

Draft

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Can Japan Dance with India?

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Abstracts

Not only China but also India is a focus of future economic giants. International competition has been keen and accelerated to have sound economic relations with India in order for a country not to be marginalized. To Japan India used to be a large trading partner before the World War II. In the post WWII period, however, the relationships with India are very light in every aspect. In this paper we shed some light on prospects to expand trade of goods and services and investment so that Japan can get on a bandwagon. We try to point out the footsteps that Japan should take by looking carefully what trade statistics reveals

JEL: F13, F17, F21, F23

Keywords *Trade, FDI, India, IT, IIT*

1. Introduction

Ishii Hyoki, a printing company in Japan, released its investment plan in Thailand on March 16, 2007. While foreign direct investment by Japanese companies is nothing new, the objective of this FDI attracted our attention. In particular, while this company plans to produce and distribute printing devices in Thailand,¹ what is noteworthy is that the plan makes clear that the company's Thailand subsidiary will also

¹ They plan to sell printing devices to automobile and electronic companies in Thailand. The total investment amounts to 90 million baht or US\$2.6 million. The plant is located to Sri Rach, which is a port near Bangkok.

be used as a strategic base for their business in India in years to come.²

As the above news indicates, India has become of significant interest in the Japanese business circle. Earlier in 2003, Goldman Sachs (GS) economists wrote a report to their customers arguing that BRICS (Brazil, Russia, India and China) has the potential for high economic growth. Since the population of these countries is extremely large and have high growth potential, BRIC countries have attracted the attention of the world. According to other GS working papers, BRIC economies will be as large as the G7 in 2040 and 1.4 times as large as the G7 in 2050. In addition, the IMF has reported that real economic growth of BRICs for the decade beginning in 1987 was 6.9 percent, and for the subsequent ten years, real growth has continued to be around 6 percent.³ One GS revised working paper calculates the Growth Environment Score (GES) to measure the potential for high economic growth. The GES is a composite index of macroeconomic stability, growth, technology, human capital and the political environment. The GES of BRICs shows a better performance as compared to the average of developing countries as a whole. This is one source of credibility for the high growth potential of the BRICs.

For Japan, among the BRICs, China is the first and largest market to explore and it also has the closest economic linkage. Considering the scale of the economy, India attracts most attention among the remaining three. With the rise in regionalism and bilateral FTAs, India now plays an important role. In fact, both Singapore and Thailand have FTAs with India. The Asian Economic Community which was proposed at the end of 2005 involves not only ASEAN plus three, but an additional three countries, namely, India, Australia and New Zealand. Although the realization of the ASEAN Economic Community is up in the air because of the rivalry between Japan and China, it is true that India cannot be neglected in the years to come.

This global trend forces Japan to enhance its economic linkages with India and China more than ever before. In this paper, I try to delineate the current economic status by presenting macro data in the next section. The following section analyzes the existing trade relations more deeply. Section 4 introduces the foreign direct investment patterns observed and show crucial differences between China and India; I then postulate what would happen in the division of labor in the trade arena. Section 5

² http://www.newsclip.be/news/2007317_010330.html

³ IMF, *World Economic Outlook*, September 2005.

clarifies a unique approach of India's development strategy. In particular, I argue how IT software contributes to growth of India and how Japan lags behind in this area. The last section concludes with some policy implications for future relations between Japan and China/India.

2. Macro observation and Goldman Sachs Projection

The Goldman Sachs Working Paper revealed the potential that India can surpass Japan in terms of GDP before 2034 and China can overtake even the United States by 2041.⁴ In essence, this report reveals one simulation result that over the next 50 years, the BRIC economies could become a much larger force in the world economy. In less than 40 years, the BRIC economies together could be larger than the G6 in U.S. dollar terms. Of the current G6, only the U.S. and Japan may be among the six largest economies in US dollar terms in 2050 (Figure 1).

<Figure 1>

This working paper has attracted the attention of many researchers and business people and has led them to look seriously at the implications of the BRICs. The paper made a strong case for the significance of these countries in a world where it was believed that it would take a much longer time for China and India to become such giants. A subsequent paper by Goldman-Sachs⁵ reaffirmed the hypothesis made in the first paper, and a recent publication by the World Bank uses an even more rigorous model to project the future of China and India and the impact on the world.⁶

Japan has been aware of the importance of China as a world power since China opened her economy. Japanese FDI, in fact, has helped China to become the center of world manufacturing. India, on the other hand, has lagged behind and not many FDI flows have been observed and trade linkages are dim⁷. The contrast of development strategies is of interest. While China pursues an ordinary track of industrialization, India

⁴ Dominic Wilson and Roopa Purushothaman (2003)

⁵ Dominic Wilson, Roopa Purushothaman and Themistoklis Fiotakis (2005) and Jim O'Niell, Dominic Wilson, Roopa Purushothaman and Anna Stupnytska (2005)

⁶ L. Alan Winters and Shahid Yusuf (2007) In fact, I borrowed the title of this paper from this book, *Dancing with Giants*.

⁷ Shigeyuki Abe (1992, 1994) discussed how dim the relationships were and stressed the importance of Japanese FDI and trade with India for India's development.

has taken a unique approach toward economic development, emphasizing IT service as a core industry.

If we examine current real per capita GDP, the rosy projections cannot be accepted easily. This is because real per capita GDP remains a little over US\$2,700 for India. In accordance with Japan's development, this level corresponds to the first half of the 1950s, whereas China's level is still around 1960.

A quick glance at Table 1 reveals that although the population is huge, with respect to every macroeconomic statistic, China has nothing to be afraid from India. China shows substantial importance in GDP (PPP), exports and foreign reserves.

<Table 1>

On the other hand, if we look at per capita GDP, both India and China remain typical of developing countries. India remains 5 percent or below the level of Luxemburg and China is below 8.2 percent.

<Table 2>

3. Trade Relations

First, let us review the trade trends of China and India. As is shown in Figure 2, the magnitude of India exports is roughly one-tenth that of China (the left scale refers to India trade and the right scale refers to China trade). However, while India's scale is just one-tenth, its growth rate is much higher.

<Figure 2>

Another perspective of the trade relations can be seen by examining trade intensity, which compares two countries' trade relations with the world average (Table 3).

<Table 3>

Japan's trade intensity with China is 2.24, while with India its trade intensity is 0.62. The data imply that Japan is trading with China 2.24 times more than the world average, while Japan's trade with India is less than proportional to the world average. With regard to other BRICs, Japan's trade intensity is almost the same as India. The size of trade is 4 percent of China, a little higher than Brazil and a little lower than Russia. Thus, Japan's trade relations with India are dim. The idea of having Singapore and Thailand as mediators of trade and investment is persuasive when we see the low trade intensities of Japan with India and the high trade intensities of Singapore/Thailand with India (Table 4). Singapore's trade intensity with India is 2.96, showing a close trade relationship. Total exports amount to 5,897, which is 70 percent more than Japan-India exports. While relatively low, Thailand still exported more than 40 percent of Japan-India exports.

<Table 4>

<Table 5>

In terms of world trade, Japan's share has been shrinking while that of China has been increasing. India trade, both in terms of exports and imports, has been increasing from 1980 but remains just one percent of world trade.

Another way to look at the trade status is in terms of intra industry trade (IIT) indices. A rough calculation based on HS⁸ 2-digit shows that India has 0.83 IIT with Japan and 0.48 with the world; that is, India has less IIT with Japan. In the case of China, the same figures are 0.87 and 0.721.

However, it is important to note that these are aggregated figures. An interesting question would be to ask what about each industry's IIT? In the case of Japan-China, in some important industries, very strong IIT can be observed as is shown in Table 6.

<Table 6>

In contrast with the case of China, India shows high IIT with minor industries and most

⁸ Harmonized System. Through out the analysis, we used UN-Comtrade HS coded trade data. The version is HS 1996 version.

important industries show less IIT. Important manufacturing sectors show that Japan has an export promotion bias while India has an export advantage in resources.

Table 7 shows top 25 exports and imports at the six-digit level of the 1996 Harmonized System (HS) for 2005. These exports, which account for 31.8 percent of China's and 45.8 percent of India's merchandise exports, are almost mutually exclusive sets. A notable feature of China's list is the prominence of computer and electronic equipment products under chapters 84 and 85. These two chapters alone accounted for large proportion of China's exports in 2005. In India, three HS products under chapter 71 (diamonds and jewelry) and refined petroleum under chapter 27 likewise accounted for 28 percent of total exports. As long as imports side is concerned, almost the same characteristics are found. For China, chapters 84 and 85 share large portion of imports while for India, petroleum shares 26.1 percent.

<Table 7>

Since chapters 84 and 85 are important for China and quite likely in the future for India, Figure 3 and Figure 4 specifically spotlight these industries. Since India imports substantial amount of chapter 87, this sector's trend is also depicted. According to Figure 3, China has increased trade both exports and imports rapidly for chapters 84 and 85. Figure 4 shows the case of India. India imports substantial volume of chapters 84 and 85 while India does not export them much. Imports of chapter 87 started to expand from 2002.

<Figure 3>

<Figure 4>

A natural question to ask is, then, who exports to India for these important items. Table 8 shows the market shares of major players in 2005. For chapter 84 India imports from China, 15.5 percent, from the U.S., 10.5 percent, from Japan, 8.5 percent, from Singapore, 7.3 percent, and from Korea, 4.6 percent. For chapter 85, India imports from China, 23.3 percent, from Korea, 15.7 percent, and from Japan, only 3.7 percent. Likewise for chapter 87, India imports from Korea, 27.5 percent, from Japan, 16.9 percent, and from China, 8.5 percent. East Asian countries contribute substantially in these areas. Particularly, the strength of Korea is noteworthy.

<Table 8>

Figure 5 shows the time trend of the above for the U.S., Japan, and Korea. As an import partner, Korea's growth is remarkable, shown in the left panels.

<Figure 5>

Why is Korea so competitive in India? To answer this, I calculated the price index for chapter 84, 85, and 86. As Ito and Fukao suggested, we can use trade weights to sum up price indexes for aggregated chapters⁹. Table 9 shows such price indexes. All these price indexes are in relation with the world average. If it is less than 1, it means that the average price of the country concerned is lower than the world average and considered to be competitive. Korea's share for HS 85 is 15.7 percent, larger than the U.S. and Japan, and the price index turns out to be less than one. For the large Korea's share in HS 87, the price is 0.8758, the lowest among the three, and Korea's strength lies in low prices.

<Table 9>

Can Japan compete with Korea with the help of Thailand and Singapore? Table 10 suggests some links. Table 10 shows the top five categories at the 2-digit level of HS for Singapore and Thailand trades. Singapore shows closer ties with India for HS 84 and HS 85 than Thailand although Thailand's linkage is not that weak. However, this level of relationships is not sufficient to overcome Korea's strength in India even Japan engages in full scale FTA/EPA arrangements with these countries.

<Table 10>

Thus, insofar as trade relations are concerned, India and Japan have no rosy prospects in the future and we cannot expect to see developments witnessed in China with India.

⁹ Ito and Fukao (2005)

4. FDI Relations

In the former section, it was noted that the trade relationship with India is thin and is characterized by one-way trade. This is quite contrary to Japan's trade relationship with China. In this section, we compare Japanese foreign direct investment to India and China. As is well argued, China's economic growth has been enhanced by being integrated with the world market led by multinational corporations' direct investment activities¹⁰. Table 11 shows the current Japanese FDI status both in India and China. According to this table we find that Japan's FDI to India is just 4 percent that of China in terms of number, while it is 8 percent in terms of value. That is, FDI is also quite thin in the case of India. The growth rate of FDI is, however, higher in India than in China.

<Table 11>

As far as the number of FDI projects is concerned, textile is the largest sector receiving FDI in China while transportation machinery is the largest sector in India. In terms of total value of FDI, electronics and electricity is the largest in China while transportation is the largest in India. The value of FDI in the chemistry sector is also relatively large in India. As a rule of thumb, the value in one case of FDI is almost twice as large in the case of India as compared with China.

The data in Table 12 provide information on the objectives of Japanese FDI firms in India and China. The data suggest that access to the local market is the largest factor behind Japanese companies' investment in India in general. Slight differences are found from one industry to another. In the transportation equipment and machinery sectors, more than 80 percent of firms list access to the local market as the main objective. In the case of iron, the Indian government policy is the main cause, while in the textile industry, production networks is the most important objective.

<Table 12>

Thus, insofar as FDI relations are concerned, India and Japan have no rosy prospects in the future and we cannot expect to see developments witnessed in China with India. And yet, Toyota, Panasonic, Sony, and other giant multinationals have started investment in India in large scale and as I wrote at the outset, new type of

¹⁰ See Shigeyuki Abe(2004) for example.

investments in Thailand took place seeing business opportunities in India in the future.

5. IT Development

Trade and FDI relationships are not particularly strong. Although India's past growth is remarkable, the source of this growth differs from the sources of growth in China. For India's growth, the most important sector is IT related. In 2004, the share of IT in India's GDP amounts to 2 percent and US\$17.2 billion, while IT's share of total exports is 14 percent. According to NASSCOM¹¹, these figures will likely rise to 7 percent of GDP, US\$60.2 billion, and 31 percent of exports. Table 13 shows India's IT related activities.

<Table 13>

Table 14 shows the Balance of Payments statistics of India, the U.S., Japan and China for 2005. First of all, India's service exports are fairly large, almost 40 percent of merchandise exports. This should be compared with Japan's 19.7 percent and China's 21.6 percent although the U.S. shares 41.9 percent. Amazing fact is, however, among this service exports, the computer and information sector's share is huge. If one looks at the corresponding figures for other countries, India is surely different from other countries; namely, the U.S. 0.7 percent, Japan, 0.2 percent, and China, 0.5 percent.

<Table 14>

Although the IT sector is strong in India, the division of labor with Asian countries has not been well-developed. Exports of IT software from India goes mostly to the U.S. and Europe. Table 15 shows destination of India's IT exports.

<Table 15>

Why does the U.S. have such close ties with India in IT? The key factors include the following:

1. Huge Indian population in the U.S. In fact, 2 million Indians reside in the U.S.
2. 300,000 Indian Americans work in Silicon Valley, accounting for more than

¹¹ NASSCOM....

15 percent of start-up companies.

3. Employment by U.S. IT companies in India is significant. Large employers include IBM(38,500) Accenture(16,000), HP (18,000), Oracle India (8,600), Microsoft (3,500) and Intel (3,000).

What about Japan's IT relationship with India? In this case, the relationship is rather weak and the reason for this is that Japan has better IT relations with China. India is not only very different from Japan economically, but student exchange between Japan and India is also limited. As can see from the table, enrollment of Indian students is even less than students from Bangladesh and Sri Lanka.

<Table 16>

Japan needs to make a serious effort to increase human capital development by increasing the number of students from India.

6. Concluding Remarks

In conclusion, Japan needs to expand its economic relationships with India in every aspect. As discussed in this paper, Japan' trade with India is primarily a one-way trade or vertical trade, and there is little hope for expansion and integration. We need to change this pattern of trade. Fortunately, mega enterprises such as Toyota have engaged in massive investments in India in recent years. These should be followed by other Japanese enterprises and will create closer networks of production and networks in later years. Particularly in the field of IT, there is complementarity in hardware and software, with Japan being strong in hardware and India being extremely strong in software. As the hardware and software need to be developed simultaneously, both parties can benefit if one can capture the world market in this area.

There is no doubt that Japan needs to open its doors to Indian students. The current number is too low to begin with. In order to do this, Japan needs to modify the environment in order for students to live comfortably in Japan. We also need to enhance nationwide networking involving Singapore and Thailand.

If we succeed in these efforts, then Japan can dance with India. Otherwise, Japan will be left out.

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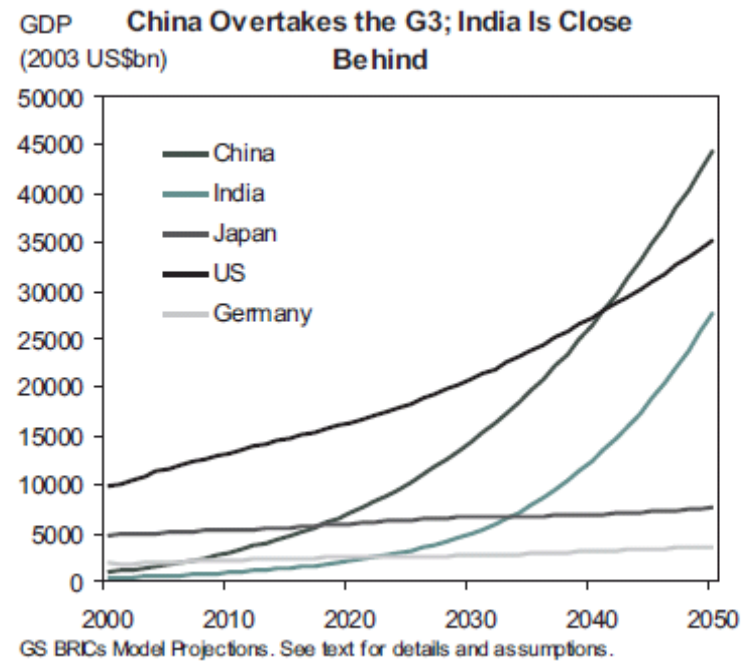
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Figure 1. GS Projections of BRICs to 2050



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Table 1. Basic Macro Figures, 2005

	Population	GDP(nominal)	GDP(PPP)	Exports	FDI total	Foreign reserves
India	17.0	1.6	5.9	0.8	0.4	3.3
China	20.5	4.0	13.2	6.5	2.8	15.9
USA	4.6	28.7	20.9	8.9	16.5	2.0
Japan	2.0	11.4	6.9	6.2	1.1	21.6
EU15	6.1	30.0	19.2	37.7	42.6	8.2
Asian NIEs	1.3	3.1	3.5	9.6	8.0	21.0
ASEAN10	8.6	1.9	4.3	6.0	3.6	7.4
ROW	39.9	19.3	26.1	24.3	25.0	20.6
World	100.0	100.0	100.0	100.0	100.0	100.0

Source: IMF, World Bank

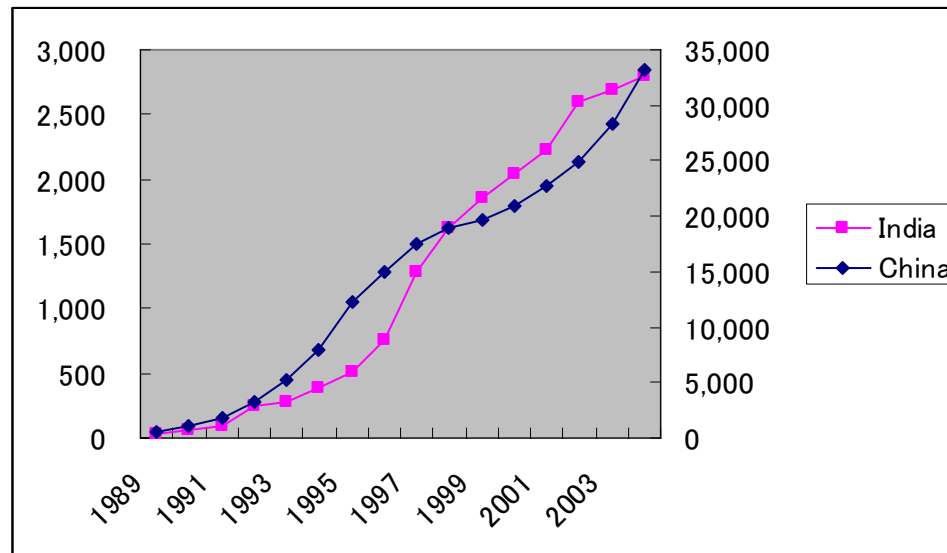
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Table 2. Per Capita GDP: World Ranking, 2005

	Population	GDP(nominal)	GDP(PPP)	Exports	FDI total	Foreign reserves
India	17.0	1.6	5.9	0.8	0.4	3.3
China	20.5	4.0	13.2	6.5	2.8	15.9
USA	4.6	28.7	20.9	8.9	16.5	2.0
Japan	2.0	11.4	6.9	6.2	1.1	21.6
EU15	6.1	30.0	19.2	37.7	42.6	8.2
Asian NIEs	1.3	3.1	3.5	9.6	8.0	21.0
ASEAN10	8.6	1.9	4.3	6.0	3.6	7.4
ROW	39.9	19.3	26.1	24.3	25.0	20.6
World	100.0	100.0	100.0	100.0	100.0	100.0

Source: IMF, World Bank

Figure 2. Exports of India and China



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Table 3. Trade Intensities and Exports

Trade Intensity: 2005

	USA	Japan	Brazil	China	India	Russia	World
USA	0.00	1.37	2.33	0.74	0.92	0.35	1.00
Japan	1.46	0.00	0.63	2.24	0.62	0.60	1.00
Brazil	1.23	0.65	0.00	0.75	1.00	1.97	1.00
China	1.28	2.10	0.63	2.81	1.16	1.04	1.00
India	1.07	0.54	1.38	1.25	0.00	0.58	1.00
Russia	0.20	0.35	0.35	0.64	1.01	0.00	1.00
World	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exports: 2005

	USA	Japan	Brazil	China	India	Russia	World
USA		55,410	15,346	58,261	7,958	3,942	904,257
Japan	136,002		2,713	116,146	3,524	4,459	594,887
Brazil	22,742	3,476		7,722	1,137	2,917	118,469
China	211,058	99,377	4,830	258,598	11,742	13,716	1,054,322
India	16,363	2,376	982	10,713		705	97,918
Russia	7,475	3,768	606	13,398	2,314		239,277
World	1,616,940	464,311	75,422	902,311	99,468	129,548	10,348,500

Source: IMF Direction of Trade

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Table 4. Trade Intensities: Thailand and Singapore

Trade Intensities of Singapore and Thailand vs China and India

	China	India
Singapore	2.29	2.96
Thailand	1.59	1.44

Exports

	China	India	World
Singapore	41,322	5,897	207,338
Thailand	15,228	1,520	110,174
World	902,311	99,468	10,348,500

Source: IMF, Direction of Trades

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Table 5. World Share of Trades: Japan, China, and India

		1980	1985	1990	1995	2000	2005
World Share in Exports	Japan	6.2%	5.9%	6.1%	5.8%	5.3%	4.5%
	China	2.2%	3.6%	3.9%	6.3%	6.2%	8.7%
	India	0.6%	0.9%	0.7%	0.7%	0.7%	1.0%
World Share in Imports	Japan	6.5%	9.6%	8.8%	9.3%	7.8%	6.1%
	China	1.9%	2.8%	4.0%	5.7%	7.0%	10.1%
	India	0.4%	0.6%	0.6%	0.7%	0.7%	1.0%

Source: IMF, Direction of Trades

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Table 6. IIT: China and India

		Exports	Imports	Trade Share	IIT
China					
H1-85	Electrical, electronic equipment	14,185,861,963	29,827,220,705	23.9%	0.6446
H1-84	Nuclear reactors, boilers, machinery, etc	13,851,704,363	21,562,548,699	19.2%	0.7823
H1-90	Optical, photo, technical, medical, etc apparatus	3,938,117,073	8,702,228,692	6.9%	0.6231
India					
H1-84	Nuclear reactors, boilers, machinery, etc	72,068,754	1,191,424,237	19.2%	0.1141
H1-89	Ships, boats and other floating structures	63,196	534,004,801	8.1%	0.0002
H1-71	Pearls, precious stones, metals, coins, etc	488,605,659	15,268,325	7.7%	0.0606
H1-85	Electrical, electronic equipment	35,056,085	444,761,492	7.3%	0.1461
H1-26	Ores, slag and ash	411,368,044	1,079,544	6.3%	0.0052
H1-29	Organic chemicals	108,707,014	223,707,935	5.1%	0.6540

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Table 7a Top 25 Exports at HS 6-digit Level

China				India			
847130	Portable digital data pr	29,896,553,189	3.9%	271000	Petroleum oils&oils obta	11,439,919,663	11.1%
847330	Parts and accessories of data processing equipmen	28,352,126,879	3.7%	710239	Diamonds (jewellery) worked but not mounted or sei	11,214,411,125	10.8%
847160	I/O units w/n storage u	24,896,853,808	3.3%	260111	Iron ore, concentrate, not iron pyrites,unagglomerate	3,519,748,495	3.4%
852520	Transmit-receive apparatus for radio, TV, etc.	23,691,632,626	3.1%	711319	Jewellery and parts of precious metal except silver	3,357,736,449	3.2%
852990	Parts for radio/tv transmit/receive equipment, nes	17,312,505,981	2.3%	294200	Organic compounds, nes	1,690,186,151	1.6%
854213	Metal oxide semiconducto	11,951,963,346	1.6%	300490	Medicaments nes, in dosage	1,424,499,067	1.4%
901380	Optical devices, appliances and instruments, nes	11,048,583,297	1.5%	100630	Rice, semi-milled or wholly milled	1,364,244,897	1.3%
847170	Storage units	9,199,606,461	1.2%	610910	T-shirts, singlets and other vests, of cotton, knit	1,107,091,170	1.1%
852190	Video record/reproduction apparatus not magnetic t	7,490,753,593	1.0%	721049	Flat rolled i/nas, coated with zinc, width >600mm, ne	1,059,095,891	1.0%
271000	Petroleum oils&oils obta	6,411,455,860	0.8%	999999	Commodities not specified according to kind	1,028,050,958	1.0%
851999	Sound reproducing apparatus, non-recording, nes	6,291,896,513	0.8%	620630	Womens, girls blouses & shirts, of cotton, not knit	1,018,037,690	1.0%
860900	Cargo containers designed for carriage	5,871,419,731	0.8%	230400	Soya-bean oil-cake and other solid residues	968,327,210	0.9%
852540	Still image video camara	5,859,185,038	0.8%	030613	Shrimps and prawns, frozen	853,040,790	0.8%
852812	Color television receive	5,850,910,625	0.8%	630492	Furnishing articles nes, of cotton, not knit, crochet	800,438,922	0.8%
853400	Electronic printed circuits	5,338,041,546	0.7%	870899	Motor vehicle parts nes	780,572,608	0.8%
850440	Static converters, nes	5,280,169,418	0.7%	620520	Mens, boys shirts, of cotton, not knit	688,108,313	0.7%
640399	Footwear, sole rubber, plastics uppers of leather, ne	5,082,804,825	0.7%	740311	Copper cathodes and sections of cathodes unwroug	677,376,512	0.7%
852290	Parts and accessories of recorders except cartridge:	4,423,402,748	0.6%	520100	Cotton, not carded or combed	639,446,650	0.6%
611030	Pullovers, cardigans etc of manmade fibres, knit	4,414,288,999	0.6%	620452	Womens, girls skirts, of cotton, not knit	619,769,262	0.6%
640299	Footwear, outer soles/uppers of rubber or plastic, ne	4,301,990,604	0.6%	080132	Cashew nuts, shelled dri	585,570,968	0.6%
950410	Video games used with a television receiver	3,888,966,084	0.5%	020230	Bovine cuts boneless, frozen	559,828,690	0.5%
847180	Units of auto data proce	3,865,815,687	0.5%	630790	Made up articles (textile) nes, textile dress patterns	517,457,944	0.5%
270112	Bituminous coal, not agglomerated	3,818,585,172	0.5%	380810	Insecticides, packaged for retail sale	496,891,322	0.5%
610910	T-shirts, singlets and other vests, of cotton, knit	3,803,072,474	0.5%	870322	Automobiles, spark ignition engine of 1000-1500 cc	485,405,488	0.5%
420212	Trunks, suit-cases, etc, outer surface plastic/textile	3,786,770,123	0.5%	290243	P-xylene	440,295,598	0.4%
		242,129,354,627	31.8%			47,335,551,833	45.8%
		761,953,407,171	100.0%			103,404,167,142	100.0%

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Table 7b. Top 25 Imports at HS 6-digit Level

China				India			
854213	Metal oxide semiconducto	56,903,343,488	8.6%	270900	Petroleum oils, oils from bituminous minerals, crude	39,100,879,428	26.1%
270900	Petroleum oils, oils from bituminous minerals, crude	47,722,764,303	7.2%	710231	Diamonds (jewellery) unworked or simply sawn, clea	6,285,073,662	4.2%
901380	Optical devices, appliances and instruments, nes	27,678,967,339	4.2%	710813	Gold, semi-manufactured forms, non-monetary	6,097,314,942	4.1%
854230	Monolithic integrated ci	17,427,468,708	2.6%	271000	Petroleum oils&oils obta	5,036,679,636	3.4%
852990	Parts for radio/tv transmit/receive equipment, nes	16,240,174,486	2.5%	710812	Gold in unwrought forms non-monetary	4,776,182,661	3.2%
260111	Iron ore, concentrate, not iron pyrites,unagglomerate	15,954,914,099	2.4%	880230	Fixed wing aircraft, unladen weight 2,000-15,000 kg	4,295,741,331	2.9%
847330	Parts and accessories of data processing equipmen	15,681,705,191	2.4%	852520	Transmit-receive apparatus for radio, TV, etc.	3,736,487,132	2.5%
847170	Storage units	11,419,371,176	1.7%	270119	Coal except anthracite or bituminous, not agglomerate	3,350,418,121	2.2%
271000	Petroleum oils&oils obta	10,425,542,919	1.6%	710239	Diamonds (jewellery) worked but not mounted or set	2,704,026,764	1.8%
120100	Soya beans	7,778,317,407	1.2%	999999	Commodities not specified according to kind	1,420,160,862	0.9%
854240	Hybrid integrated circui	6,681,205,437	1.0%	847330	Parts and accessories of data processing equipmen	1,371,810,031	0.9%
853400	Electronic printed circuits	6,570,721,571	1.0%	260300	Copper ores and concentrates	1,178,812,351	0.8%
847989	Machines and mechanical appliances nes	6,565,699,607	1.0%	280920	Phosphoric acid and polyphosphoric acids	1,120,543,271	0.7%
880240	Fixed wing aircraft, unladen weight > 15,000 kg	5,555,254,350	0.8%	271113	Butanes, liquefied	1,046,329,054	0.7%
291736	Terephthalic acid, its salts	5,214,987,230	0.8%	720449	Ferrous waste or scrap, nes	1,030,457,838	0.7%
740311	Copper cathodes and sections of cathodes unwroug	4,312,026,244	0.7%	150710	Soya-bean oil crude, whether or not degummed	859,068,699	0.6%
260300	Copper ores and concentrates	3,720,781,257	0.6%	151110	Palm oil, crude	825,285,028	0.6%
290531	Ethylene glycol (ethanediol)	3,528,377,364	0.5%	310420	Potassium chloride, in packs >10 kg	789,574,975	0.5%
520100	Cotton, not carded or combed	3,191,112,920	0.5%	890120	Tankers	758,098,410	0.5%
740400	Copper/copper alloy waste or scrap	3,179,867,592	0.5%	271111	Natural gas, liquefied	727,664,072	0.5%
852290	Parts and accessories of recorders except cartridge	3,160,756,294	0.5%	720890	Hot rolled i/nas, width >600mm, nes	707,746,320	0.5%
390210	Polypropylene in primary forms	3,015,509,615	0.5%	852491	Recorded media for ot/so	687,029,849	0.5%
290250	Styrene	2,986,945,412	0.5%	851750	Apparatus for carrier-cu	684,330,988	0.5%
901390	Parts and accessories of optical appliances nes	2,837,622,401	0.4%	880330	Aircraft parts nes	652,218,182	0.4%
850780	Electric accumulators, nes	2,776,275,407	0.4%	890190	Cargo vessels other than tanker or refrigerated	592,892,741	0.4%
281820	Aluminium oxide, except artificial corundum	2,594,740,926	0.4%	870899	Motor vehicle parts nes	575,498,468	0.4%
		293,124,452,743	44.4%			90,410,324,816	60.4%
		659,952,762,119	100.0%			149,749,965,603	100.0%

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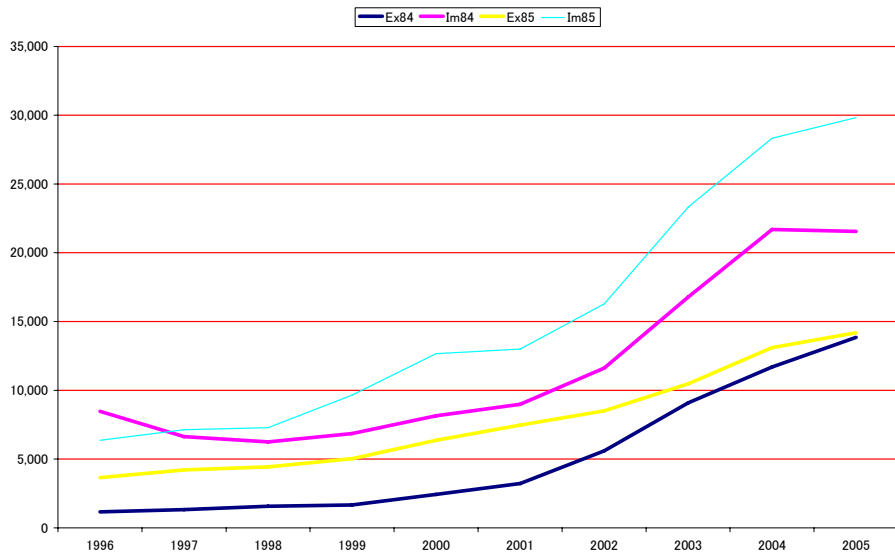


Figure 3. Trades of HS84 and HS85: China

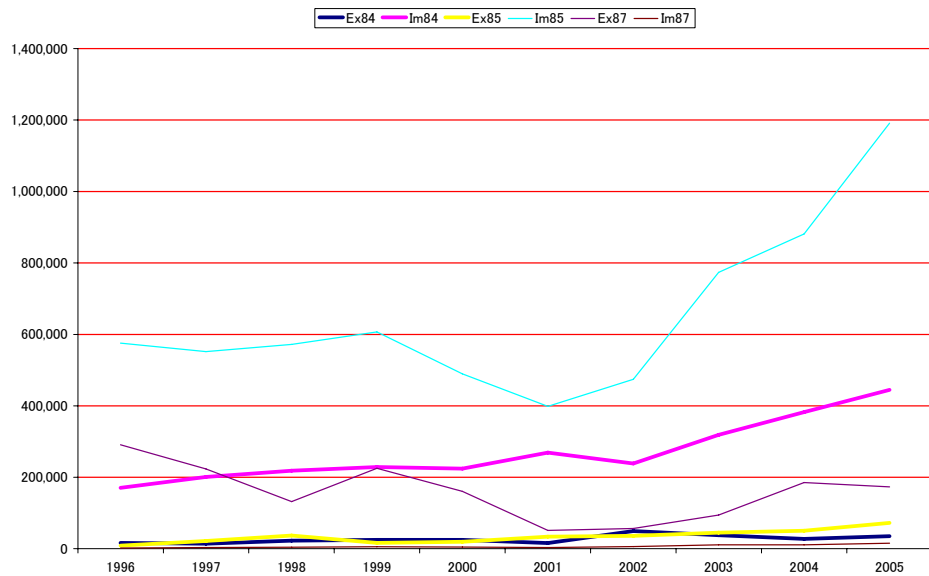


Figure 4. Trades of HS84, HS85, and HS87: India

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Table 8. Major Players of India's Trade: 2005

	HS84 Exports		HS85 Exports		HS87 Exports		HS84 Imports		HS85 Imports		HS87 Imports	
China	127,594	3.0%	51,187	1.8%	12,518	0.4%	2,170,824	15.5%	2,784,895	23.3%	86,999	8.5%
China, Hong Kong SA	17,562	0.4%	178,336	6.4%	2,404	0.1%	153,388	1.1%	373,056	3.1%	184	0.0%
Indonesia	45,515	1.1%	20,224	0.7%	18,755	0.6%	77,004	0.6%	90,389	0.8%	6,874	0.7%
Japan	72,069	1.7%	35,056	1.3%	15,305	0.5%	1,191,424	8.5%	444,761	3.7%	173,081	16.9%
Malaysia	56,557	1.3%	49,205	1.8%	109,350	3.3%	514,259	3.7%	287,514	2.4%	3,066	0.3%
Philippines	19,348	0.5%	9,754	0.4%	15,873	0.5%	117,079	0.8%	27,627	0.2%	1,770	0.2%
Rep. of Korea	40,517	1.0%	21,800	0.8%	51,412	1.6%	642,308	4.6%	1,870,368	15.7%	282,579	27.5%
Singapore	152,417	3.6%	163,258	5.9%	37,178	1.1%	1,018,757	7.3%	659,995	5.5%	7,241	0.7%
Thailand	54,630	1.3%	16,220	0.6%	48,966	1.5%	267,233	1.9%	230,694	1.9%	51,115	5.0%
USA	872,770	20.8%	477,495	17.2%	411,932	12.5%	1,473,138	10.5%	1,176,019	9.8%	44,545	4.3%
World	4,203,641	100.0%	2,778,184	100.0%	3,305,937	100.0%	13,970,267	100.0%	11,946,076	100.0%	1,025,736	100.0%
10 countries		34.7%		36.8%		21.9%		54.6%		66.5%		64.1%
J+S+T		6.6%		7.7%		3.1%		17.7%		11.2%		22.6%

Sources: UN Com-Trade

Note: J+S+T means Japan+Singapore+Thailand

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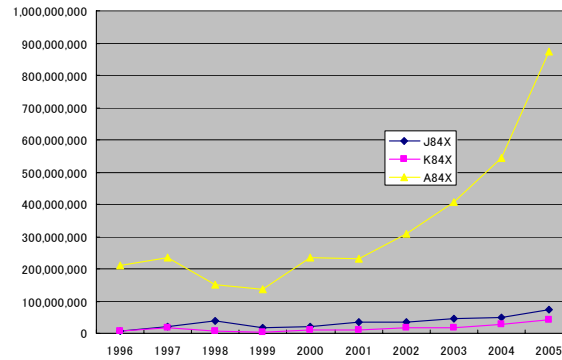
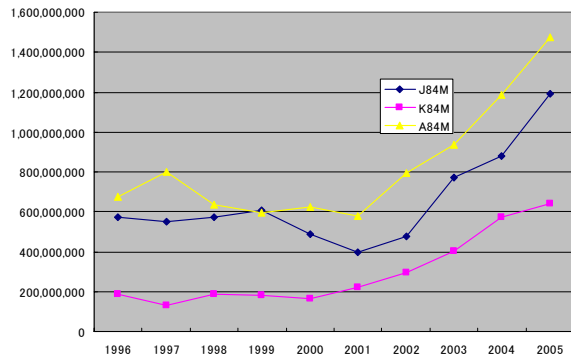
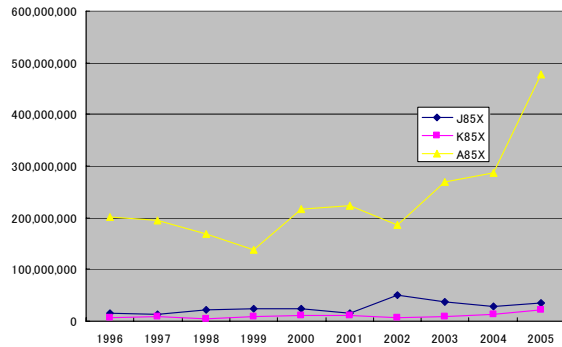
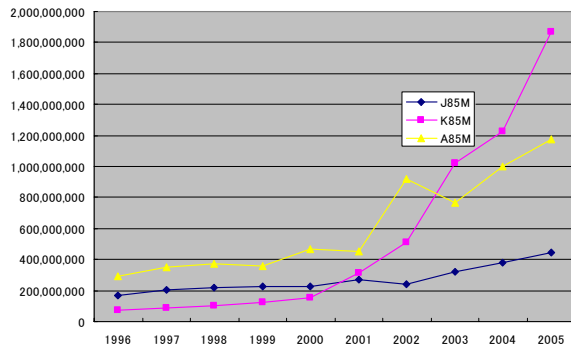
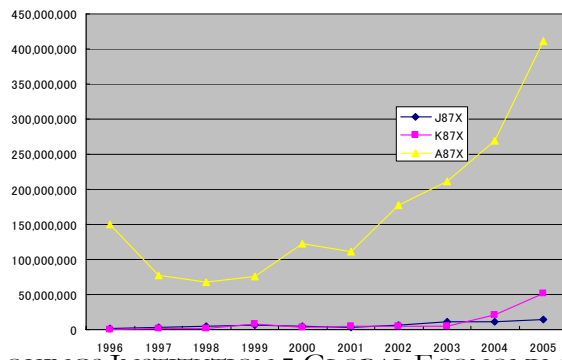
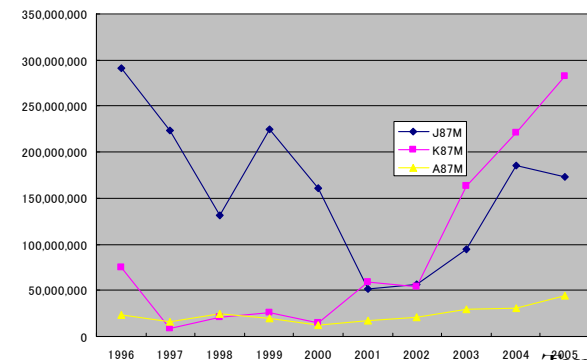


Figure 5.

HS84, Imports and Exports: India vs Japan, Korea, and USA



HS85, Imports and Exports: India vs Japan, Korea, and USA



HS87, Imports and Exports: India vs Japan, Korea, and USA

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Table 9. Price Indexes for HS 84, 85, 87: Japan, Korea, and the U.S.

	Japan	Korea	USA
HS-84 Nuclear reactors, boilers, machinery, etc	0.8940	1.4155	0.9577
HS-85 Electrical, electronic equipment	0.9413	0.9710	0.6318
HS-87 Vehicles other than railway, tramway	1.3893	0.8758	2.5410

Source: Calculated based upon UN-Comtrade Data of HS 6 digit classification

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Table 10. Singapore and Thailand Connection

Rep. Country	Partner	HS Code		Exports	Imports	IIT	Trade Share
Singapore	World	H1-85	Electrical, electronic equipment	86,093,277	68,915,428	0.889	36%
Singapore	World	H1-84	Nuclear reactors, boilers, machinery, etc	46,034,726	35,174,554	0.866	19%
Singapore	World	H1-27	Mineral fuels, oils, distillation products, etc	28,010,239	35,565,877	0.881	15%
Singapore	World	H1-29	Organic chemicals	12,669,772	4,183,464	0.496	4%
Singapore	World	H1-90	Optical, photo, technical, medical, etc apparatus	6,029,490	6,661,128	0.950	3%
Singapore	Japan	H1-85	Electrical, electronic equipment	5,759,148	7,654,655	0.859	42%
Singapore	Japan	H1-84	Nuclear reactors, boilers, machinery, etc	2,445,095	4,327,052	0.722	21%
Singapore	Japan	H1-87	Vehicles other than railway, tramway	58,394	1,434,605	0.078	5%
Singapore	Japan	H1-90	Optical, photo, technical, medical, etc apparatus	421,911	1,045,149	0.575	5%
Singapore	Japan	H1-27	Mineral fuels, oils, distillation products, etc	1,164,098	76,089	0.123	4%
Singapore	India	H1-84	Nuclear reactors, boilers, machinery, etc	1,910,225	133,715	0.131	21%
Singapore	India	H1-27	Mineral fuels, oils, distillation products, etc	744,814	1,082,053	0.815	18%
Singapore	India	H1-71	Pearls, precious stones, metals, coins, etc	22,758	1,786,695	0.025	18%
Singapore	India	H1-85	Electrical, electronic equipment	1,088,109	100,407	0.169	12%
Singapore	India	H1-29	Organic chemicals	482,379	137,517	0.444	6%
Thailand	World	H1-85	Electrical, electronic equipment	20,673,441	23,402,888	0.938	19%
Thailand	World	H1-84	Nuclear reactors, boilers, machinery, etc	19,345,488	17,020,108	0.936	16%
Thailand	World	H1-27	Mineral fuels, oils, distillation products, etc	4,768,037	20,942,851	0.371	11%
Thailand	World	H1-87	Vehicles other than railway, tramway	8,152,289	4,035,743	0.662	5%
Thailand	World	H1-39	Plastics and articles thereof	5,991,314	4,238,680	0.829	4%
Thailand	Japan	H1-85	Electrical, electronic equipment	4,086,224	6,688,906	0.758	26%
Thailand	Japan	H1-84	Nuclear reactors, boilers, machinery, etc	2,251,907	5,358,903	0.592	19%
Thailand	Japan	H1-72	Iron and steel	42,325	3,210,249	0.026	8%
Thailand	Japan	H1-87	Vehicles other than railway, tramway	418,718	2,525,796	0.284	7%
Thailand	Japan	H1-39	Plastics and articles thereof	526,780	1,429,678	0.539	5%
Thailand	India	H1-71	Pearls, precious stones, metals, coins, etc	40,271	343,977	0.210	14%
Thailand	India	H1-84	Nuclear reactors, boilers, machinery, etc	270,145	72,442	0.423	12%
Thailand	India	H1-27	Mineral fuels, oils, distillation products, etc	173,189	121,741	0.826	11%
Thailand	India	H1-39	Plastics and articles thereof	225,489	19,130	0.156	9%
Thailand	India	H1-85	Electrical, electronic equipment	214,969	26,909	0.223	9%

Source: UN-Comtrade

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Table 11. FDI Developments: India and China, 2005

	India		China		India		China		India		China	
	number	value	number	value	number	value	number	value	number	value	number	value
food	3	18	266	1,287	2%	1%	6%	5%	1%	1%	5%	4%
textile	14	33	1,360	2,344	9%	2%	32%	9%	7%	1%	26%	7%
woods/pulp	0	0	73	355	0%	0%	2%	1%	0%	0%	1%	1%
chemical	12	323	300	1,954	8%	15%	7%	8%	6%	12%	6%	6%
iron, non-ferrous	18	55	336	2,167	12%	2%	8%	9%	9%	2%	6%	7%
machinery	11	123	357	3,118	7%	6%	8%	12%	5%	4%	7%	9%
electricity	28	253	591	5,958	19%	11%	14%	24%	14%	9%	11%	18%
transportation machinery	41	1,053	343	4,791	27%	47%	8%	19%	20%	38%	7%	14%
others	24	357	630	3,258	16%	16%	15%	13%	12%	13%	12%	10%
manufacturing	151	2,216	4,256	25,231	100%	100%	100%	100%	74%	79%	82%	76%
agriculture/forestry	1	2	21	37	2%	1%	2%	1%	0%	0%	0%	0%
fishery	4	7	32	68	8%	2%	4%	1%	2%	0%	1%	0%
mining	3	38	18	60	6%	10%	2%	1%	1%	1%	0%	0%
construction	0	3	55	606	0%	1%	6%	9%	0%	0%	1%	2%
commerce	17	86	236	1,693	35%	23%	26%	24%	8%	3%	5%	5%
finance/insurance	7	102	24	645	15%	27%	3%	9%	3%	4%	0%	2%
services	14	125	335	2,643	29%	33%	37%	37%	7%	4%	6%	8%
transportation machinery	2	10	89	295	4%	3%	10%	4%	1%	0%	2%	1%
real estate	0	0	86	1,022	0%	0%	10%	14%	0%	0%	2%	3%
others	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%
non-manufacturing	48	373	896	7,070	100%	100%	100%	100%	24%	13%	17%	21%
branch	5	213	48	969	5	213	48	969	2%	8%	1%	3%
Total	204	2,802	5,200	33,270	204	2,802	5,200	33,270	100%	100%	100%	100%

Source: Ministry of Finance, Japan

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Table 12. Objectives of Japanese FDI in India

Objectives	All Industries	Chemistry	Machinery	Automobile parts	Textile	Iron	Electronics	Transportation Equipments	Ceramics
Good	39%	65%	35%	38%	32%	23%	34%	40%	0%
Fair	6%	8%	7%	5%	16%	26%	3%	1%	9%
Bad	14%	5%	19%	18%	10%	26%	3%	8%	27%
Securing resources	7%	52%	0%	0%	42%	0%	0%	0%	0%
cheap labor	18%	20%	28%	16%	39%	28%	24%	1%	11%
local government policy	19%	20%	25%	9%	35%	92%	26%	32%	4%
production network	38%	42%	35%	51%	55%	8%	35%	32%	53%
distribution network	9%	3%	21%	5%	3%	5%	18%	15%	2%
local market	60%	47%	82%	60%	10%	72%	64%	86%	56%
exports to the third market	5%	5%	3%	3%	3%	0%	1%	11%	27%
imports back to Japan	3%	2%	10%	2%	32%	0%	0%	0%	4%
following other companies	13%	1%	12%	26%	0%	3%	3%	33%	0%
financial and exchange rate hedge	1%	0%	0%	0%	3%	0%	2%	0%	0%
royalty and information gathering	9%	8%	10%	6%	19%	0%	5%	16%	0%
development and planning for products to export	2%	12%	0%	0%	0%	0%	0%	0%	0%
new business	2%	2%	2%	2%	0%	3%	2%	3%	0%
enhancing regional headquarter capacity	2%	0%	0%	3%	0%	0%	1%	0%	0%
trade frictions	1%	0%	0%	0%	0%	0%	1%	1%	0%
others	3%	2%	0%	1%	10%	0%	0%	0%	0%
Number of Firms	992	98	99	289	31	39	132	73	45

Source: Calculated based upon Kobe University RIEB Database

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Table 13. IT Related Activities in India

USD billion	FY 2004	FY 2005	FY 2006	FY 2007E
IT Services	10.4	13.5	17.8	23.7
-Exports	7.3	10.0	13.3	18.1
-Domestic	3.1	3.5	4.5	5.6
ITES-BPO	3.4	5.2	7.2	9.5
-Exports	3.1	4.6	6.3	8.3
-Domestic	0.3	0.6	0.9	1.2
Engineering Services and R&D, Software Products	2.9	3.9	5.3	6.5
-Exports	2.5	3.1	4.0	4.9
-Domestic	0.4	0.8	1.3	1.6
Total Software and Services Revenues	16.7	22.6	30.3	39.7
<i>Of which, exports are</i>	12.9	17.7	23.6	31.3
Hardware	5.0	5.9	7.0	8.2
Total IT Industry (including Hardware)	21.6	28.4	37.4	47.8

Source: NASSCOM

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Table 14. Balance of Payments: Merchandize vs. Services, 2005 mil. US\$

items	India*		US		Japan		China	
export of goods, trade statistics	59,338	100.0%	905,978	100.0%	558,696	100.0%	344,229	100.0%
services: cre	23,397	39.4%	376,788	41.6%	110,210	19.7%	74,404	21.6%
transportation: cre	3,062	5.2%	63,175	7.0%	35,752	6.4%	15,427	4.5%
travel: cre	3,887	6.6%	102,014	11.3%	12,430	2.2%	29,296	8.5%
communication services: cre	1,066	1.8%	5,033	0.6%	395	0.1%	485	0.1%
construction services: cre	284	0.5%	4,139	0.5%	7,224	1.3%	2,593	0.8%
insurance services: cre	409	0.7%	6,831	0.8%	873	0.2%	549	0.2%
financial services: cre	392	0.7%	29,281	3.2%	5,044	0.9%	145	0.0%
computer and info services: cre	11,366	19.2%	6,039	0.7%	1,126	0.2%	1,840	0.5%
royalties and license fees: cre	25	0.0%	57,410	6.3%	17,655	3.2%	157	0.0%
other business services: cre	2,601	4.4%	73,038	8.1%	27,279	4.9%	23,283	6.8%
personal, cultural and rec: cre	0	0.0%	7,060	0.8%	97	0.0%	134	0.0%
government services nie: cre	305	0.5%	22,768	2.5%	2,334	0.4%	495	0.1%

* 2003

Source: IMF, Balance of Payments Statistics

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Table 15. Destinations of India's IT Exports

	FY03	FY04	FY05	FY06
Americas	69.1%	69.4%	68.3%	67.2%
Europe	22.2%	22.6%	23.1%	25.1%
Rest of the World	8.7%	8.0%	8.6%	7.7%
NASSCOM				

Table 16. Foreigners Studying in Japanese Universities: 2005

	Undergraduate	Graduate	Total
China	47,654	17,262	64,916
India	108	256	364
Bangladesh	129	799	928
Sri Lanka	213	245	458
Nepal	124	238	362
Total	69,480	31,282	100,762

Source: Ministry of Education