services	-	1.2	3.5	5.6	6.4	0.6	0.6	0.8	1.4	1.9
Goods imports	-	1.4	3.8	6.1	6.9	0.6	0.6	0.8	1.5	2.0
Service imports	-	0.4	2.5	3.5	4.5	0.5	0.6	0.8	1.3	1.6

Source: World Bank 2010.
- Not available

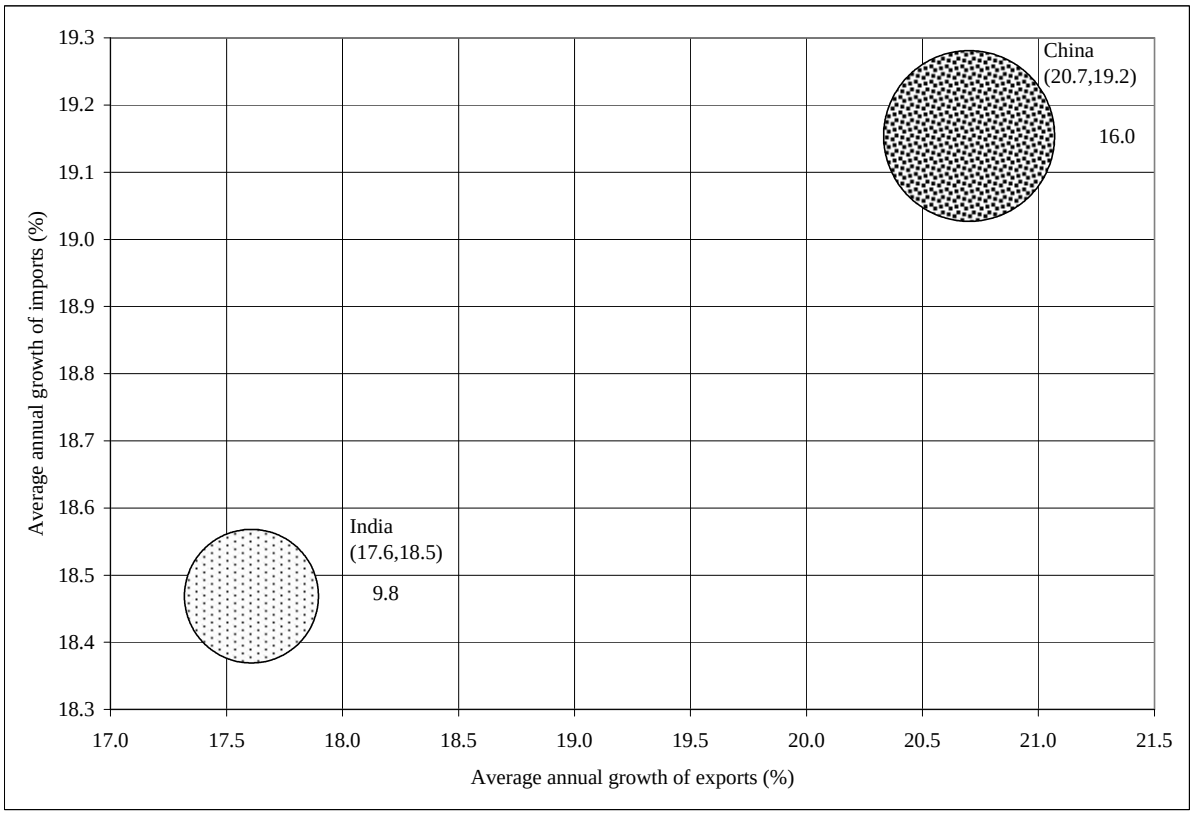
Figure 2 Trade Openness: China and India



Source: World Bank 2010

Further, the accession of India to World Trade Organization (WTO) in 1995 and that of China in 2001 have been globally regarded as a commitment to provide market access on most favoured nation (MFN) basis. The outflows as well as inflows accelerated in both the economies. China's exports increased from $299.4 billion in 2001 to $1581.7 billion in 2008.[8] Comparable figures for imports were $271.3 billion and $1232.8 billion. Similarly, India's exports increased from $38 billion in 1995 to $290 billion in 2008. Its imports also increased from $48.2 billion to $371.6 billion during the same period (Figure 3).

Figure 3 Average Annual Growth in GDP, Export, Import (%) (1995–2008): China and India



Source: Author's computation, based on World Bank 2010.

Note: The value on each axis represents the share of the respective activity in the economy.

3. Composition of Total Trade

Since the beginning of the transformation process, both countries have registered a rise in the trade of merchandise as well as commercial services. Consequently, their shares in world trade increased through the period. However, growth in China has been stronger compared to India due to an early initiation and a steady pursuance of the reform programmes (Figure 3).

The composition of total trade (Table 2) confirms the dominance of merchandise trade, as compared to service trade. In China, the share of service exports in total exports has declined over the years. In 1996 exports of services constituted 12 per cent of total exports. It declined to 8.6 per cent by 2006. In contrast, service exports from India, as percentage of total exports, grew from 17.8 per cent in 1996 to 38 per cent in 2009. However, merchandise exports continue to dominate both in China as well as India. During 2006, exports of merchandise goods was a high 91.4 per cent of China's total exports. The figure was 62 per cent

for India. There has been a clear bias towards merchandise in the overall trade and export structure of both the countries.

Table 2 Composition of Trade

Year	Share of merchandise in total			Share of services in total		
	China	India	World	China	India	World
Exports						
1996	88.0	82.2	81.0	12.0	17.8	19.0
2001	89.0	72.1	80.5	11.0	27.9	19.5
2006	91.4	62.0	81.4	8.6	38.0	18.6
Imports						
1996	86.1	77.5	81.4	13.9	22.5	18.6
2001	86.2	71.8	81.3	13.8	28.2	18.8
2006	88.8	73.3	82.4	11.3	26.7	17.6

Source: WTO

With regard to imports also, the structure is dominated by merchandise goods in both countries. The importance of service imports has declined in China. This is evident from service imports accounting for only 11.3 per cent of total Chinese imports in 2006 as against 13.9 per cent in 1996 (Table 2). Service imports into India have increased to 26.7 per cent of total imports to in 2006 compared to 22.5 per cent in 1996. Despite the increasing significance of service imports in India, the overall import composition continues to favour merchandise goods with a share of 73.3 per cent in 2006. The merchandise imports were thus found to outweigh service imports for both China as well as India.

Thus, significance of merchandise trade for exports as well as imports is established for both China as well as India. Therefore, it is proposed to base the trade analysis in this paper essentially on trade in merchandise goods. Trade would hereafter refer to merchandise trade unless stated otherwise. More importantly, since the focus of the present work is to serve as a background to the Indo–China FTA in goods, services trade may arguably be overlooked for the time being. Also, China, when compared to India, faired better in terms of trade in both merchandise as well as commercial services. However, the performance gap between the two countries was much wider in the case of merchandise trade (Table 3). This highlighted greater reliance of merchandise trade in the Chinese economy. The additional importance attached to the Indian service sector is due to service trade contributing 13.8 per cent to the GDP in India as against only 7.1 per cent in China. Greater significance of merchandise trade in both countries and focus on the bilateral FTA

discussions on merchandise goods motivated a more detailed analysis of bilateral trade in goods in this paper.

Table 3 Structure of Trade

Year	Million $			Share %		Rank	
	China	India	World	China	India	China	India
Exports of merchandise goods							
1996	151048	33105	5402000	2.8	0.6	11	31
2001	266098	43361	6187000	4.3	0.7	6	30
2006	968936	120254	12083000	8.0	1.0	3	20
Exports of commercial services							
1996	20567	7179	1270600	1.6	0.6	16*	34*
2001	32901	16799	1498900	2.2	1.1	12	19
2006	91421	73839	2755900	3.3	2.7	8	10
Imports of merchandise goods							
1996	138833	37942	5546000	2.5	0.7	12	28
2001	243553	50392	6482000	3.8	0.8	6	27
2006	791461	174845	12413000	6.4	1.4	3	11
Imports of commercial services							
1996	22369	11000	1266600	1.8	0.9	12	28
2001	39032	19792	1496100	2.6	1.3	10	18
2006	100327	63696	2648400	3.8	2.4	6	13

Source: WTO

* Rank in 1995. Equivalent figures for 1996 are not available.

4. Literature

Due to increasing importance in the global economy, China and India have received much attention from policy makers, academia and the business community. It has been argued by Dimaranan et al. (2007) that the impact of expansion of exports from China and India could be biased. They attempted to assess the opportunities and threats to each other and the rest of the world from their own growth using a global applied general equilibrium model.[9] According to them, the growth of economies of the two Asian countries would lead to a rise in two-way trade in manufacturing goods and services, thus benefiting the trading partners from improved efficiency. The improvements in competitiveness would also result in fragmentation of global production which will benefit all participants. Further, expansion in exports may not necessarily be associated with increase in exports of the same products, but the countries would begin to export a broad range of new products, make improvements in quality and target newer markets. The authors expected the

competition between China and India and the rest of the world to intensify subject to India's further reforms. On examining the trading patterns of China and India for comparisons or similarities, the authors found that both countries succeeded in expanding their trade flows, though in different ways.

In a more relevant framework, Batra and Khan (2005) conducted an extensive empirical analysis of international competitiveness of India and China for the periods 2000 and 2003. The analysis assessed any inter-temporal shifts in revealed comparative advantages of the two countries in the two years studied. The authors also assessed the competitiveness by factor intensities in the country-wise exports based on 2- and 3-digit classifications of the Standard International Trade Classification (SITC) Revision 3. The study showed India's comparative advantage in 41 out of a total of 97 chapters, silk being the most advantageous sector in India's exports with the Revealed Comparative Advantage (RCA) index at 17.4. Similarly, China exhibited RCA in 47 of 97 chapters and 1828 of the 4923 export commodities. Further, the largest number of competitive items was found in sectors such as electrical and electronic equipment, leather, toys, organic chemicals, and articles of apparel and cotton.

The report of the Joint Study Group (NCAER, 2005) suggests great potential for expansion in bilateral merchandise trade. The average annual growth of trade during the period 1995–2003 was 26.4 per cent, well above their respective overall trade growth during the same period. Despite such high growth, the prevailing small shares in the overall trade structures were used as pointers for further trade expansion. Further it was found that the composition of the Sino–Indian trade was highly concentrated in a few commodities only, especially with regard to India's exports to China as compared to India's imports from China, that were found to be relatively more diversified. Therefore, the report of the Joint Study Group recommended broadening the range of traded commodities, thus highlighting the scope for further expansion in bilateral trade.

5. Methodology

Since all FTAs are formulated and negotiated using information under the HS classification, the present empirical work adopts the same. Trade analysis is primarily conducted for all 22 Sections and 99 Chapters across the reference period (Tables A1 and A2).

A part of the methodology is inspired from Panagariya (2006, p. 5). The author has emphasized on the importance of growth rates: "Any discussion of trade and investment policies must be conducted in the

context of the growth experiences". Moreover, most of the trade-related government policies and future agenda are based on and defined with the help of growth rates. In this paper, the changes in pattern of bilateral trade have been assessed based on the growth rates and shares in overall trade flows through a triennium ending (TE) approach. The trade flows in a given year may exhibit an extreme behaviour and may, therefore, be outliers due to the sudden adoption of an ad hoc policy measure. A safe and widely used approach to reduce the effect of such observations without ignoring them is to consider the average over a period of time such as three years.

Changes in the bilateral trade have been studied for two periods so as to assess the impact of China's WTO compliance in 2001. TE 1999 is used to evaluate the trade and competitiveness prior to China's WTO accession. It is reasonably argued that the trade structures would have responded to the new situation that evolved after 2001 by TE 2005. This time frame is suitable to observe any effects of China's WTO compliance. Further, an accelerated growth in India's exports to and imports from China has been recorded during this period. Particularly, the growth in exports to China has been observed to be relatively stronger than imports. It is understood that such high rates were primarily driven by concentrated trade flows in certain select categories such as raw iron ores. These were influenced by China's insufficient domestic production to meet its infrastructure development in general and the preparation for the Olympic Games scheduled for 2008 in particular. It is argued that trade concentrations in specific categories can be short-lived and are not ideal for evolution of a balanced and sustainable bilateral structure of commodity exchanges between the two countries. An analysis for the reference period is expected to suggest broad-basing of the bilateral structure in future.

Exports are classified as 'dynamic' and 'stagnant'. Dynamic commodities are further classified as 'optimal' and 'weakness'. Similarly, stagnant products have been classified as 'vulnerable' or 'restructuring' (see Annexure for a detailed discussion of the analytical framework).

The issues of comparative advantage can be addressed through various approaches that include the share of industry in a country's GDP, gravity model, input–output model and variants of Balassa's index of RCA (Moenius, 2006). The assessment of industry shares in GDP is primarily based on the production costs that may not necessarily reflect the associated trade costs. The gravity model, although suitable for discussions in bilateral context, requires careful interpretation of the results besides challenging data requirements. The

input–output models offer relatively greater factor-related highlights as opposed to the commodity trade. The Balassa's index not only addresses the above limitations but is also easy from a computational perspective which has earned it popularity in empirical work.

There is a wealth of literature in support of as well as against the use of Balassa's indices. The comparative advantage of a country can vary due to factor endowments (Balassa, 1965) as well as trade performance. Beneder and Li (2002) have advocated the use of RCA measures even though the indices may not isolate the changes due to factors from that due to trade explicitly. They argued that the indices provide important information from a region's perspective. Despite the measurement problems, due to presence of non-measurable factors, as acknowledged by Balassa himself, the indices provide a true assessment of the comparative advantages based on realised trade flows. The constraints on availability of real and price flows for a higher level of disaggregation rationalise the use of Balassa's RCA indices that are based on easily available nominal trade flows. Further, these indices have been revised by other researchers. Over the period, various researchers have refined the conventional RCA indices to address specific shortcomings. For instance, Michaely (1962/67) has refined the index to include the import flows. Imre and Hubbard (2003) discuss relative import advantage, relative trade advantage and relative competitiveness which are based on import statistics in addition to export figures used in the conventional Balassa index.

The complementarities and/or overlaps within the trade structure have been assessed by using RCA as used by Balassa (1965). In this paper, the international and bilateral competitiveness of both countries has been analysed for all the HS Chapters (2-digit level). These are respectively referred to as International Revealed Comparative Advantage (IRCA) and Bilateral Revealed Comparative Advantage (BRCA) (see Annexure for details).

While a nation may posses comparative advantage internationally, its trade pattern may also reveal advantage (or otherwise) vis-à-vis a specific trade partner. This advantage can be identified and assessed by including the bilateral trade patterns in the computational procedure. The existence of an international comparative advantage is not a sufficient condition for comparative advantage in bilateral trade. Conversely, the presence of BRCA may not necessarily imply IRCA.

Given the special interest in bilateral trade relations between China and India, we are interested in assessing the comparative advantage or disadvantage that may exist in the bilateral trade.

6. Total Bilateral Trade

The initiatives for greater openness adopted by China and India resulted in realization of greater trade flows with the rest of the world. As part of their *look-out* strategies, the bilateral trade between each other also increased. A political leadership committed to strengthening the bilateral economic relations served to further catalyse their bilateral trade flows.

Exports

During TE 1999, China exported merchandise goods worth $1 billion (0.6 per cent) to India (Table 4).[10] During this period India ranked 21st amongst China's export destinations. By TE 2005, Chinese exports to India had reached $6.1 billion (1 per cent) and India became its 15th export destination in terms of value of exports. Owing to growing economic relations, India's rank further improved to 11th by TE 2008, thus accounting for 1.9 per cent of China's total exports to the world.

Table 4 Growth of China's Exports to India

Exports	TE 1999	TE 2002	TE 2005	TE 2008	2009
Value ($ billion)					
India	1.0	2.0	6.1	23.4	29.7
World	187.2	280.6	598.2	1205.9	1203.4
India as % of World	0.6	0.7	1.0	1.9	2.5
India's rank	21	20	15	11	10
Growth rate (per cent)					
India	19.0	32.2	51.1	53.0	–5.8
World	9.2	19.0	32.8	23.4	–15.8

Source: IMF 2011

The phenomenal growth in China's exports is evident from an ever-increasing growth rate. While China's exports to India grew at an average rate of 19 per cent during TE 1999, an average growth of 51.1 per cent was recorded during TE 2005, and 53 per cent during TE 2008. From Table 4, it is clear that China's exports to India have consistently grown at a rate higher than its exports to the world.

Likewise, India also increasingly exported to China over the period. The value of India's exports to China increased from $0.6 billion (1.6 per cent share) during TE 1999 to $4.5 billion (5.5 per cent share) during TE 2005 and further to $9.3 billion (6.2 per cent share) by 2006 (Table 5). By TE 2008 China ranked amongst the top three destinations for Indian exports, just after the US and the United Arab Emirates.

Table 5 Growth of India's Exports to China

Exports	TE 1999	TE 2002	TE 2005	TE 2008	2009
Value ($ billion)					
China	0.6	1.3	4.5	9.3	10.2
World	34.7	46.2	78.1	150.7	165.2
China as % of World	1.6	2.9	5.5	6.2	6.1
China's rank	17	7	3	3	3
Growth rate (per cent)					
China	0.7	54.5	55.6	15.3	5.1
World	3.7	12.2	24.9	22.0	–7.0

Source: IMF 2011

India's exports to China recorded a 0.7 per cent average growth during TE 1999. Exports to China recorded a magnificent growth of 55.6 per cent during TE 2005. However, a slowdown was observed in TE 2008 when the export growth decelerated at 15.3 per cent.

Imports

Over the period of study, China's imports of merchandise goods from India also increased multi-fold. It increased from $0.9 billion during TE 1999 to $7.2 billion by TE 2005 and further to $15.2 billion by TE 2008 (Table 6). This reflected in India's improving position as a source of imports for China. While India ranked 25th among the import sources for China during TE 1999, its position improved substantially to 14th during TE 2005 and to 13th in TE 2008. The rate of growth of China's imports from India has increased except during TE 2008 when the import growth slowed down to 19.7 per cent.

Table 6 Growth of China's Imports from India

Imports	TE 1999	TE 2002	TE 2005	TE 2008	2009
Value ($ billion)					
India	0.9	1.8	7.2	15.2	13.7
World	149.4	254.7	544.8	956.0	1003.9
India as % of World	0.6	0.7	1.3	1.5	1.4
India's rank	25	20	14	13	14
Growth rate (per cent)					
India	5.6	41.1	65.0	28.6	–32.5
World	6.4	21.8	31.1	19.7	–11.3

Source: IMF 2011

On the other hand, India's merchandise imports from China have grown continuously so as to make China the most significant source for imports in India. During TE 1999 China imported only $1.1 billion (2.6 per cent share), which increased to $6.5 billion (6.1 per cent share) by TE 2005 and further to $23.6 billion (10.1 per cent share) by TE 2008 (Table 7). Imports grew from an average of 22.1 per cent during TE 1999 to 56.5 per cent during TE 2005. However, a deceleration was observed during TE 2008 with a growth in import of 46.3 per cent. China was the single most largest import source for India in 2009 with a share of 11.2 per cent, leaving behind the United States.

Table 7 Growth of India's Imports from China

Imports	TE 1999	TE 2002	TE 2005	TE 2008	2009
Value ($ billion)					
China	1.1	2.0	6.5	23.6	28.8
World	43.7	56.1	104.6	231.1	257.7
China as % of World	2.6	3.6	6.1	10.1	11.2
China's rank	15	5	1	1	1
Growth rate (per cent)					
China	22.1	28.6	56.5	46.3	–4.7
World	10.0	7.4	33.5	26.4	–8.5

Source: IMF 2011

7. Structure of Bilateral Trade

Section-wise analysis

The section-wise analysis confirmed that exports have increasingly concentrated in the top three sections of mineral products, chemical products and metal and their products. Imports from China were concentrated under chemical products, textile and textile articles and machinery. During TE 1999, India's exports to China in the top three sections together accounted for 58.4 per cent. Export concentration further increased during TE 2005, with the top three sections having a cumulative share of 75.9 per cent (Figures 4 and 5). The most significant export is of mineral products (Section V) which registered a high growth rate of 96.6 per cent, thus resulting in the highest share of 47.9 per cent. Like exports, imports from China have further intensified in the top three sections during TE 2005 to account for a cumulative share of 71.4 per cent as against 65.5 per cent during TE 1999 (Figures 6 and 7). By TE 2005, the imports of machinery under Section XVI accounted for the highest share of 42.4 per cent in total bilateral imports from China, followed by chemical products (Section VI) (18.3 per cent share) and textiles and textile articles (Section XI) (10.7 per cent share).

Figure 4 India's Sector-wise Exports to China (% Share, $ Value), TE 1999

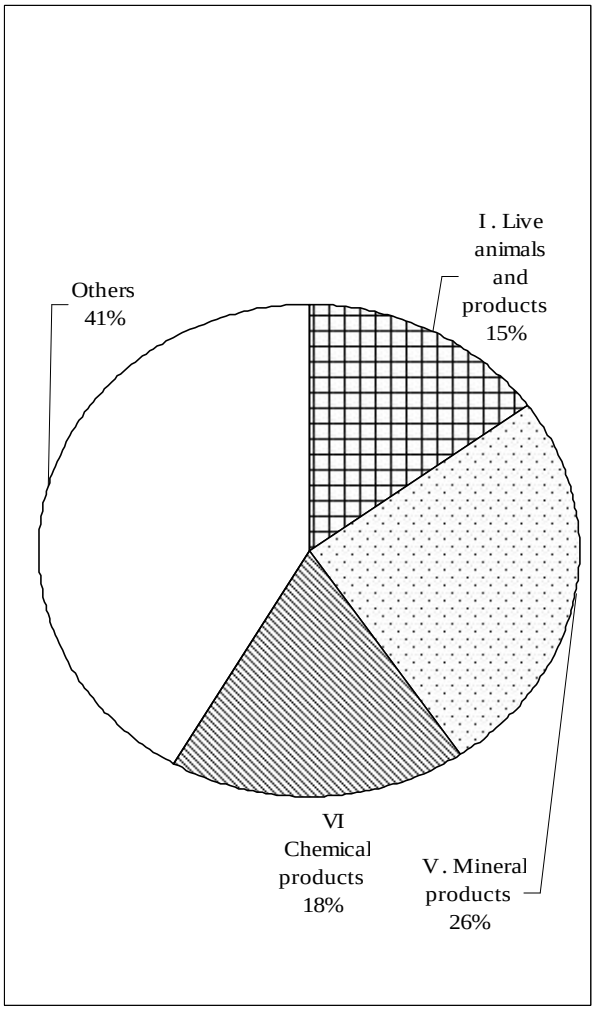
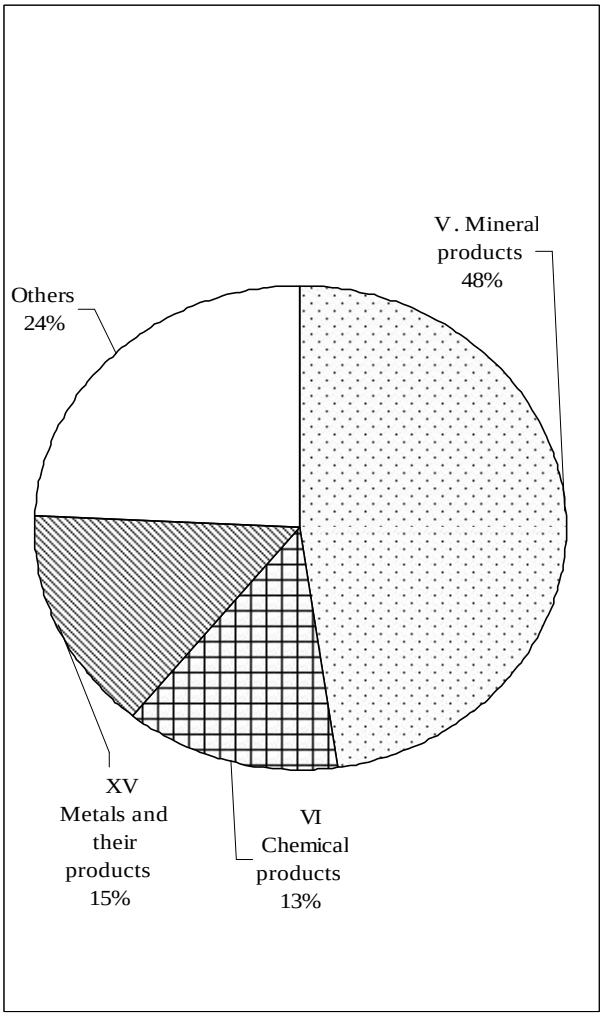


Figure 5 India's Sector-wise Exports to China (% Share, $ Value), TE 2005



Source: Author's computations based on UN Comtrade.
Note: The section-wise exports are placed serially.

Figure 6 India's Sector-wise Imports from China (% Share, $ Value), TE 1999

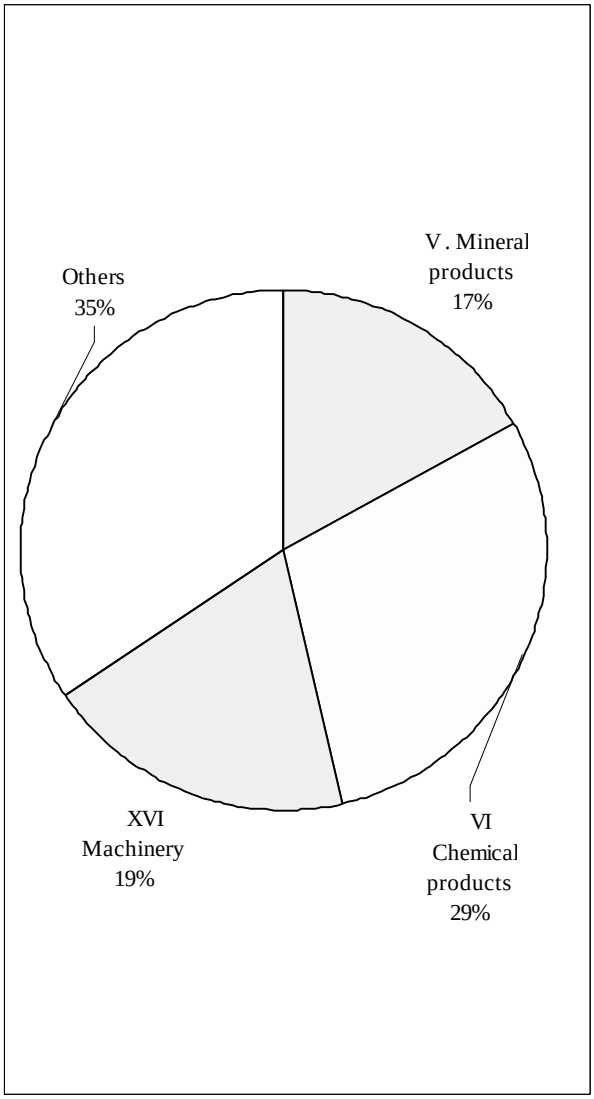
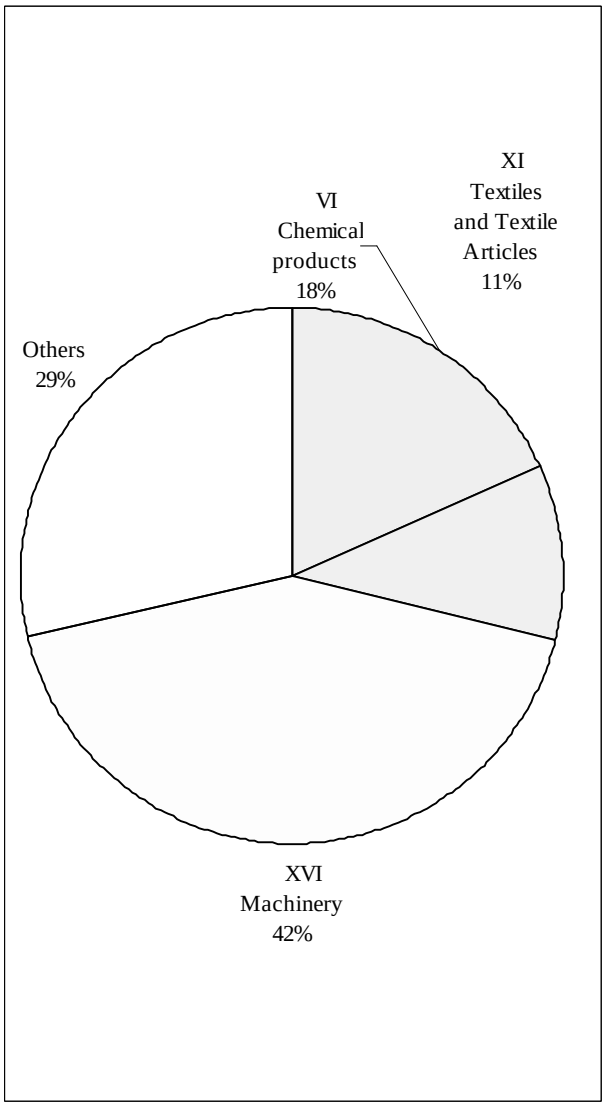


Figure 7 India's Sector-wise Imports from China (% Share, $ Value), TE 2005



Source: Author's computations based on UN Comtrade
Note: The section-wise exports are placed serially.

Chapter-wise analysis

The changes in bilateral trade patterns have been analysed more sharply at the chapter level. During TE 2005, India's exports to China increased in 79 chapters with the highest exporting chapters being ores, slag and ash (Chapter 26, Section V) (44.2 per cent share), iron and steel (Chapter 72, Section XV) (12.8 per cent) and organic chemicals (Chapter 29, Section VI) (6.9 per cent). Each of these chapters had the highest

export value in the corresponding sections. However, higher shares were also observed for chapters other than those belonging to the top three sections as previously identified thus highlighting the significance of a chapter-wise analysis. The important observation that emerged from the chapter-wise results was that the intensity of exports in a particular section could be due to highly concentrated exports in one or very few chapters only, and that India was not exporting heavily under all chapters of a section with high exports. The pattern of imports, as compared to exports, had undergone a more noticeable transformation between TE 1999 and TE 2005. Imports from China presented a relatively optimistic picture with the value of import increasing in as many as 91 chapters and reducing in only 5. Imports were dominated by electrical machinery (Chapter 85) (26.8 per cent) and nuclear reactors (Chapter 84) (15.6 per cent), both of which constitute Section XVI. Significant importing chapters were positioned in important sections and also beyond these sections.

8. Competitiveness and International Revealed Comparative Advantage

The results of the competitiveness and comparative advantage for all chapters under HS classification are showcased in this section. While the 2-digit code goes up to 99, chapters 77 and 98 are left blank. The lack of world level data for chapter 99 leaves us with 96 chapters to analyse for their competitiveness and comparative advantage.

China

The changes over time, i.e. TE 2005 over TE 1999 for all chapters are summarised in the export competitiveness matrix (Table 8). Data in the table can be interpreted to mean that shares of 20 of the 96 commodity exports increased during TE 2005 compared to TE 1999, thus qualifying them to be classified as dynamic exports. The remaining 76 were stagnant exports as the world export shares of these items recorded a negative change during TE 2005 when compared with TE 1999. Of the 20 dynamic commodities, the shares of 8 increased in China's overall exports. Such items were identified as rising stars since these displayed an improving performance in the world as well as in China's overall exports. While the remaining 12 dynamic products gained importance at the world level, their significance declined in China's overall exports during TE 2005. Such items were obviously lost opportunities or weaknesses.

Table 8 Export Competitiveness Matrix – China

		Share of product in world exports (%)	
		Rising - **Y1**	Falling ¯ **Y2**
Share of product in China's world exports (%)	Rising - **X1**	**26, 33,** 43**, 72,** 85**,** 86**, 90,** 94	31, 35, 37, 40, 41, 45, **54**, **59**, **60**, **70**, **73**, 76, **81**, **84**, **87**
	Falling ¯ **X2**	**16**, 18, 19, 27, 29, 30, 39, **46**, **63**, **65**, 74, 75	01, 02, **03**, 04, **05**, 06, **07**, 08, 09, 10, 11, 12, 13, **14**, 15, 17, **20**, 21, 22, 23, 24, **25**, **28**, 32, 34, **36**, 38, **42**, 44, 47, 48, 49, **50**, **51**, **52**, **53**, **55**, 56, **57**, **58**, **61**, **62**, **64**, **66**, **67**, **68**, **69**, 71, **78**, 79, **80**, **82**, **83**, 88, 89, **91**, **92**, 93, **95**, **96**, 97

Source: Author's computations based on World Bank and UNCTAD
Notes:
Bold: IRCA>1 during TE 2005
X1 = {26, 31, 33, 35, 37, 40, 41, 43, 45, 54, 59, 60, 70, 72, 73, 76, 81, 84, 85, 86, 87, 90, 94};
X2 = {01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 32, 34, 36, 38, 39, 42, 44, 46, 47, 48, 49, 50, 51, 52, 53, 55, 56, 57, 58, 61, 62, 63, 64, 65, 66, 67, 68, 69, 71, 74, 75, 78, 79, 80, 82, 83, 88, 89, 91, 92, 93, 95, 96, 97};
Y1 = {16, 18, 19, 26, 27, 29, 30, 33, 39, 43, 46, 63, 65, 72, 74, 75, 85, 86, 90, 94};
Y2 = {01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 17, 20, 21, 22, 23, 24, 25, 28, 31, 32, 34, 35, 36, 37, 38, 40, 41, 42, 44, 45, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 66, 67, 68, 69, 70, 71, 73, 76, 78, 79, 80, 81, 82, 83, 84, 87, 88, 89, 91, 92, 93, 95, 96, 97}
X1 ∩Y1: Rising stars
X1 ∩Y2: Falling stars
X2 ∩Y1: Lost opportunity
X2 ∩Y2: Retreat
The matrix is based on change in shares during TE 2005 over TE 1999.

Similarly, among the 76 stagnant products, only 15 gained greater significance in China's overall export during TE 2005 in comparison to TE 1999 entitling them as 'falling stars'. The remaining 61 registered a fall in the shares and were identified as 'retreats'. The above discussion infers that China's overall exports

were largely consistent with the world export patterns as is evident from a greater number of products placed in the optimal and the restructuring categories put together. There were 69 such products (Table 8). Further, China's IRCA characteristics are superimposed (in bold) in Table 8 to highlight the existence of international comparative advantage in various export segments of the competitiveness matrix.

China was found to be internationally competitive in half (4 out of 8) of the rising stars, thus leaving scope for increasing the significance of the remaining rising stars in China's overall export basket. In other words, exports under leather and leather products, electrical machinery, transport equipment and miscellaneous manufactured articles have been the star performers for China. Among the lost opportunities, China was found to bear comparative advantage in just 4 of the 12 products. These belonged to prepared foodstuffs, beverages, tobacco, wood and wood products, textiles and footwear categories. There is an obvious need for favourable policies to make up for the missed/lost opportunities including the items that were widely spread across many categories ranging from prepared foodstuffs, beverages, and tobacco to metals and their products. Quite a few commodities with comparative advantage were in the vulnerable segment with decreasing shares at the world level and increasing at the country level. China displayed IRCA in more than half (8 of 15) falling stars. These 8 items gained comparative advantage by virtue of increasing shares at the country level and decreasing shares at the world level as identified earlier. Most of these products belonged to textiles and textile products, and metals and their products, besides others. From within the stagnant exports, China was found to be internationally competitive in as many as 39 products, most of which were textiles and textile products, footwear, instruments, spare parts and accessories, and miscellaneous manufactured articles. Of these, as many as 31 items were identified as retreats. Their item description clearly shows the declining significance of manufactured items including textiles in China's export structure.

The computations of chapter-wise IRCAs show that China revealed comparative advantage in exports under 47 chapters during TE 1999. The number changed marginally to 46 chapters during TE 2005. While the number of competitive exports may not have undergone a substantial change, China has become competitive in newer categories, un-competitive in some of the earlier categories and maintained earlier status under some other categories. The chapters that gained comparative advantage during TE 2005 compared to TE 1999 were man-made filaments (Chapter 54), impregnated, coated, or laminated cover (Chapter 59), glass and glassware (Chapter 70), and nuclear reactors (Chapter 84). These products gained

RCA due to increase in significance in China's export structure and decreasing importance in the world export structure.

India

In India it was found that 20 of the 96 commodities were dynamic with rising shares in world exports during TE 2005 as against TE 1999, while the exports of remaining 76 commodities were stated to be stagnant due to the reverse trend in their export shares over the same period (Table 9). Within the dynamic segment, about two-thirds (14 out of 20) of the products had shown a rise in significance in India's overall exports to the world. These included exports under the categories of prepared foodstuffs, beverages and tobacco, mineral products, chemical products, and metals and their products among others. The remaining six items were identified as weaknesses for India since such items were found to lose significance in country exports while their global shares were on an uptrend. Such missed opportunities were found to be dispersed across many categories ranging from prepared foodstuffs, beverages and tobacco to transport equipment. It is imperative that these products invite immediate attention in the national export policy framework.

Table 9 Export Competitiveness Matrix – India

		Share of product in world exports (%)	
		Rising - **Y1**	Falling – **Y2**
Share of product in India's world exports (%)	Rising - **X1**	**16, 19,** 26**, 27,** 29**, 30, 39, 43,** 72**,** 74**, 75, 85, 90, 94**	01, 04, 11, 17, 20, **25**, **28**, 34, 35, 40, 44, 48, 49, **54**, **67**, 69, 70, **73**, 76, 78, 79, **82**, 84, 87, 89, **97**
	Falling – **X2**	18, 33, 46, **63**, 65, **86**	02, **03**, 05, 06, **07**, **08**, **09**, **10**, **12**, **13**, **14**, 15, 21, 22, **23**, **24**, 31, **32**, **36**, 37, 38, **41**, **42**, 45, 47, **50**, 51, **52**, **53**, **55**, 56, **57**, **58**, 59, 60, **61**, **62**, **64**, 66, **68**, **71**, 80, 81, 83, 88, 91, 92, 93, 95, 96

Source: Author's computations based on World Bank and UNCTAD

Notes:

Bold: IRCA>1 during TE 2005

X1 = {01, 04, 11, 16, 17, 19, 20, 25, 26, 27, 28, 29, 30, 34, 35, 39, 40, 43, 44, 48, 49, 54, 67, 69, 70, 72, 73, 74, 75, 76, 78, 79, 82, 84, 85, 87, 89, 90, 94, 97};

X2 = {02, 03, 05, 06, 07, 08, 09, 10, 12, 13, 14, 15, 18, 21, 22, 23, 24, 31, 32, 33, 36, 37, 38, 41, 42, 45, 46, 47, 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 71, 80, 81, 83, 86, 88, 91, 92, 93, 95, 96};

Y1 = {16, 18, 19, 26, 27, 29, 30, 33, 39, 43, 46, 63, 65, 72, 74, 75, 85, 86, 90, 94};

Y2 = {01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 17, 20, 21, 22, 23, 24, 25, 28, 31, 32, 34, 35, 36, 37, 38, 40, 41, 42, 44, 45, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 66, 67, 68, 69, 70, 71, 73, 76, 78, 79, 80, 81, 82, 83, 84, 87, 88, 89, 91, 92, 93, 95, 96, 97}

X1 ∩Y1: Rising stars

X1 ∩Y2: Falling stars

X2 ∩Y1: Lost opportunity

X2 ∩Y2: Retreat

The matrix is based on change in shares during TE 2005 over TE 1999.

A classification of 76 stagnant products based on their shares in India's overall exports led to the identification of 26 products as vulnerable or falling stars due to their declining significance. These were

predominantly metals and their products. The remaining 50 products were retreats due to their eroding significance at the world and the country levels.

More interesting information has been extracted by superimposing India's IRCAs in the same Table. During TE 2005, India exhibited IRCA in 4 of the 14 rising stars, showing India's competitiveness in exporting products of minerals, chemicals and metals. In the case of the remaining rising stars, despite a rise in shares, the global shares exceeded the country level shares thus making it disadvantageous for India to export these items.

The remaining were cases of lost opportunity due to a decline in significance in India's overall exports. Such products were widespread across categories. Out of 26 vulnerable products or falling stars, Indian export was found to be competitive in only seven, two of which belonged to metals and their products. Among the 50 retreats, IRCA existed in half of the products, most of which were in the categories of textiles and textile articles, vegetable products, chemical products and prepared foodstuffs, beverages, and tobacco, and so on.

The analysis of Indian trade showed that during TE 1999, Indian exports under 38 chapters revealed comparative advantage while 37 chapters were identified for their international competitiveness during TE 2005. The Indian exports exhibited competitiveness in newer export categories, lost competitiveness in some earlier categories while maintaining the earlier status for remaining chapter-wise exports. Among the chapters that had gained comparative advantage during TE 2005 in comparison to TE 1999 are inorganic chemicals (Chapter 28), copper and its articles (Chapter 74) and works of art and antiques (Chapter 97). The products that had gained revealed comparative advantage due to increase in significance in India's export structure and falling importance in the world export structure were: inorganic chemicals (Chapter 28) and works of art and antiques (Chapter 97).

An assessment of complementarities or competition in international trade of both China and India highlighted the opportunities and challenges/threats in their international trade patterns. The results of such comparison for TE 2005 are presented in Table 10. During TE 2005 China exhibited competitiveness in 46 chapter-wise exports while India was competitive in only 37 chapters. Of these, the characteristic of competitiveness was common to both countries in 22 chapters. Exports under such categories could be

challenging for either nation as both compete for a share in the world market.[11] Such challenges were dominating the textile and article category while a few also belonged to the agriculture sector. There were 24 products in which China was competitive and India uncompetitive. These products primarily belonged to the metal and transport industry, instruments, toys, and other sectors. Similarly, India alone was competitive in exports of 15 products. Those belonged to the agriculture, beverages, fuel and chemical, precious or semi-precious stones, and metal industries. These industries were recognised as complementarities in export structures of China and India. Thus in total 39 (24+15) chapters were identified as complementing to each other. This number is much more than the previously identified number of products with competing exports in 22 chapters.

Table 10 Comparison of International Comparative Advantage, TE 2005

IRCA>1	Number of products	Product codes
China and India	22	03, 07, 14, 25, 28, 36, 42, 50, 52, 53, 54, 55, 57, 58, 61, 62, 63, 64, 67, 68, 73, 82
China only	24	05, 16, 20, 43, 46, 51, 59, 60, 65, 66, 69, 70, 78, 80, 81, 83, 84, 85, 86, 91, 92, 94, 95, 96
India only	15	08, 09, 10, 12, 13, 23, 24, 26, 29, 32, 41, 71, 72, 74, 97

Source: Author's computations based on World Bank and UNCTAD

9. Bilateral Revealed Comparative Advantage

China

China was found to reveal bilateral comparative advantage vis-à-vis India in exports of goods under 28 chapters during TE 1999 and 29 chapters during TE 2005 (Table 11). It gained bilateral comparative advantage in 12 chapters during TE 2005 in comparison to TE 1999. These were exports of gums and resins (Chapter 13), albuminoidal substances (Chapter 35), photographic or cinematographic goods (Chapter 37), cork and articles of cork (Chapter 45), wool, fine/coarse animal hair, etc. (Chapter 51), cotton (Chapter 52), man-made filaments (Chapter 54), wadding, felt and non-woven yarns (Chapter 56), special woven

fabric (Chapter 58), ceramic products (Chapter 69), natural/cultured pearls (Chapter 71) and iron and steel (Chapter 72).

Table 11 Pattern of Comparative Advantage – China, TE 2005

		China's IRCA	
		IRCA>1 **Y1**	Otherwise **Y2**
China's BRCA	BRCA>1 **X1**	25, 28, 50, 51, 52, 53, 54, 58, 59, 69, 70, 78, 81	09, 13, 26, 27, 29, 30, 31, 32, 35, 37, 38, 45, 56, 71, 72, 79
	Otherwise **X2**	03, 05, 07, 14, 16, 20, 36, 42, 43, 46, 55, 57, 60, 61, 62, 63, 64, 65, 66, 67, 68, 73, 80, 82, 83, 84, 85, 86, 91, 92, 94, 95, 96	01, 02, 04, 06, 08, 10, 11, 12, 15, 17, 18, 19, 21, 22, 23, 24, 33, 34, 39, 40, 41, 44, 47, 48, 49, 74, 75, 76, 87, 88, 89, 90, 93, 97

Source: Author's computations based on World Bank and UNCTAD

Notes:

X1 = {09, 13, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 45, 50, 51, 52, 53, 54, 56, 58, 59, 69, 70, 71, 72, 78, 79, 81};

X2 = {01, 02, 03, 04, 05, 06, 07, 08, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 33, 34, 36, 39, 40, 41, 42, 43, 44, 46, 47, 48, 49, 55, 57, 60, 61, 62, 63, 64, 65, 66, 67, 68, 73, 74, 75, 76, 80, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97};

Y1 = {03, 05, 07, 14, 16, 20, 25, 28, 36, 42, 43, 46, 50, 51, 52, 53, 54, 55, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 73, 78, 80, 81, 82, 83, 84, 85, 86, 91, 92, 94, 95, 96};

Y2 = {01, 02, 04, 06, 08, 09, 10, 11, 12, 13, 15, 17, 18, 19, 21, 22, 23, 24, 26, 27, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 40, 41, 44, 45, 47, 48, 49, 56, 71, 72, 74, 75, 76, 79, 87, 88, 89, 90, 93, 97}

X1 ∩Y1: Quadrant I X1 ∩Y2: Quadrant II

X2 ∩Y1: Quadrant III X2 ∩Y2: Quadrant IV

Interpretation

- Items positioned in Quadrants I and IV are found to exhibit a pattern of bilateral revealed comparative advantage consistent with the international revealed comparative advantage.
- Items positioned in Quadrant II exhibit bilateral comparative advantage despite being uncompetitive at the world level.
- Items positioned in Quadrant III are found to be uncompetitive bilaterally but competitive internationally.

During TE 2005, China's top 10 bilaterally competitive exports accounted for only 27.2 per cent. The cumulative share of bilaterally competitive exports was 49.8 per cent. In terms of shares, while top 10 exports to India constituted 74.9 per cent, 4 of these were found to exhibit bilateral comparative disadvantage. This confirmed that bilateral exports also occurred in non-competitive segments of exports.

The results in Table 11 can be interpreted to conclude that China's BRCA vis-à-vis India were found to be consistent with China's IRCA in as many as 47 (13+34) products of which comparative advantage existed in 13 products both at bilateral and international levels. Such products were mostly under the export categories of textiles and textile articles, ceramic products, and metals and their products. The products positioned in quadrant II revealed bilateral comparative advantage even though international picture was non-competitive. These items were dispersed over animal or vegetable fats, oils and their wastes, prepared foodstuffs, beverages and tobacco, etc., and products of minerals, chemicals, and metals. The presence of such exceptional bilateral comparative advantage could be a consequence of lower costs resulting from less transportation expenses due to relatively shorter distance between China and India. The comparative advantage could also be a consequence of the preference for products of Chinese origin in the Indian market. Internationally, competitive products of China that were found to be bilaterally non-competitive in the Indian market were positioned in Quadrant III. Products that were competitive in international markets but were non-competitive in the Indian market indicate the presence of restrictive polices.

Out of 96 products, as many as 33 are found to be competitive in international markets but non-competitive in the Indian market. This perhaps indicates the presence of restrictive polices. Such products are widely dispersed across various sections from live animals and products to miscellaneous manufactured articles, and in particular, textile and articles.

India

India was found to reveal bilateral comparative advantage in exports of goods under 21 chapters during TE 1999 and 16 chapters during TE 2005 (Table 12). It gained bilateral comparative advantage in only five chapters during TE 2005 in comparison to TE 1999. These were exports of prepared meat**,** fish or crustaceans (Chapter 16), Albuminoidal substances (Chapter 35), iron and steel (Chapter 72), copper and copper products (Chapter 74) and zinc and zinc products (Chapter 79).

India's top 10 bilaterally competitive exports constituted 72.5 per cent of its total exports to China during TE 2005. The corresponding Chinese figure was 27.2 per cent. The combined share of all bilaterally

competitive exports was 88.7 per cent. It is clear that India's bilateral exports are far more consistent with the pattern of its bilateral comparative advantage. Even in terms of shares, top 10 bilateral exports accounted for 87.2 per cent of India's total exports to China, with 9 of them being bilaterally comparative advantageous.

Observations presented in Table 12 are clear pointers to any bilateral advantages or disadvantages that may be present in India's exports to China. India's exports, that were competitive both bilaterally and internationally, were primarily in the segments of mineral products, chemical products and metals and their products, and were positioned in Quadrant I. As many as 54 products were found to be uncompetitive both at the bilateral and international levels. Some exports under categories such as animal or vegetable fats, oils and their wastes, prepared foodstuffs, beverages and tobacco, etc., chemical products, plastics and rubbers and their products, and metals and their products were found to be competitive in the Chinese market but not in the international market. This points to the extraordinary success of some Indian products like animal or vegetable fats, etc. foodstuff, chemicals, plastics and rubbers, and base metals in the Chinese market. Such advantages could result from lower costs involved in transportation or a taste preference of the Chinese consumer for such Indian products. It was found that despite being internationally competitive, Indian exports under 26 categories did not perform well in terms of bilateral competitiveness. Many of these belonged to vegetable products and textile and textile products categories. Such poor performance could be attributed to restrictive and prohibitive policies exercised by China vis-à-vis the Indian exports. It is these items that demand and deserve greater attention during any negotiations for an FTA between the two countries.

Table 12 Pattern of Comparative Advantage–India, TE 2005

		India's IRCA	
		IRCA>1 **Y1**	Otherwise **Y2**
India's BRCA	BRCA>1 **X1**	03, 14, 23, 25, 26, 28, 29, 52, 67, 72, 74	15, 16, 35, 39, 79
	Otherwise **X2**	07, 08, 09, 10, 12, 13, 24, 32, 36, 41, 42, 50, 53, 54, 55, 57, 58, 61, 62, 63, 64, 68, 71, 73, 82, 97	01, 02, 04, 05, 06, 11, 17, 18, 19, 20, 21, 22, 27, 30, 31, 33, 34, 37, 38, 40, 43, 44, 45, 46, 47, 48, 49, 51, 56, 59, 60, 65, 66, 69, 70, 75, 76, 78, 80, 81, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96

Source: Author's computations based on World Bank and UNCTAD

Notes:

X1 = {03, 14, 15, 16, 23, 25, 26, 28, 29, 35, 39, 52, 67, 72, 74, 79};

X2 = {01, 02, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 17, 18, 19, 20, 21, 22, 24, 27, 30, 31, 32, 33, 34, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 68, 69, 70, 71, 73, 75, 76, 78, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97};

Y1 = {03, 07, 08, 09, 10, 12, 13, 14, 23, 24, 25, 26, 28, 29, 32, 36, 41, 42, 50, 52, 53, 54, 55, 57, 58, 61, 62, 63, 64, 67, 68, 71, 72, 73, 74, 82, 97};

Y2 = {01, 02, 04, 05, 06, 11, 15, 16, 17, 18, 19, 20, 21, 22, 27, 30, 31, 33, 34, 35, 37, 38, 39, 40, 43, 44, 45, 46, 47, 48, 49, 51, 56, 59, 60, 65, 66, 69, 70, 75, 76, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96}

X1 ∩Y1: Quadrant I X1 ∩Y2: Quadrant II

X2 ∩Y1: Quadrant III X2 ∩Y2: Quadrant IV

Interpretation

- Items positioned in Quadrants I and IV are found to exhibit a pattern of bilateral revealed comparative advantage consistent with the international revealed comparative advantage.
- Items positioned in Quadrant II exhibit bilateral comparative advantage despite being uncompetitive at the world level.
- Items positioned in Quadrant III are found be un-competitive bilaterally but competitive internationally.

It is a modest disclosure that the present work is confined to an analysis of up to 2-digit level. The analysis at a finer level of disaggregation, for example headings and sub-headings, is likely to detect complementarities, missing opportunities as well as the competing sectors sharply. Sector-specific insights are important during the process of negotiation to protect the interests of sensitive industries. More detailed analysis would expose the extent of heterogeneity among the baskets of exports within a broad sector. While some advanced countries report data for up to 12 digit level, for India and China the highest level of disaggregation is available at the 6-digit level at a comparable level. A more disaggregated analysis may be appropriate for precise identification of the thrust areas for bilateral trade expansion. The study also excludes trade in services which would have brought out an all-inclusive analysis of the bilateral trade potential. Nonetheless, the study makes an important attempt in providing inputs to the feasibility of an FTA between the two nations.

10. Conclusions and Suggestions

The analysis of prospects of China–India trade is motivated by the experience of other trade agreements in the past. These include the leading examples of European Union, the US–Canada FTA (that was extended to NAFTA) and the Australia–New Zealand Closer Economic Relations Trade Agreement (ANZCERTA). However, the participating countries in these arrangements have been structurally similar. The China–India experience is unique due to the structural difference as well as the governance in both countries. It is the similarity in factor endowments that calls for a careful analysis within the appropriate framework of policies so as to maximize welfare gains to both nations.

Both countries have expanded their external sectors in an endeavor to achieve greater economic internationalisation. However, the trade expansion in China has been legendary when compared to India's. From an almost non-existent bilateral trade in the early 1990s, bilateral merchandise trade has reached $39 billion in 2009. The trade statistics indicated a transformation both in terms of values and percentage growth.

India's trade with China was found to be highly concentrated in a few commodities. The exports were dominated by resource-based exports and products with low value added component. The pattern of bilateral trade was found to have transformed over the years though with a continued high concentration in a

few trade sections. The pattern of imports, as compared to exports, has undergone a more noticeable transformation. An important observation that emerged from the chapter-wise results was that the intensity of trade in a particular section could be due to high concentration in one or very few chapters only, and that India was not necessarily trading heavily under all chapters of a section.

China's exports were found to be largely consistent with the world export patterns as evident from a greater number of products placed in the optimal and the restructuring categories put together. There were 69 such products. China was found to be internationally competitive in half of the rising stars, thus leaving scope for increasing the significance of the remaining rising stars in China's overall export basket. Among the lost opportunities, China was found to bear comparative advantage in just four of the 12 products.

While a number of internationally competitive exports may not have undergone a substantial change over the two periods, TE 1999 and TE 2005, China had become competitive in newer categories, non-competitive in some of the earlier categories and has maintained its earlier status under a few other categories.

With regard to Indian exports within the dynamic segment, more than half of the products have shown a rise in significance in India's overall exports to the world. These included exports under the categories of prepared foodstuffs, beverages and tobacco, etc., mineral products, chemical products, and metals and their products, among others. The missed opportunities were found to be dispersed across many categories ranging from prepared foodstuffs, beverages and tobacco, etc. to transport equipment. It is imperative that these products invite immediate attention in the national export policy framework. As many as 26 products were identified as vulnerable or declining stars due to their decreasing significance in India's export structure. These were predominantly exports of metals and their products.

The Indian exports exhibited competitiveness in newer export categories, lost competitiveness in some earlier categories while maintaining the earlier status for remaining chapter exports.

During TE 2005, India exhibited IRCA in four of the 14 rising stars, showing India's competitiveness to export in the categories such as mineral products, chemical products and metals and their products. Out of

26 vulnerable products or falling stars, Indian exports are found to be competitive in only seven, two of which belonged to the category of metals and their products.

Under the analysis of comparative advantage in bilateral markets, China was found to reveal bilateral comparative advantage vis-à-vis India in exports of goods under 29 chapters during TE 2005. China's BRCA vis-à-vis India is found to be consistent with its IRCA in as many as 47 products of which comparative advantage existed in 13, both at the bilateral and international levels. Such products were mostly under the export categories of textiles and textile products, ceramic products, and metals and their products. Certain products revealed bilateral comparative advantage even though international picture could be non-competitive. These items were dispersed over animal or vegetable fats, oils and their wastes, prepared foodstuffs, beverages and tobacco, and so on, mineral products, chemical products, and metals and their products. The presence of such exceptional bilateral comparative advantage could be a consequence of lower costs resulting from less transportation expenses due to relatively shorter distance between China and India. The comparative advantage could also be a consequence of the preferences for products of Chinese origin in the Indian market. Out of 96 products as many as 33 are found to be competitive in international markets but are non-competitive in the Indian market. This indicated the presence of restrictive polices. Such products were widely dispersed across various sections varying from live animals and products to miscellaneous manufactured articles, in particular, exports of textiles and textile products.

Compared to China, India exhibited bilateral comparative advantage in much fewer chapter categories. Moreover, the number of such chapters declined from 21 during TE 1999 to only 16 during TE 2005. However, India gained bilateral comparative advantage in five chapters during TE 2005. These are exports of prepared meat, fish or crustaceans (Chapter 16), Albuminoidal substances (Chapter 35), iron and steel (Chapter 72), copper and copper products (Chapter 74) and zinc and its products (Chapter 79). Some Indian exports performed better in the Chinese market as compared to the international market. This highlights perhaps the taste preferences or the cost advantage. Such products included animal or vegetable fats, oils and their wastes, prepared foodstuffs, beverages and tobacco, etc., chemical products, plastics and rubbers and their products, and metals and their products. On the contrary, it is also observed that despite being internationally competitive, Indian exports under 26 categories have not performed well in terms of bilateral competitiveness, despite being competitive in the international market. This could be attributed to restrictive and prohibitive polices exercised by the Chinese vis-à-vis the Indian exports. Many of these belonged to the

vegetable product and textile and its products categories. It is these items that demand and deserve greater attention during any negotiations for an FTA between the two countries.

There are 24 products where only China is competitive and India is uncompetitive. These industrial products primarily belong to metal and transport, instruments, and toys and other products. India alone was competitive in exports of 15 products that belong to agriculture, beverages, fuel and chemical, precious or semi-precious stones and metal industries. These industries are recognised as complementarities in export structures of China and India. Thus, in total 39 chapters are identified as complementing to each other. This number is much more than the number of products with competing exports in 22 chapters.

Based on the results of the above analysis, certain specific policy reforms are proposed. There is need to remove the barriers to the growth of sectors in which India bears a comparative advantage.

1 India needs to broad-base its export basket to China to include more and newer items. The revenues from the exports of iron and steel have been due to their high international prices that are largely demand driven. The structure of bilateral trade needs to be balanced and developed to more mature levels so as to represent a diversified range of commodities to include newer items with higher value added components.

2 All contentions by the Indian industries about the challenges from the prospective FTA between China and India may not hold water, as the same holds true when India gains access to the vast Chinese market under the agreement. The Indian manufacturers need to pitch in the right sectors in the Chinese market in order to fully exploit the potential. Moreover, this bilateral trade agreement would invite participation from other Asian members, thus leading to a stronger regional integration, which has already been demonstrated by formation of NAFTA and European Union in the developed world. The strengthening of regionalism would pave the way for multilateralism in future.

3 The apparent competition in certain labour-intensive mass production goods could perhaps be translated into trade complementarity within sub-categories of these competing or challenging exports. For instance, India is internationally acknowledged for its capability in production and export of differentiated niche products like handicrafts, handmade carpets, etc. while China has earned a big name in the garment

industry. The two nations are likely to reap greater benefits by turning such challenges or threats into complementarities by enhancing Intra-Industry Trade (IIT)**.**

4 Though initially neither country grew through technological leadership, China exhibited exemplary performance in all manufacturing segments by gradually upgrading into the IT and consumer electronics products. India, however, continued to harp on its competencies in unskilled labour segments while continuing to protect them from a more competitive environment. It would be appropriate to synchronise India’s export policy with its foreign investment policy to attract more FDI in India's top export sectors. Uniform policy to attract FDI in China's export sectors has been a key reason for its exceptional FDI and export growth.

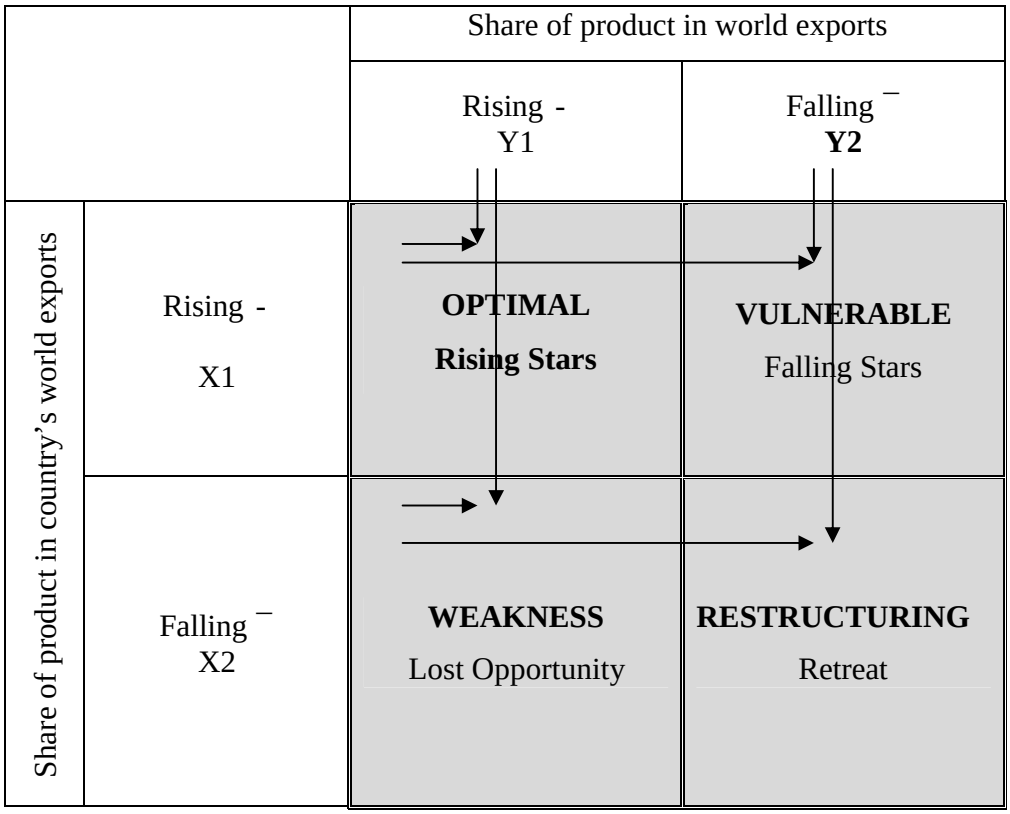
Annexure

Analytical Framework

Export Competitiveness

Based on the 'Competitiveness Matrix' as in Ernst (2005, p. 14), the exports are classified as either *Dynamic* (with the commodity's share in world exports increasing over time between the base period, TE 1999 and the final period, TE 2005) or *Stagnant* (with the commodity's share in world exports decreasing over time). Within the Dynamic segment, commodities are further separated on the basis of changes in the share of commodity exports in a country's total exports. A Dynamic commodity with an increase in share in the country's total exports over time is referred to as an *Optimal* or *Rising Star*, whereas a Dynamic commodity with declining share is a *Weakness* or *Lost Opportunity*. Similarly, stagnant products have been classified as *Vulnerable* or *Falling Stars* and *Restructuring* or *Retreats*. This classification is clearly illustrated in the matrix representation in Box A1.

Box A1 Export Competitiveness



Source: Ernst 2005

Notes: X1 ∩Y1: Quadrant I
X1 ∩Y2: Quadrant II
X2 ∩Y1: Quadrant III
X2 ∩Y2: Quadrant IV

Comparative Advantage

The IRCA index denotes the ratio of a country's export of a specific commodity in its overall exports to the share of commodity in total world exports at a given point in time. A nation's comparative advantage in a certain product is said to be revealed if it has an RCA >1. It is said to have a comparative disadvantage if it has an RCA <1. Despite reservation, these indices are extensively used in applied research as indicators of relative advantage or relative performance.

$$IRCA = \left(\frac{X_{iw}^{k} / X_{iw}}{X_{w}^{k} / X_{w}} \right)$$

where

X : exp*orts*

subscripts –

i : exp*orter country*

j : *destination country* / *region*

w : *world*

k : *good* / *com*mod*ity* / *product*

$$BRCA = \left(\frac{X_{ij}^{k} / X_{ij}}{X_{iw}^{k} / X_{iw}} \right)$$

where

X : exp*orts*

subscripts –

i : exp*orter country*

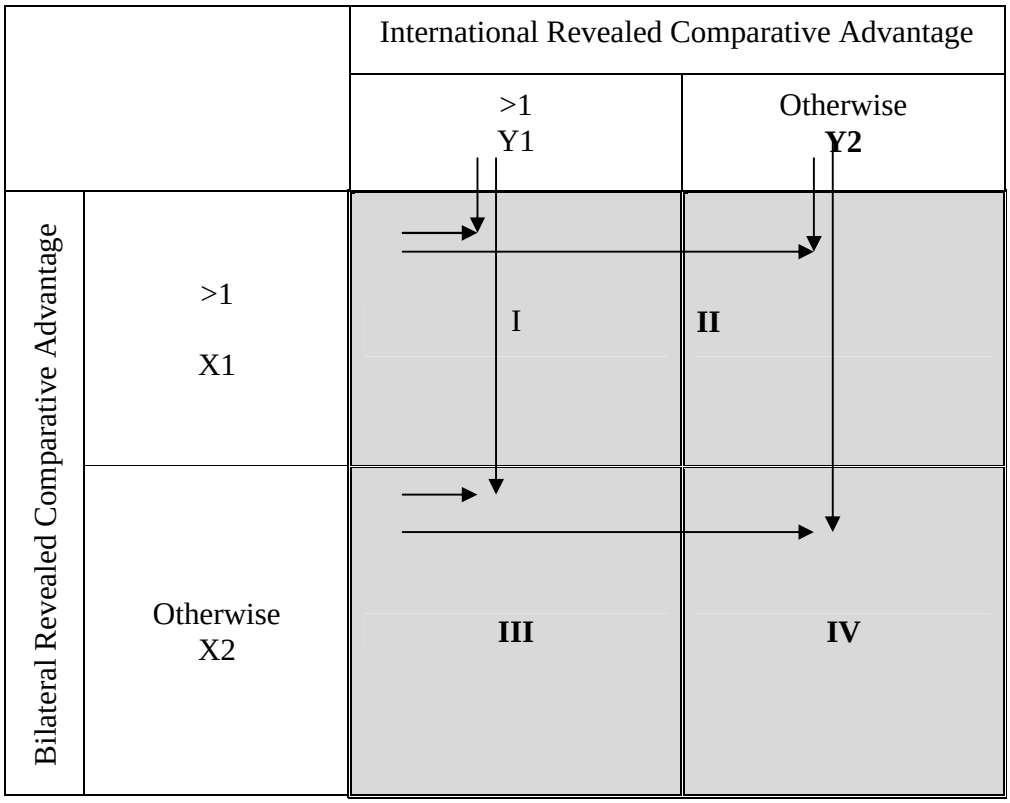
j : *destination country* / *region*

w : *world*

k : *good* / *com*mod*ity* / *product*

For either country, the pattern of comparative advantage is jointly presented in a matrix notation (Box A2) to figure out the consistencies in the bilateral and international indices.

Box A2 Pattern of Comparative Advantage



Source: Ernst, 2005

Notes: X1 ∩Y1: Quadrant I
X1 ∩Y2: Quadrant II
X2 ∩Y1: Quadrant III
X2 ∩Y2: Quadrant IV

able A1 List of Sections under HS Classification

Sl No.	Section	Description*
1	I	Live animals and their products
2	II	Vegetable products
3	III	Animal or vegetable fats, oils and their wastes
4	IV	Prepared foodstuffs, beverages and tobacco, etc.
5	V	Mineral products
6	VI	Chemical products
7	VII	Plastics and rubbers and their products
8	VIII	Leather and their products
9	IX	Wood and wood products
10	X	Wood pulp, paper, paperboard and their products
11	XI	Textiles and textile products
12	XII	Footwear, etc.
13	XIII	Ceramic products
14	XIV	Precious or semi-precious stones
15	XV	Metals and their products
16	XVI	Machinery
17	XVII	Transport equipment
18	XVIII	Instruments, spare parts and accessories
19	XIX	Arms and ammunition
20	XX	Miscellaneous manufactured articles
21	XXI	Art and antiques
22	XXII	Miscellaneous goods

Source: UN Comtrade
* condensed description

Table A2 Concordance Map between Sections and Chapters under HS Classification

Sl No.	Section	Chapter	Description*
1	I	01	Live animals
2		02	Meat and meat products
3		03	Fish and crustacean
4		04	Dairy products
5		05	Products of animal origin
6	II	06	Live tree and other plants
7		07	Vegetables
8		08	Fruits and nuts
9		09	Coffee, tea and spices
10		10	Cereals
11		11	Starches, etc.
12		12	Oilseeds and miscellaneous grains
13		13	Gums and resins
14		14	Vegetable plaiting materials
15	III	15	Animal and vegetable fats and oils
16	IV	16	Preparations of meat, fish or crustaceans
17		17	Sugars and sugar confectionery
18		18	Cocoa and cocoa preparations
19		19	Cereal preparations, etc.
20		20	Preparations of vegetable, fruits and nuts
21		21	Miscellaneous edible preparations
22		22	Beverages
23		23	Residues and waste from the food industry
24		24	Tobacco and its products
25	V	25	Salt, sulphur, etc.
26		26	Ores, slag and ash
27		27	Mineral fuels
28	VI	28	Inorganic chemicals
29		29	Organic chemicals
30		30	Pharmaceutical products
31		31	Fertilisers
32		32	Tanning/dyeing extracts
33		33	Essential oils, perfumes, etc.
34		34	Surfactants
35		35	Albuminoidal substances
36		36	Explosives
37		37	Photographic or cinematographic goods
38		38	Miscellaneous chemical products
39	VII	39	Plastics and plastic products
40		40	Rubber and its products
41	VIII	41	Raw hides and skins
42		42	Leather products
43		43	Fur skins and artificial fur
44	IX	44	Wood and articles of wood
45		45	Cork and articles of cork
46		46	Manufactures of straw

47	X	47	Pulp of wood
48		48	Paper and paperboard
49		49	Printed books, newspapers and pictures
50	XI	50	Silk
51		51	Wool, fine/coarse animal hair, etc.
52		52	Cotton
53		53	Other vegetable textile fibres
54		54	Man-made filaments
55		55	Man-made staple fibres
56		56	Wadding, felt and non-woven and yarns
57		57	Carpets, etc.
58		58	Special woven fabric
59		59	Impregnated, coated, cover/laminated
60		60	Knitted or crocheted fabrics
61		61	Articles of apparel and clothing accessories
62		62	Art of apparel and clothing access, nes
63		63	Other made-up textile articles
64	XII	64	Footwear
65		65	Headgear and parts
66		66	Umbrellas, etc.
67		67	Artificial feathers and flowers, etc.
68	XIII	68	Articles of stone, plaster, cement
69		69	Ceramic products
70		70	Glass and glassware
71	XIV	71	Natural/cultured pearls
72	XV	72	Iron and steel
73		73	Iron and steel products
74		74	Copper and its products
75		75	Nickel and its products
76		76	Aluminium and its products
77		78	Lead and its products
78		79	Zinc and its products
79		80	Tin and its products
80		81	Other base metals
81		82	Tools and implements
82		83	Miscellaneous products of base metals
83	XVI	84	Nuclear reactors
84		85	Electric machinery
85	XVII	86	Railway and tramway locomotives
86		87	Vehicles of railway and tramway locomotives
87		88	Aircraft, spacecraft and parts
88		89	Ships, boats and floating structure
89	XVIII	90	Optical instruments
90		91	Clocks and watches
91		92	Musical instruments
92	XIX	93	Arms and ammunition
93	XX	94	Furniture
94		95	Toys, games and sports requisites
95		96	Miscellaneous manufactured articles

96	XXI	97	Works of art and antiques
97	XXII	99	Commodities nes

Source: UN Comtrade

* condensed description

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Endnotes

[1] This paper is a revised version of the author's M.Phil. dissertation submitted to the Department of Business Economics, University of Delhi, South Campus. The author would like to express sincere thanks to Dr Deepa Saran for her guidance during the course of work. The errors remaining, however, are solely of the author.
[2] Associate Fellow, National Council of Applied Economic Research, New Delhi.
[3] Upper-middle income economies are those for which 2008 GNI per capita was between $3,856 and $11,905.
[4] www.economywatch.com/world_economy/china.
[5] Figures refer to net foreign investment defined as sum of equity capital, reinvestment of earnings, other long-term capital short-term capital. *Source: World Development Indicators*, accessed at http://data.worldbank.org/data-catalog/world-development-indicators/wdi-2010, downloaded on February 23, 2011.
[6] Low-income economies are those in which 2005 GNI per capita was $976–$3,855.
[7] Trade refers to total (gross) trade in goods and services.
[8] Figures for exports and imports are inclusive of goods and services.
[9] Though the general equilibrium analysis is beyond the scope and methodology of this paper, we consider this paper to benefit from the discussion of the current scenario in the two nations, which is the key interest in this study.
[10] Figures within brackets in the following discussion represent share of the partner country, that is India, in reporter country's, that is China's, exports to the world.
[11] However, a more detailed analysis at 4-digit level may reveal complementarities within the broad categories of the challenged exports.

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