ISAS Working Paper

No. 95 – Date: 26 October 2009

469A Bukit Timah Road
#07-01, Tower Block, Singapore 259770
Tel: 6516 6179 / 6516 4239
Fax: 6776 7505 / 6314 5447
Email: isassec@nus.edu.sg
Website: www.isas.nus.edu.sg

India-China Trade: Explaining the Imbalance

Amitendu Palit and Shounkie Nawani[1]

Executive Summary

Merchandise trade between India and China has accelerated rapidly in recent years. China is now India's largest trading partner while India is also one of China's major trade partners. The rise in trade reflects an enhanced economic engagement between the two countries. A notable aspect of the growing trade, however, is its increasing imbalance. The balance of trade is not only in China's favour, but also exhibiting an increasing trend over time.

This paper examines the relative competitiveness of Indian exports in the Chinese market as a key factor in explaining the imbalance in bilateral trade. The competitiveness of Indian exports is empirically assessed against those from the Southeast Asian countries, with the latter assumed as major competitors of Indian exports on account of the similarities in products exported and factor endowments.

Indo-China bilateral trade, which was US$2.3 billion at the time of China's accession to the World Trade Organization (WTO), has since expanded to US$40.6 billion. During the period 2002-2008, while world trade grew at an annual average rate of 14.5 percent, China's and India's external trades grew by 26.1 percent and 26.2 percent respectively. In this context, India's trade imbalance with China should not be viewed as an exception since China's trade with the rest of the world also shows a strong imbalance. China's overall trade surplus has increased from US$30.4 billion in 2002 to US$295.5 billion in 2008. During the same period, India's overall trade deficit has enlarged from US$7.3 billion to US$11.3 billion. The integration trajectories of the two countries in world trade highlight two divergent paths – while China is a major producer and supplier for the rest of the world including India, the latter's role in global trade has been more of a consumer.

Indian imports have been the main driver behind the robust increase in Indo-China trade. China is now India's biggest source of imports, accounting for 10.7 percent of its total imports. Since 2005-06, India's imports from China have been increasing at a faster rate than its exports to China. India's main exports to China are dominated by resource-based and labour-intensive products. Mineral products (for example, ores, slag and ash, salt and sulphur,

---

[1] Dr Amitendu Palit is a Visiting Research Fellow at the Institute of South Asian Studies, an autonomous research institute at the National University of Singapore. He can be reached at isasap@nus.edu.sg. Ms Shounkie Nawani is a research scholar at the Jawaharlal Nehru University in New Delhi, India. The usual disclaimers apply.

and mineral fuels and oil) are prominent exports. Ores comprise more than half of India's exports to China, with such exports heavily dominated by iron ore followed by chromium and lead ore.

India's major exports to China are not the same as its main exports to the rest of the world. If Indian exports are categorised in terms of their value-based significance from a global perspective, then the Chinese market, till now, remains a less important destination for the most significant exports like gems and petroleum, though it is a major market for several 'second-most' significant exports.

In sharp contrast to India-China trade, the trade balance between China and the Association of Southeast Asian Nations (ASEAN) is in favour of the latter. Major ASEAN exports to China are broadly dominated by capital-intensive products such as machineries and appliances followed by resource-intensive items like minerals, plastic and rubber. A comparison between India's main exports to China and those by ASEAN reveals several commonalities. The common categories include ores, slag and ash, organic chemicals, machinery and mechanical appliances, plastic, copper, mineral fuels and electrical equipment.

Empirical analysis of relative competitiveness shows India to be more competitive in the Chinese market vis-à-vis major Southeast Asian countries in some select product categories. These include vegetable products (lac), food preparations (residues from food), chemical and allied products (inorganic, tanning extracts, explosives), hides and skins (raw hides, skins and leather) and textiles (man-made filaments and made-up textile articles). India's current basket of leading exports to China hardly reflects this relative competitiveness. Other than inorganic chemicals, none of India's competitive product groups (vis-à-vis ASEAN) figure among its major exports to China.

China's trade deficits with most major ASEAN economies, coupled with a high incidence of machinery and equipment in ASEAN exports to China, indicate China's reliance on ASEAN as an efficient source of intermediate and semi-processed machinery imports. These imports have enabled several segments of Chinese manufacturing to climb to relatively higher ends of value chains. In this sense, ASEAN exports have facilitated China's manufacturing progress, while India's have not. This explains why Indian exports to China have not been rising as fast as those from Southeast Asia.

The likelihood of China and ASEAN carving out a free trade framework from the year 2010 strengthens the possibility of ASEAN exports gaining greater access into the Chinese market. This might affect the prospects of Indian exports. There is therefore considerable merit in India pursuing a bilateral trade agreement with China. An India-China trade pact can nullify the threat to Indian exports arising from facilitating arrangements for competing exports.

Introduction

Bilateral merchandise trade between China and India has accelerated rapidly in recent years. China has displaced the United States of America to emerge as India's largest trading partner. At the same time, India is also figuring among the top 10 major trade partners of China. The sharp increase in trade reflects enhanced economic engagement between the two countries that is expected to increase further as both recover from their current phases of economic downturns.

China is India's largest source of merchandise imports and accounted for more than a tenth of India's total imports in the year 2008-09.[2] The bilateral merchandise trade balance is not only in favour of China, but also exhibiting an increasing trend over time. This is in spite of China emerging as the third largest market for Indian exports and accounting for more than five percent of India's total exports.[3] The bilateral services trade balance, however, is expected to be in India's favour although the lack of data on services trade constrains a deeper analysis in this regard.

The increasing imbalance in goods trade between China and India draws attention to the determinants of such imbalance. A key factor in this respect is the relative competitiveness of Indian exports in the Chinese market vis-à-vis similar exports into China from other countries. A country's export competitiveness reflects its comparative advantages in different sectors. These advantages indicate efficiencies of the country in manufacturing different export items. Efficiencies depend on a variety of factors including resource endowments, technological capabilities and human skills.

Trade between two countries, according to neo-classical arguments, is expected to occur in line with their respective comparative advantages. However, in a world where trade takes place in a thickly-knitted web of multiple partners, relative comparative advantages make major differences to accesses obtained by exports from a particular country in other markets.

Viewed from this perspective, Indian exports to China may well reflect India's comparative advantage in manufacturing the exported items vis-à-vis China. However, is India necessarily more competitive in manufacturing these items than other countries that are manufacturing and exporting the same items to China as well? For example, are Indian exports to China more competitive than similar exports from Southeast Asia to China?

The question assumes vital importance given that the global financial downturn and consequent contractions in export demand in American and European markets encourage both China and India to view each other as major export markets. But will further expansion in bilateral trade accentuate the imbalance against India? It will, if Chinese exports to India continue to grow at faster rates than Indian exports to China. But if Indian exports gain greater market access in China in future, then bilateral trade may expand in a more balanced manner.

This paper examines the relative competitiveness of Indian exports in the Chinese market as a key determinant in influencing the growing imbalance in bilateral trade. The competitiveness

---

2 See 'Top Five Countries of Import at System on Foreign Trade Performance Analysis (FTPA)', Department of Commerce, Government of India; http://commerce.nic.in/ftpa/cnt.asp (accessed on 14 October 2009).

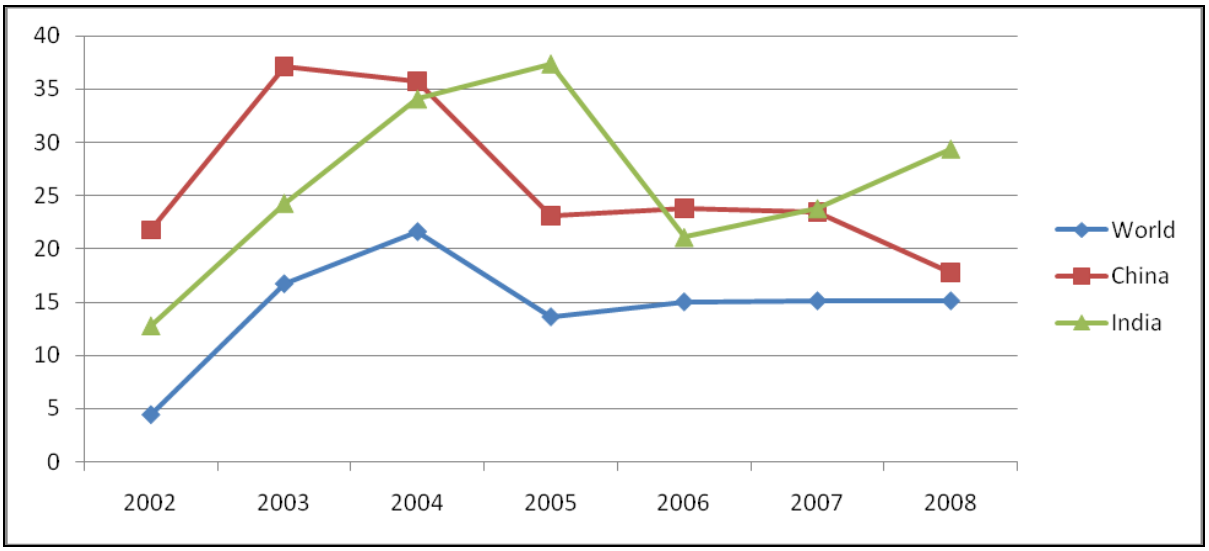
3 See 'Top Five Countries of Export at System on Foreign Trade Performance Analysis (FTPA)', Department of Commerce, Government of India; http://commerce.nic.in/ftpa/cnt.asp (accessed on 14 October 2009).

of Indian exports is empirically assessed against those from the Southeast Asian countries with the latter assumed as major competitors of Indian exports on account of similarities in export baskets and factor endowments. The paper deliberates on the future prospects of Indian exports in the Chinese market and explores the potential of a bilateral trade pact in this regard.

China's Trade with India and Southeast Asia

China is a relatively late entrant into the multilateral trade family. It joined the WTO in December 2001, seven years after the WTO got going. Indo-China bilateral trade was US$2.3 billion at the time of China's accession to the WTO, which was merely 5.7 percent of the current trade of US$40.6 billion. The years that followed witnessed a remarkable increase in bilateral trade. The increase was a reflection of the robust growth in overall external trade experienced by both countries. Indeed, external merchandise trades of both countries in recent years show much higher rates of growth than those in world trade. During the period 2002-2008, while world trade grew at an annual average rate of 14.5 percent, China's and India's trades grew by 26.1 percent and 26.2 percent respectively (Figure 1).

Figure 1: Comparative Growth in Trade of the World, China and India (%)



Source: WTO Statistics.

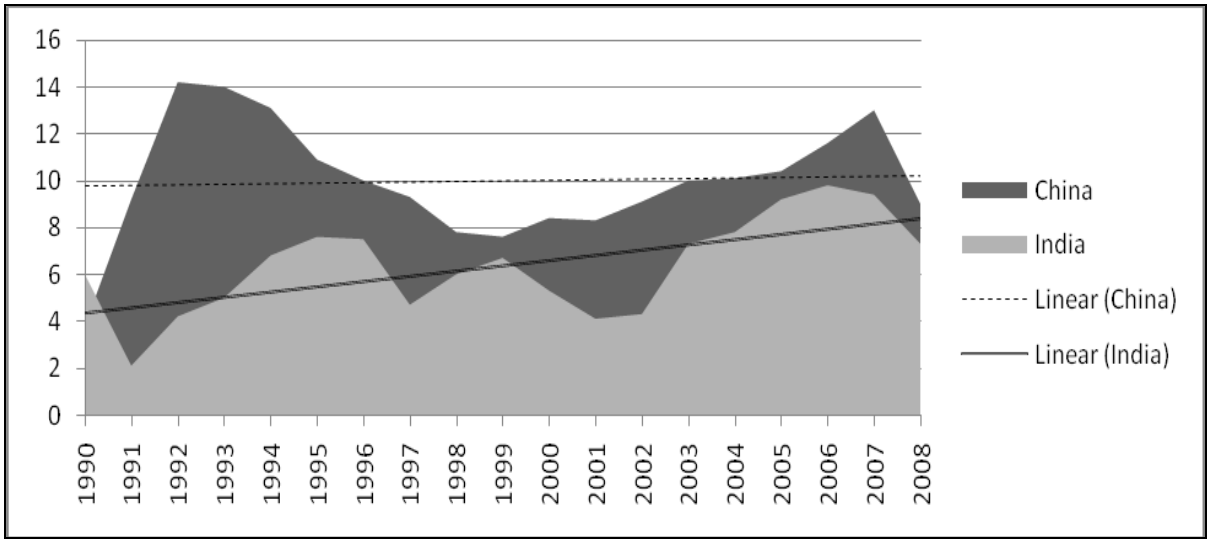
Though Chinese and Indian trades have grown at almost identical rates, China has been contributing relatively more to world trade. An effective export-oriented growth strategy has enhanced China's share in global merchandise trade from 4.7 percent in 2002 to 7.9 percent in 2008. During the same period, India's share in world merchandise trade has increased from 0.8 percent to 1.4 percent. China has been contributing to world trade in a far more significant manner primarily on account of its ability to push a diverse variety of low-cost manufacturing exports. In 2002, right after entering the WTO, Chinese merchandise exports (US$325.6 billion) were 5.0 percent of world exports (US$6.5 trillion). Over the next seven years, China has raised its share to 8.9 percent of world exports (US$1.4 trillion out of total world exports of US$16.1 trillion). In contrast, India's merchandise exports have increased

from US$49.3 billion in 2002 to US$179 billion in 2008, which has resulted in India's share in world exports increasing from 0.8 percent to 1.1 percent during this period.[4]

As a stylised fact, India's merchandise trade imbalance with China should not be considered an exception since China's trade balance with the rest of the world itself shows an accentuating imbalance. China's overall trade surplus increased from US$30.4 billion in 2002 to US$295.5 billion in 2008. The exacerbating surplus underlines the reliance of the world on Chinese exports. In contrast, India has remained a net importer of goods with its trade deficit enlarging from US$7.3 billion in 2002 to US$11.3 billion in 2008. Till now, the integration trajectories of the two countries in world merchandise trade highlights two divergent paths. While China has emerged as a major producer and supplier of manufactures for the rest of the world including India, the latter's role in global trade has been more of a consumer.

The period 2003-2008 marked pronounced upswings in the growth momentums of both economies. Growth in the Chinese economy had nearly halved to 7.6 percent in 1999 from an almost phenomenal 14.2 percent in 1992. From 2003 onwards, China bounced back to the double-digit growth trajectory and stayed on course till the outbreak of the global financial crisis in late 2008. India, on the other hand, graduated to a trend rate of growth of around 8.0 percent beginning from 2003 after recovering from a disappointing 4.3 percent in 2002. For India too, the financial crisis pulled down the growth trajectory to a lower-than-trend level (Figure 2).

Figure 2: Annual and Trend Growth for China and India (in %)



Source: IMF; World Economic Outlook Database. Note: The growth rates reflect year-on-year variations in gross domestic product at constant prices.

According to the statistics provided by the Central Statistical Organization of India, during the period 2003-04 to 2007-08, the Indian economy grew at an annual average rate of 8.8 percent.[5] The high growth was accompanied by a marked improvement in external trade performance. India's export-GDP ratio improved from 11.0 percent in 2003-04 to 15.1 percent in 2008-09. The import-GDP ratio on the other hand rose from 13.3 percent in 2003-

[4] All the shares have been computed from annual data on export and import for the world, China and India respectively as obtained from the WTO database.

[5] Arithmetic mean of growth rates in real GDP at factor cost during 2003-04 to 2007-08.

04 to 25.5 percent in 2008-09.[6] At present, the overall merchandise trade-GDP ratio is more than 40 percent. Much of the increase – from a corresponding ratio of 24.4 percent in 2003-04 – has been achieved from an expansion in imports rather than exports. A sharp increase in imports from China has contributed significantly in this regard.

Data provided by the Indian source agencies (viz. the Ministry of Commerce and the Reserve Bank of India) point to broadly similar conclusions on Indo-China trade as those derived from the WTO statistics. India's trade with China has risen at a faster rate than its trade with the rest of the world (Table 1). This is visible for all years beginning from 2003-04, except for 2008-09, which can be considered an unusual year on account of the outbreak of the financial crisis. Indeed, from a Chinese perspective as well, its trade with India has risen at a faster rate than its trade with the rest of the world.

Table 1: India's Trade with China and the World, 2003-04 to 2008-09 (US$ billion)

India's Trade with China: 2003-04 to 2008-09 (US$ billion)						
	Export	**Import**	**Trade**	**Export Growth (%) (Y-o-Y)**	**Import Growth (%) (Y-o-Y)**	**Trade Growth (%) (Y-o-Y)**
2003-04	2.9	4	6.9	…		
2004-05	5.6	7.1	12.7	90.0	75.1	81.4
2005-06	6.8	10.9	17.7	20.4	53.1	38.6
2006-07	8.3	17.5	25.8	22.6	60.5	46.0
2007-08	10.8	27.1	37.9	30.7	55.4	47.5
2008-09	9.3	31.3	40.6	-14.4	15.6	7.1
India's Trade with the World: 2003-04 to 2008-09 (US$ billion)						
2003-04	63.8	78.2	142			
2004-05	83.5	111.5	195	30.8	42.7	37.4
2005-06	103.1	149.2	252.3	23.4	33.8	29.3
2006-07	126.3	185.6	311.9	22.5	24.4	23.6
2007-08	162.9	251.4	414.3	29.1	35.5	32.9
2008-09	182.6	291.5	474.1	12.0	15.9	14.4

Source: Export-Import Data Bank and Foreign Trade Performance Analysis, Ministry of Commerce, Government of India.
Note: Y-o-Y: Year-on-Year

Indian imports have been the main driver behind the robust increase in Indo-China trade. China is now India's biggest source of imports accounting for 10.7 percent of its total imports. Since 2005-06, India's imports from China have been increasing at a faster rate than its corresponding exports to China (Table 1). Since 2005-06, while the rate of growth of Indian exports to China has been broadly similar to the rate of growth in its exports to the rest of the world, growth in imports from China has consistently exceeded the growth in its overall imports (Table 1).

India's main exports to China are dominated by resource-based and labour-intensive products (Table 2). Mineral products (for example, ores, slag and ash, salt and sulphur and mineral

[6] All the rates are on Balance of Payments (BOP) basis and for merchandise. See Reserve Bank of India (2009), *Handbook of Statistics on Indian Economy*, Mumbai, India. Table 247, p. 470.

fuels and oil) are prominent exports. Ores, slag and ash comprise more than half of Indian exports to China with such exports heavily dominated by iron ore, followed by chromium and lead ores.[7] China is the largest consumer of iron ore produced in India with iron ore exports to China in 2008-09 (April-December) accounting for 92.1 percent of such exports by India. Granite and refined petroleum oil exports to China are also on the rise, though China is yet to emerge as a major destination for refined petroleum exports from India. Plastic polymer exports from India are making inroads in the Chinese market along with cotton. Ferro-alloys and refined copper are among India's main metal exports to China. Similarly, exports of electrical transformers and telephony apparatus equipment made in India have also begun to pick up.

Table 2: India's Major Exports[8] to China (2008-09; April-December)

S/No	HS Code (2-digit)	Product	Share in Total Export (%)
1	26	Ores, slag and ash	54.0
2	52	Cotton	5.1
3	29	Organic chemicals	4.8
4	99	Miscellaneous goods	4.2
5	25	Salt & sulphur	3.8
6	28	Inorganic chemicals	2.9
7	72	Iron & steel	2.6
8	84	Machinery & mechanical appliances	2.3
9	39	Plastic and articles	2.0
10	74	Copper & articles	1.5
11	27	Mineral fuels and oils	1.5
12	85	Electrical machinery & equipment	1.2
13	03	Fish & crustaceans	1.2

Source: Export-Import Data Bank, Ministry of Commerce, Government of India; Note: a) Product descriptions have been abridged for several categories. b) Shares reflect the value-wise proportions in total exports.

India's major exports to China are not entirely identical with its main exports to the rest of the world (Table 3). Gems and petroleum products are two of India's main foreign exchange earners. However, with respect to both commodities, China is a much less significant export market for India compared to other Asian economies (for example, the United Arab Emirates, Hong Kong, Singapore, Korea and Saudi Arabia) or the United States. India's other leading exports such as machinery and mechanical appliances, garments, metals and electronics have larger markets in Europe, United States and other parts of Asia as opposed to China. On the other hand, China almost completely dominates India's iron ore and other ore and mineral exports, and is also a key market for India's plastics, marine products, ferro-alloys, spices and processed mineral exports. None of these latter items however, figure among India's overall top 10 exports (Table 3). Thus, if Indian exports are categorised in terms of their value-based significance, it is possible to conclude that the Chinese market is yet to emerge as an important destination for the most significant exports, although it has emerged so for several of the 'second-most' significant items.

[7] See http://commerce.nic.in/eidb/ecntcomnext.asp [Accessed on 18 October 2009]

[8] These are exports with more than 1.0 percent share in India's total exports to China.

Table 3: India's top 25 exports and their relative shares (%) for 2008-09

S/No	Commodity	China's share in export (%)	Share in India's total export (%)
1	Gems	2.7	15.2
2	Petroleum (crude & refined)	0.4	14.7
3	Transport equipment	0.4	6.1
4	Machinery	2.4	6
5	Drugs & pharmaceuticals	1.4	4.7
6	Garments	0.1	4.6
7	Other commodities	4.3	4.2
8	Metals	0.5	4.1
9	Electronics	1.8	3.7
10	Iron & Steel	2.7	2.6
11	Iron ore	91.7	2.6
12	Cotton yarn	2.5	2.3
13	Chemicals	4.9	2
14	Manmade yarn & fabric	0.7	1.7
15	Plastic	7.7	1.6
16	Dyes/Intermediates	5.9	1.3
17	Oil meals	7	1.2
18	Rice (basmati)	0.01	1.1
19	Non-ferrous metals	6.8	1.1
20	Other ores	42.3	0.9
21	Marine products	7.1	0.8
22	Ferro alloys	16.2	0.8
23	Rubber	0.7	0.8
24	Spices	5.8	0.8
25	Processed Minerals	15.6	0.7

Source: Ministry of Commerce, Government of India.

A relative analysis of the competitiveness of Indian exports in the Chinese market requires a corresponding analysis of exports originating from competing countries. Southeast Asia is a key region in this regard. Southeast Asia or ASEAN[9] is the second largest source of imports for China in Asia, after Northeast Asia (Japan, South Korea, North Korea and Mongolia). In sharp contrast to India-China trade, the ASEAN-China merchandise trade balance is in favour of the ASEAN. Within ASEAN, China's leading sources of imports are Malaysia, Thailand, Philippines, Singapore, Indonesia and Vietnam. China has trade deficits with all these countries (except Vietnam and Singapore).[10]

[9] The Association of Southeast Asian Nations has 10 members. These are Brunei Darussalam, Cambodia, Laos, Malaysia, Myanmar, Indonesia, Philippines, Singapore, Thailand and Vietnam.

[10] *Trade with Countries and Regions in Asia (1-4)*, 2008-07-03; Ministry of Commerce, People's Republic of China. http://english.mofcom.gov.cn/aarticle/statistic/AsiaAfrica/200807/20080705642656.html (accessed on 18 October 2009).

Table 4: Top 10 ASEAN Exports to China in 2008

S/No	HS Code (2-digit)	Product	Share in Total Export (%)
1	85	Electrical machinery & equipment	26.0
2	84	Machinery & mechanical appliances	16.3
3	27	Mineral fuels & oils	14.4
4	40	Rubber & rubber products	7.2
5	15	Animal & vegetable fats and oils	6.8
6	39	Plastic & plastic articles	4.4
7	29	Organic chemicals	3.2
8	90	Optical, photographic & surgical instruments	1.3
9	26	Ores, slag and ash	1.2
10	74	Copper & copper articles	1.1

Source: ASEAN Statistical Yearbook 2008.

Major ASEAN exports to China are a heterogeneous basket in terms of factor-intensities of commodities, though the basket is broadly dominated by capital-intensive products such as machineries and appliances, followed by resource-intensive items like minerals, plastic and rubber. Electrical machinery and equipment, and machinery and mechanical appliances comprised more than 40 percent of aggregate ASEAN exports to China in 2008.

A comparison between India's main exports to China (Table 2) and those by ASEAN (Table 5) reveals several commonalities. These are the segments where it is important to examine India's relative competitiveness vis-à-vis the ASEAN. The segments include:

a) Ores, slag and ash;
b) Organic chemicals;
c) Machinery and mechanical appliances;
d) Plastic and plastic articles;
e) Copper and copper articles;
f) Mineral fuels and oils; and
g) Electrical machinery and equipment.

The above are common export categories between India and ASEAN at the broad 2-digit level. At a disaggregated level, the similarities are more between exports from India and those from specific ASEAN members rather than between India and the ASEAN as a group. Some individual examples are pertinent in this regard. Ores are major exports to China for both India and Indonesia, though India dominates in iron ore while Indonesia prevails in aluminum ore. Among organic chemicals, xylene and ethylene glycol are key exports for India while terephtalic acid is significant for Indonesia and Thailand. Indonesia exports significant volumes of copper and copper welded wires to China, while India and Philippines export more of copper cathodes.

Analysing Relative Competitiveness

Computing Revealed Comparative Advantage (RCA) for individual exports is the most popular approach for estimating the export competitiveness of countries. The approach assumes that a country's comparative advantage is 'revealed' in its observed trade patterns. The literature on the subject can be traced back to Liesner, following which there have been several influential contributions by Balassa, Richardson and Chi, and Ferti and Lionel,

primarily in explaining bilateral trade patterns of industrial countries through their individual competitiveness.[11]

Existing empirical studies estimating RCA from China's trade have had diverse research objectives such as analysing factors influencing the overall competitiveness of Chinese exports, as well as explaining such competitiveness from a regional perspective.[12] Relative comparative advantages between China and India in the export of different products as determined by relative factor intensities have been studied through RCAs, as have been the changing structure and comparative advantages of Indian and Chinese exports in line with trade reforms undertaken by the two countries.[13]

We measure RCAs by calculating the Balassa Index (described in Annex 1) for individual product (sector) categories at the ITC-HS 2-digit level of commodity classification. These are obtained for the period 2004-06, following which period averages are computed. Due to the lack of comparable data on bilateral trade for the entire period, the comparative analysis is limited to India and four ASEAN countries – Malaysia, Singapore, Thailand and Vietnam.[14] Data on commodity exports to China by India and the four ASEAN countries is obtained from the COMTRADE database of the United Nations. The COMTRADE reports bilateral export and import flows for all product categories up to the 6-digit level of disaggregated nomenclature for all reporting countries.

As explained in Annex 1, a country enjoys a greater comparative advantage in the export of a particular commodity, if its RCA is greater than 1 for the commodity. In the present instance, we compute the average RCAs for India and the ASEAN-4. While comparing these RCAs, we take note of the fact that if more than one country (between India and the ASEAN-4) has an RCA greater than 1 for a particular commodity, then the one with the highest RCA is considered the most competitive.

---

[11] See a) Balassa, B. (1965), "Trade Liberalisation and 'Revealed' Comparative Advantage", *The Manchester School*, 33, pp. 99-123, b) Richardson, D. J and Chi Z (1999) "Revealing Comparative Advantage: Chaotic or Coherent Patterns Across Time and Sector and U.S Trading Partner?", National Bureau of Economic Research, Working Paper 7212; Ferti, I and Lionel J. H. (2002) "Revealed Comparative Advantage and Competitiveness in Hungarian Agri-Food Sectors", Institute of Economics, Hungary Academy of Sciences, Discussion paper series 2002/8.

[12] Factors influencing export competitiveness have been examined at length by Hinloopen, J and Charles V. M. (2004), "Dynamics of Chinese Comparative Advantage", Tinbergen Institute Discussion Paper No. 2004-034/2. For competitiveness analysis from a regional perspective see a) Lall, S. and Manuel A. (2003), "China's Competitive Performance: A Threat to East Asian Manufactured Exports?", Queen Elizabeth House Working Paper Series No. 110 and b) Weiss, J. (2004) "People's Republic of China and its Neighbors: Partners or Competitors for Trade and Investment?", Asian Development Bank Institute, Discussion Paper No. 13.

[13] See Batra, A. and Khan, Z. (2006), 'Revealed Comparative Advantage: An Analysis for India and China', Working Paper, 168, *Indian Council for Research on International Economic Relations* (ICRIER), Delhi, India for a study of comparative advantages on the basis of relative factor intensities and; b) Veeramani, C. (2006), 'India and China: Changing Patterns of Comparative Advantage?' in Parikh, K. and Radhakrishna, R. (ed), *India Development Report 2006*, Oxford University Press, India for impact of trade reforms on comparative advantages and competitiveness.

[14] We refer to these four countries as ASEAN-4. For Vietnam, the period average is for two years, 2004 and 2005.

Table 5: India's Average RCAs in Exports to China

S/No	HS Code	Product	RCA
1	03	Fish and crustaceans, mollusks and other aquatic invertebrates	2.8
2	08	Edible fruit and nuts; peel of citrus fruits or melons	1.9
3	09	Coffee, tea, and spices	6.0
4	13	Lac, gums, resins and vegetable saps & extracts	10.8
5	16	Preparations of meat, fish or crustaceans	0.6
6	17	Sugar and sugar confectionery	1.2
7	18	Cocoa and cocoa preparations	0.0[15]
8	19	Preparations of cereal, flour, starch or milk	0.4
9	20	Preparations of vegetables, fruits, nuts or plant parts	0.5
10	21	Miscellaneous edible preparations	0.5
11	22	Beverages, spirits and vinegar	0.1
12	23	Residues and waste from food industries	3.4
13	24	Tobacco & manufactured tobacco substitutes	1.3
14	28	Inorganic chemicals	1.1
15	29	Organic chemicals	1.6
16	30	Pharmaceutical products	0.9
17	31	Fertilisers	0.0[16]
18	32	Tanning or dyeing extracts, dyes, paints & varnishes	1.5
19	33	Essential oils; perfumery, cosmetic or toiletry	0.6
20	34	Soap, organic surface-active agents, washing & lubricating preparations	0.3
21	35	Albuminoidal substances, starches, glues, enzymes	0.7
22	36	Explosives	2.4
23	37	Photographic or cinematographic goods	0.3
24	38	Miscellaneous chemical products	1.0
25	39	Plastics	0.7
26	41	Raw hides and skins (other than furskins) and leather	2.4
27	42	Articles of leather	3.2
28	43	Fur skins & artificial furs	0.0[17]
29	51	Wool & woven fabric	0.6
30	54	Man-made filaments	2.7
31	55	Man-made staple fibres	3.2
32	58	Special woven fabrics	1.2
33	59	Coated or laminated textile fabrics	0.5
34	60	Knitted or crocheted fabrics	0.3
35	61	Articles of apparel and clothing accessories, knitted or crocheted	2.7
36	62	Articles of apparel and clothing accessories, not knitted or crocheted	3.6
37	63	Other made-up textile articles	6.9
38	64	Footwear	1.6
39	84	Machinery & mechanical appliances	0.3
40	85	Electrical machinery & equipment	0.2
41	90	Optical, photographic & surgical instruments	0.2
42	91	Clocks & watches	0.2

[15] The average RCA value is 0.03.
[16] The average RCA value is 0.05.
[17] The average RCA value is 0.004.

The results are reported in three groups. First, we cull out common exports at the 2-digit level from India and the ASEAN-4 to China. We compute period average RCAs for these categories. The findings are reported in Table 5.[18] Second, from Table 5 we identify products where India has RCAs greater than 1. For these products, we compare the corresponding average RCAs for ASEAN-4 (Table 6). This helps in identifying products where India's RCAs are not only greater than 1 but also more than those of the ASEAN-4. These therefore are the categories in which India is distinctly more competitive than the ASEAN-4 in the Chinese market. We probe deeper into these categories to study their export patterns at the more disaggregated 6-digit level of commodity classification, for identifying items that India should specifically encourage for exports in line with its competitiveness. The findings are reported in Table 7.

Table 5 shows that India is globally competitive in 21 product categories (that is, RCA>1) out of the 42 common items that both India and the ASEAN-4 are exporting to China. These items are as follow:

1. Fish and crustaceans;
2. Edible fruit and nuts;
3. Coffee, tea and spices;
4. Lac, gums, resins, vegetable saps and extracts;
5. Sugar and sugar confectionery;
6. Residues and waste from food industries;
7. Tobacco and manufactured tobacco substitutes;
8. Inorganic chemicals;
9. Organic chemicals;
10. Tanning or dyeing extracts; dyes, paints and varnishes;
11. Explosives;
12. Miscellaneous chemical products;
13. Raw hides and skins and leather;
14. Man-made filaments;
15. Articles of leather;
16. Man-made staple fibres;
17. Special woven fabrics;
18. Articles of apparel and clothing accessories (knitted or crocheted articles);
19. Apparel and clothing accessories (not knitted or crocheted);
20. Other made-up textile articles; and
21. Footwear.

A comparison between India's major exports to China (Table 2) and the 21 product categories identified above reveals three common groups: a) fish and crustaceans; b) inorganic chemicals; and c) organic chemicals. Given India's global competitiveness in these three groups, there is little surprise in these products figuring among India's main exports to China. But is the ASEAN-4 as competitive as India in these segments? The relative competitiveness results are reported in Table 6.

Table 5, however, clearly shows that in three of India's current main export groups to China – machinery and mechanical appliances, plastic and plastic articles and electrical machinery

[18] Among India's main exports to China, ores, slag and ash (26), mineral fuels and oil (27) and copper and articles (74) are not common between the ASEAN-4 and India. So RCAs were not computed for these 3 product groups.

and equipment – India is not globally competitive since its RCAs in all these three export groups are less than 1. There is little possibility of India obtaining greater access in the Chinese market in these segments as it lacks competitiveness vis-à-vis other exporters of the same products.

Table 6: India's Relative Competitiveness vis-à-vis ASEAN-4

S/No	HS Code	Product	India	Malaysia	Singapore	Thailand	Vietnam
1	03	Fish and crustaceans	2.8	0.7	0.3	3.6	15.9
2	08	Edible fruit and nuts	1.9	0.1	0.1	0.6	4.4
3	09	Coffee, tea, and spices	6.0	0.3	0.5	0.2	20.7
4	13	Lac, gums, resins, vegetable saps & extracts	10.8	0.1	0.3	0.7	1.1
5	17	Sugar and sugar confectionery	1.2	0.4	0.1	3.6	0.3
6	23	Residues and waste from food industries	3.4	0.4	0.2	1.6	0.1
7	24	Tobacco & manufactured tobacco substitutes	1.3	0.7	0.8	0.3	1.8
8	28	Inorganic chemicals	1.1	0.3	0.2	0.2	0.1
9	29	Organic chemicals	1.6	0.6	2.0	0.6	0.1
10	32	Tanning or dyeing extracts	1.5	0.5	1.0	0.3	0.1
11	36	Explosives	2.4	0.2	0.4	0.4	0.2
12	38	Miscellaneous chemical products	1.0	1.4	1.0	0.2	0.1
13	41	Raw hides and skins and leather	2.4	0.1	0.2	1.1	0.4
14	42	Articles of leather	3.2	0.1	0.2	0.8	3.2
15	54	Man-made filaments	2.7	1.3	0.3	1.4	0.9
16	55	Man-made staple fibres	3.2	0.6	0.3	3.3	1.5
17	58	Special woven fabrics	1.2	0.1	0.3	1.2	0.6
18	61	Articles of apparel and clothing accessories, knitted or crocheted	2.7	0.5	0.5	1.6	5.1
19	62	Articles of apparel and clothing accessories, not knitted or crocheted	3.6	0.3	0.2	1.1	6.8
20	63	Other made-up textile articles	6.9	0.2	0.1	0.8	2.8
21	64	Footwear	1.6	0.2	0.1	1.2	15.2

Table 6 shows that despite being globally competitive in 21 product groups that it is exporting to China, India is not as competitive as the ASEAN-4 in all of these. It is more competitive than the ASEAN-4 in only eight categories. These categories are as follow:

1. Lac, gums, resins, vegetable saps and extracts;
2. Residues and waste from food industries;
3. Inorganic chemicals;
4. Tanning or dyeing extracts;
5. Explosives;
6. Raw hides and skins and leather;
7. Man-made filaments; and
8. Other made-up textile articles.

As can be seen further from Table 6, in some categories, India is more competitive than three of the ASEAN-4, while being at least as competitive as the remaining other country. These are miscellaneous chemical products, articles of leather and special woven fabrics. In the remaining product groups shown in Table 6, despite being globally competitive, it is relatively less competitive than at least one among the ASEAN-4. In most of these groups, Vietnam and Thailand, rather than Singapore and Malaysia, are more competitive than India.

RCAs computed at the 2-digit level tend to mask some heterogeneity within sectors. Competitiveness at the 2-digit level, while signifying comparative advantage in production of most items belonging to the group, may not reflect the relative lack of competitiveness in some specific items. It is therefore important to look at the export patterns of constituent items for each broad 2-digit group. In this respect, for the eight 2-digit broad groups where India is more competitive than the ASEAN-4, we try identifying the number of specific items within each group that are currently being exported by India and the ASEAN-4 to China and those that are not (Table 7).

Table 7: Disaggregated Exports from Groups where India is more competitive than ASEAN-4

S/No	Product Group	Export by India and ASEAN-4 (no.)	Export by India (no.)	Export by ASEAN-4 (no.)	Export by rest of the world (no.)
1	Lac, gums, resins, vegetable saps and extracts	5	0	3	1
2	Residues and waste from food industries	2	5	8	5
3	Inorganic chemicals	40	3	102	32
4	Tanning or dyeing extracts	41	1	4	0
5	Explosives	3	0	2	6
6	Raw hides, skins and leather	23	2	5	6
7	Man-made filaments	34	0	28	4
8	Other made-up textile articles	34	0	19	5

Source: COMTRADE Database, United Nations.

It is surprising to note that despite India being more competitive than the ASEAN-4 in export of inorganic chemicals, the ASEAN-4 is exporting more than 100 items from the group to China that India is not presently exporting. Similarly, in man-made textile filaments as well as other made-up textile articles, the ASEAN-4 is currently exporting 28 and 19 items exclusively to China. In all these items, India is expected to be as competitive as the ASEAN-4, if not more. The scope for expanding exports also exists in other product lines where China is importing from ASEAN, or the rest of the world, but not from India.

Future Prospects

Reducing the current imbalance in India-China trade would require Indian exports obtaining greater access in the Chinese market. The relative competitiveness of Indian exports is a critical determinant of such access. Empirical evidence establishes India's distinct competitiveness in the Chinese market vis-à-vis major Southeast Asian countries in only select product categories. These are a diverse group of items comprising vegetable products (lac), food preparations (residues from food), chemical and allied products (inorganic,

tanning extracts, explosives), hides and skins (raw hides, skins and leather) and textiles (man-made filaments and made-up textile articles). In terms of factor intensities, the products are broadly resource-based and labour-intensive. However, relative competitiveness in these categories should not lead to the overarching conclusion that India is more competitive than Southeast Asia across resource and labour-intensive sectors.

India's current basket of leading exports to China hardly reflects its relative competitiveness. Other than inorganic chemicals, none of India's competitive product groups (vis-à-vis ASEAN) figure among its major exports to China. The merit in encouraging greater exports from these groups is undisputed. Instead of focusing on less competitive segments such as plastic, machinery and mechanical appliances, and electrical equipment, attention must be devoted to areas where exports have a greater chance of market penetration on competitive grounds.

Indian exports face considerable competition in the Chinese market from Southeast Asian exports. Indeed, the extent of competition is far greater than that captured empirically in this paper since the current analysis was confined only to four Southeast Asian countries. Considerable competition exists beyond these four countries, particularly from other larger ASEAN economies such as Indonesia and Philippines, which, like India, also export ores and metals to China. China's trade deficits with most major ASEAN economies, coupled with the high incidence of machinery and equipment in ASEAN exports to China, indicate China's reliance on ASEAN as an efficient source of intermediate and semi-processed machinery imports. These imports have probably had an instrumental role in enabling several segments of Chinese manufacturing to climb up to relatively higher ends of value chains. To that extent, a large segment of ASEAN exports have facilitated China's manufacturing progress, while India's have not. This explains why Indian exports to China have not been rising as fast as those from Southeast Asia.

The possibility of China and ASEAN carving out a Free Trade Area (FTA) from 2010 strengthens the possibility of ASEAN exports gaining greater access into the Chinese market. This might affect the prospects of Indian exports, particularly in relatively less competitive and low capital-intensive segments such as machinery intermediates. On the other hand, in areas where it is currently more competitive than the ASEAN-4, India needs to work hard to maintain its competitiveness at higher levels. A bilateral trade framework between China and Southeast Asia is expected to make movement easier for almost all product categories on either side. Such ease of movement might reduce relative competitiveness of Indian products as the latter will continue to face existing barriers – both tariff and non-tariff.

From an Indian perspective, there is probably considerable merit in pursuing a bilateral trade agreement with China. Such a framework will not only enhance bilateral trade, but is also likely to do so in a balanced manner. How can this be done? Chinese imports into India are not going to reduce since both Indian producers and consumers benefit from such imports. If bilateral trade has to grow in a balanced fashion, then along with the rise in Chinese imports, India's exports to China must also increase. As of now, India does not have a clear edge over its Southeast Asian competitors in the Chinese market in most products where it is otherwise globally competitive. Even if it emphasises on the few segments where it is relatively competitive, it may lose its edge over time given the possibility of the China-ASEAN FTA materialising in the near future. An India-China trade pact can nullify the threat to Indian exports arising from facilitating arrangements that benefit India's competitor exports.

Annex 1

Measuring Revealed Comparative Advantage (RCA)

The popularity of the RCA approach stems from the difficulties in estimating the comparative advantages of countries in line with expositions of popular neo-classical trade theories. Estimating national comparative advantages in terms of factor endowments as proposed by the Heckscher-Ohlin (H-O) construct is difficult on account of the lack of knowledge on autarky prices.[19] These prices for specific commodities cannot be observed in ex-post trade equilibrium. As a result, it becomes difficult to measure comparative advantage by employing empirical tools. The RCA approach, on the other hand, attempts to measure competitiveness from observed trade patterns. Instead of focusing on factors determining comparative advantage, which is the main tenet of neo-classical trade theory, the RCA proceeds on the assumption that such an advantage for a country will be 'revealed' in its trade.[20]

The comprehensive measure of RCA commonly known as the Balassa index is specified as:

$RCA_{ij} = (X_{ij}/\sum_j X_{ij}) / (\sum_j X_{ij}/\sum_i \sum_j X_{ij})$; where,

RCA_{ij}: Revealed Comparative Advantage in commodity *i* for country *j*;

$X_{ij}/\sum_j X_{ij}$: Share of commodity *i* in aggregate exports of country *j*; and

$\sum_j X_{ij}/\sum_i \sum_j X_{ij}$: Share of commodity *i* in total world exports

Country *j*'s comparative advantage in production of commodity *i* is 'revealed' if $RCA_{ij} > 1$. On the other hand, if $RCA_{ij} < 1$, then *j* has a 'revealed' comparative disadvantage in production of *i*.

The RCA index, on account of its emphasis on capturing comparative advantage in a 'revealed' manner, highlights the intrinsic advantages that a country enjoys in exporting a particular commodity.[21] However, the index does not capture the determinants of competitiveness. To that extent, it is unable to explain the changes in trade patterns that arise from a more (or less) efficient utilisation of factors, as well as those arising from variations in factor endowments.

oooOOOooo

[19] See (i) Balassa, B. (1989), Comparative Advantage, Trade Policy and Economic Development, Harvester Wheatsheaf, New York and (ii) Utkulu, U. and Dilek, S. (2004) "Revealed Comparative Advantage and Competitiveness: Evidence for Turkey vis-à-vis the EU/15", paper prepared for the European Trade Group 6th Annual Conference, ETSG 2004, Nottingham for more details.

[20] See (i) Balassa, B. (1965), "Trade Liberalisation and 'Revealed' Comparative Advantage", *The Manchester School*, 33, 99-123 and (ii) Balassa, B. (1977) "'Revealed' Comparative Advantage Revisited: An Analysis of Relative Export Shares of the Industrial Countries, 1953-1971", *The Manchester School of Economic and Social Studies*, 1977, vol. 45, issue 4, pp. 327-44 for more details.

[21] See Batra, A. and Khan, Z. (2006), 'Revealed Comparative Advantage: An Analysis for India and China', Working Paper, 168, *Indian Council for Research on International Economic Relations*, New Delhi, India.