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Contents

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Comparative Perspectives on India and China

INDIA AND CHINA: PAST TRADE LIBERALIZATION AND FUTURE CHALLENGES

India and China are widely seen as changing the face of the global economy. Assuming that neither country's currency depreciates in a major way and that inflation is higher than in the United States, Panagariya says their combined GDP could grow at a 10 percent rate in constant dollars, to reach $7.8 trillion in 2015 (at 2005 prices). This would compare to GDP of $18.5 trillion for the United States, if it sustains a real growth rate of 4 percent, and it would represent a dramatic change in the composition of world income.

Panagariya analyzes the role of outward-oriented trade and foreign investment policies in stimulating growth in China and India. While both countries achieved rapid growth under progressive opening up, the outcome was less dramatic for India. After comparing the changing policy regimes in the two countries, he attributes the Indian economy's more muted response to opening up to its slower growth in the manufacturing sector, which in turn resulted from domestic-policy constraints, most notably labor-market inflexibilities and infrastructure bottlenecks. Turning to consider the future course of trade policy, he argues that the recent attention paid to preferential trade area agreements is largely a diversion. Both India and China stand to benefit their populations and the world economy more by focusing on national and multilateral tracks of trade and investment liberalization. In particular, he asserts, India must consider extending its successful liberalization of industrial goods to the agricultural sector.

ACCOUNTING FOR GROWTH: COMPARING CHINA AND INDIA

Since 1980, India and China have achieved remarkable rates of economic growth and their continued growth is likely to dominate the course of the world economy for the next several decades. Bosworth and Collins examine the sources of growth in the two economies through a set of growth accounts. Growth accounts attribute changes in output to the changes in capital and labor inputs and to a residual efficiency factor, called total factor productivity. They constructed updated accounts for India and China for 1978 to 2004 incorporating recent data revisions and disaggregating primary, industry, and services sectors

Their results confirm many themes on the growth of India and China and produce new findings as well. While China's growth has been extraordinary, India's has matched the industrializing economies of East Asia. China's growth concentrated in industry and India's in various service-producing industries. China's growth is spread across all three sectors, with growth of services actually exceeding that in India. Increases in capital per worker and TFP both contributed strongly in China. Comparing India to China highlights its weak performance in manufacturing not its strength in services.

Based on supply-side factors, Bosworth and Collins believe that both economies should be able to sustain their growth, depending upon continued integration with the global economy, including trade in goods and services, and investment flows.

INDIA AND CHINA: PAST TRADE LIBERALIZATION AND FUTURE CHALLENGES

Arvind Panagariya

1. INTRODUCTION[1]

India and China are widely seen as changing the face of the global economy. Depending on which estimates are used, China has been growing at rates between 8 and 10 percent per annum since the early 1980s. As conventionally measured, India has been growing at 6 percent since the late 1980s and has recently shifted up to 8 percent. In current dollars, India grew 16.3 percent during the three years ending with the fiscal year 2005-06.[2] Allowing for 3 percent inflation in the United States, this implies a growth rate of 13.3 percent in real dollars.

The GDP of China in current dollars was $2,228 billion and that of India $785 billion in 2005. Together, the two countries had a GDP of $3 trillion at the market exchange rate.[3] Given that the currency of neither country is likely to depreciate in a major way in the forthcoming years and their inflation rates are likely to exceed the U.S. rate, we can scarcely rule out a 10 percent per annum growth in constant dollars in their combined GDP. Under this assumption, the two countries would reach a combined GDP of $7.8 trillion (at 2005 prices) in ten years. If the United States manages to sustain a growth rate of 4 percent in real terms over the next ten years, its GDP will rise from $12.5 trillion in 2005 to $18.5 trillion a decade later. Such a change will represent a dramatic shift in the composition of the world income. The likely shift is perhaps even bigger since the prospects of U.S. growth at 4 percent per year for ten years are low.

It is against this background that I study the role of outward-oriented trade and foreign investment policies in stimulating growth in China and India. An important difference between the two countries I stress in the paper is that while both India and China have achieved sustained rapid economic growth under progressive opening up, the response of trade and foreign investment in the former has been much more muted. I hypothesize that this has been largely the result of slower growth of manufacturing in India, which is in turn the result of a set of domestic-policy constraints, most notably labor-market inflexibilities and infrastructure bottlenecks.

In the paper, I also discuss the future course of trade policy reform, especially in India. Here I argue that the recent attention paid to preferential trade area agreements is largely a diversion and that both India and China stand to contribute more to the well-being of their populations and to the world economy by devoting greater attention to national and multilateral tracks of trade liberalization. In particular, India must take a cue from its recent successful liberalization experience in the area of industrial goods and give greater consideration to liberalization in agriculture.

The remainder of the paper is divided into six sections. In Section 2, I describe some dramatic developments in the Indian economy in the last two years and argue that the trend growth rate in India has now shifted from 6 percent to 8 percent. In Section 3, I review some of the key developments in the flows of exports, imports

[1] The author gratefully acknowledges financial support from Tokyo Club Foundation for Global Studies in writing this paper.

[2] India's fiscal year runs from April 1 to March 31. Therefore, 2005-06 refers to the period beginning April 1, 2005 and ending March 31, 2006.

[3] Unlike many authors, I choose the measure of GDP at the market exchange rate rather than at Purchasing Power Parity (PPP) because it is better if we are judging the impact of one economy on the global economy (rather than on the living standard of its citizenry).

and foreign investment in India and compare them to China. In Section 4, I consider the relationship of these developments to the policy changes undertaken by the two countries. In Section 5, I consider the trade policy changes facing India and China with special attention to preferential trade area arrangements. In Section 6, I conclude the paper.

2. RECENT PERFORMANCE

After growing at the modest rate of 3.6 percent per annum from 1951-52 to 1980-81, the Indian economy experienced an upward shift in the growth rate to 4.8 percent between 1981-82 and 1987-88. In the late 1980s, the growth rate shifted up further with the average annual growth reaching 6.1 percent between 1988-89 and 2004-05. This rate is substantially below that achieved by China, which has grown between 9 and 10 percent in the last two and half decades, but it is still impressive when evaluated against India's own past performance and that of virtually all other countries outside of Asia.

Indeed, the developments during the last three years strongly suggest that India has now shifted to an even higher growth rate of 8 percent, which is not far from the rates achieved by many fast-growing East Asian economies at their peak. In principle, this shift may merely represent an unusually strong upswing in the business cycle, propelled by a very strong performance of the world economy. But the weight of the evidence favors the hypothesis that the current spurt represents a shift in the trend growth rate. Thus, consider the following facts documented in detail in Panagariya (2006a):

- In current dollars, the GDP grew 16.3 percent per annum during 2003-06.[4] Allowing for 3 percent inflation in the United States, this represents a 13.3 percent annual growth in real dollars. Such a rate is entirely unprecedented.
- Exports have grown dramatically during this period. For example, merchandise exports in 1990-91 were $18.1 billion. In 2005-06, growth in exports over exports in 2004-05 exceeded this amount. Put another way, it took until 1999-00 to double the 1990-91 level of exports; in the recent period, it took just three years for exports to double from $52.7 billion to $102.7 billion.
- Services exports have doubled in just two years: from $26.9 billion in 2003-04 to $60.6 billion in 2005-06.
- India's share in world merchandise exports grew from 0.5 percent in 1990-91 to 0.7 percent in 1999-00 and to 1.0 percent in 2005-06. In services exports, India's share has grown to a respectable 2.5 percent in 2005-06.

These changes have greatly increased the integration of India into the world economy.

- Exports of goods and services as a proportion of GDP, which grew rather gradually from 7.2 percent in 1990-91 to 11.6 percent in 1999-00, shot up to 20.5 percent in 2005-06. The proportion of total trade (exports plus imports of goods and services) to the GDP rose from 15.9 percent in 1990-91 to 25.2 percent in 1999-00 and then to 43.1 percent in 2005-06.
- Total foreign investment has risen from $6 billion in 2002-03 to $20.2 billion in 2005-06 although the growth in direct foreign investment (DFI) from $5 billion to $7.8 billion over the same period has been less impressive.
- Remittances have risen from $17.2 billion in 2002-03 to $24.6 billion in 2005-06. If we add remittances and foreign investment, the inflow of foreign resources, at $44.8 billion, begins to look comparable to the DFI into China.
- In 1990-91, India had approximately 5 million phone lines in total. Currently, India is adding more than 5 million phone lines per month. By July 31, 2006, India had a total of 185 million phone lines.
- The total turnover of the automobile sector rose from $12.3 billion in 2002-03 to $19 billion in 2004-05. Sales of passenger vehicles have risen from 707,000 in 2002-03 to 1.14 million in 2005-06.

Three factors support the view that this growth is likely to be sustained rather than prove a temporary business cycle effect. First, the last three years have seen India integrate into the world economy as in no prior period. Total trade in goods and services reached 43 percent of GDP in the year 2005-06. Even the merchandise trade-to-GDP ratio was a respectable 31 percent this past fiscal year. Likewise, remittances and foreign investment together add to almost $45 billion. These developments have changed the initial conditions for future growth for good.

Second, given the large stock of foreign exchange reserves of $165 billion on August 11, 2006, prospects

[4] Unless otherwise stated, a period such as 2003-06 represents the years from 2003-04 to 2005-06 with endpoint years included.

of a large depreciation of the rupee are low. This means the expansion in the dollar value of the GDP achieved will sustain. Finally, during India's last major spurt in growth, between 1993-94 and 1996-97, GDP rose a little more than 7 percent per annum. But the growth rate plummeted to 4.8 percent in 1997-98. The current phase has so far shown no sign of slowing down. According to all available projections, despite natural calamities and therefore very low agricultural growth, GDP growth in 2006-07 is expected to hit the 8 percent mark. In the debate on growth between optimists (e.g., Kelkar 2004) and skeptics (e.g., Acharya 2004), these factors persuade me to come in on the side of the former.[5]

This said, it is important to note that there remains much vulnerability in the Indian growth process, mandating caution against an overly optimistic view at this point. Some of the vulnerabilities reflect themselves in the patterns of trade that I shall discuss in the next section. Presently, let me point out that, contrary to many overly optimistic assessments, the evidence so far does not support the view that India will even catch up with, let alone significantly surpass, the per-capita income of China in the next two decades. In terms of virtually all indicators, India is likely to remain behind China in the next two decades.

To get an idea of where China stands, consider the following facts:

- In 1982, China's GDP was approximately the same as India's, but by 2004 it was 2.8 times that of the latter.
- Per-capita income in China rose from 0.9 times that in India in 1982 to 2.5 times in 2004.
- Trade in goods and services as a proportion of GDP in China rose from 21 percent in 1982 to 65 percent in 2004.
- China's share in world goods and services exports rose from 2.6 percent in 1994 to 5.8 percent in 2004.
- Considering only world merchandise exports, China's share rose from 2.8 percent in 1984 to 6.5 percent in 2004.
- In 2004 and the preceding two years, the increase in China's merchandise exports was larger than India's absolute level of exports. This situation may have changed in the last two years but I do not have the data to verify it.

3. THE PATTERN OF TRADE

I have recently compared the patterns of exports and imports of India and China in detail (Panagariya 2006b). This comparison offers some useful clues to the question why, despite considerable opening up, trade and GDP have grown much more slowly in India than in China and why India continues to lag far behind China as a recipient of direct foreign investment (DFI).

The key conclusion that emerges from the trade pattern is that India has been largely unsuccessful in exploiting its comparative advantage in unskilled-labor-intensive goods. Based on its vast abundance of unskilled labor relative to capital as well as to skilled labor, we would expect India to export unskilled-labor-intensive goods and import capital and skilled-labor-intensive goods. But the data reveal the opposite: in world markets, India does better in capital and skilled-labor-intensive products than in unskilled-labor-intensive products. This "perverse" pattern of trade limits India's ability to penetrate the world markets in a big way and therefore also its ability to effectively exploit its vast pool of unskilled labor. Unsurprisingly, India's exports have grown rather slowly except in the last three years.

In contrast, following the initial opening up in the late nineteen seventies and early eighties, China could quickly reorient its export basket in favor of unskilled-labor-intensive products. This reorientation was a key factor behind the substantial presence in the world markets that it acquired within a matter of a decade. Over time, as its labor force became more skilled, China transitioned into products using semi-skilled labor. The evidence presented below will demonstrate that the facility and rapidity with which China has shifted into these new products is breathtaking.

Merchandise Exports

To see the differences between India and China in the area of foreign trade, consider first the pattern of exports. For India and China, table 1 presents all products at the Standard International Trade Classification (SITC) two-digit level that accounted for two percent or more of their respective exports on the average during 2001-04. For each product, the table provides the average share in exports during three adjacent time periods: 1984-90, 1991-00, and 2001-04.

[5] In an article entitled "My Millennium Wish: Double Digit Growth" published in January 2000, (Panagariya 2000) I concluded that though the reforms were getting into rough territory, double-digit growth was "within the grasp of the country."

The key point to note is that among the top six exports of India, the only product that is unambiguously unskilled-labor-intensive is apparel. In addition, some of the products in the miscellaneous manufactures category may be unskilled-labor-intensive. Of the remaining four items, three (textiles; iron and steel; and petroleum) are capital-intensive and one (non-metallic mineral manufactures, consisting principally of gems and jewelry) is semi-skilled-labor- intensive. Unskilled-labor-intensive products, such as apparel, toys, footwear, and other light manufactures, that China exported in large volume in the 1980s and 1990s have not done well in India. In contrast, products such as apparel, toys, footwear, travel goods, handbags, and sporting goods played an important role in the growth of exports from China during the 1980s and 1990s. In the 2000s, as skill levels in China rose, these products went into the background, with office machinery and automatic data processing machinery; telecommunications and sound recording equipment; and electrical machinery, apparatus, and appliances gaining in importance.

Table 1 also suggests much greater export dynamism in China than in India. Non-metallic mineral manufactures have continued to be the most important export from India since the mid-1980s. Based on factor endowments, apparel should have expanded far more rapidly and become the most important export from India as happened in China in the 1990s. But the share of apparel in India's total exports declined in the 2000s. Instead, such capital-intensive products as petroleum and iron and steel have gained in share. In contrast, as China's labor force has become more skilled, it has shifted away from textiles and, to some degree, even from apparel. Instead, office machinery and automatic data processing machinery; telecommunications and sound recording equipment; and electrical machinery, apparatus, and appliances have gained in importance.

Table 1: Export shares for two-digit SITC level products with shares exceeding 2 percent during 2001-04

		Export share (%)		
SITC code		1984-90	1991-00	2001-04
India				
66	Non-metallic mineral manufactures, n.e.s.	16.4	15.9	14.9
65	Textile yarn, fabrics, made-up articles, n.e.s	12.0	14.0	10.6
84	Articles of apparel and clothing accessories	11.9	13.6	10.4
33	Petroleum, petroleum products and related materials	4.7	1.7	6.3
89	Miscellaneous manufactured articles	2.0	3.7	5.2
67	Iron and steel	1.1	3.1	5.0
43	Animal or vegetable fats and oils, processed	0.0	0.1	3.6
53	Dyeing, tanning and coloring material	1.1	1.3	3.1
28	Metalliferous ores and metal scrap	4.8	1.9	3.0
69	Manufactures of metal, n.e.s.	1.7	2.2	2.7
04	Cereals and cereal preparations	1.9	2.8	2.7
78	Road vehicles (incl. air cushion vehicles)	1.6	2.3	2.4
03	Fish, crustaceans, mollusks and aquatic invertebrates, and preparations thereof	3.2	3.3	2.2
77	Electrical machinery, apparatus & appliances	1.5	1.5	2.1
China				
75	Office machines & automatic data-processing machines	0.4	4.8	12.9
84	Articles of apparel and clothing accessories	14.3	16.8	11.8
76	Telecommunications & sound recording and reproducing apparatus and equipment	2.9	6.1	10.4
77	Electrical machinery, apparatus & appliances	1.2	7.2	10.1
89	Miscellaneous manufactured articles	4.9	9.3	7.3
65	Textile yarn, fabrics, made-up articles, n.e.s.	13.8	8.1	6.1
69	Manufactures of metal, n.e.s.	2.0	3.1	3.4
85	Footwear	2.0	4.4	2.9
74	General industrial machinery & equipment	0.6	1.4	2.7
78	Road vehicles (incl. air cushion vehicles)	4.0	2.1	2.6
82	Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings	0.5	1.4	2.1

Source: UN Commodity Trade Statistics

Table 2 reports the composition of India's exports for the three most recent years: 2003-04 to 2005-06. Product classification in this table does not fully match that in table 1, so the two tables are not directly comparable. Nevertheless, this table strongly reinforces the picture emerging from table 1. Perhaps most disturbing is the sharp decline in the share of manufacturing exports in

total exports, from 76 percent in 2003-04 to just 70 percent in 2005-06. The product that has taken its place is petroleum, whose share exactly doubled from 5.6 percent to 11.2 percent over the same period. Even within manufacturing, textiles and apparel have suffered greatly, declining from 20 percent in 2003-04 to 15.6 percent in 2005-06. Apparel exports, represented by readymade garments in table 2, have declined from 9.8 percent in 2003-04 to 8.2 percent in 2005-06. On the other hand, engineering goods have risen in share from 19.4 percent to 21 percent despite an overall decline in the share of manufactured products.

Table 2: Composition of India's exports 2003-04 to 2005-06 (percent)

Item	2003-04	2004-05	2005-06P
Primary products	15.5	16.2	16.0
Agriculture and products	11.8	10.1	9.9
Ores and minerals	3.7	6.1	6.0
Manufactured goods	76.0	72.7	69.9
Leather and manufactures	3.4	2.9	2.6
Chemicals and related products	14.8	14.9	14.1
Engineering goods	19.4	20.8	21.0
Iron & steel	3.9	4.7	3.4
Manufacture of metals	3.8	4.1	4.1
Machinery and instruments	4.3	4.5	4.7
Transport equipment	3.1	3.4	4.4
Electronic goods	2.7	2.2	2.1
Others	1.6	2.0	2.3
Textile and textile products	20.0	16.2	15.6
Cotton yarn, fabrics, made-ups, etc.	5.3	4.1	3.8
Natural silk yarn, fabrics, made-ups, etc.	0.6	0.5	0.4
Manmade yarn, fabrics, made-ups, etc.	2.8	2.3	1.9
Manmade staple fiber	0.1	0.1	0.1
Woolen yarn, fabrics, made-ups, etc.	0.1	0.1	0.1
Readymade garments	9.8	7.9	8.2
Jute & jute manufactures	0.4	0.3	0.3
Coir & coir manufactures	0.1	0.1	0.1
Carpets	0.9	0.8	0.8
Gems and jewelry	16.6	16.5	15.1
Handicrafts (excl. handmade carpets)	0.8	0.5	0.4
Other manufactured goods	1.0	1.0	1.1
Petroleum products	5.6	8.4	11.2
Others	2.9	2.7	2.9
Total exports	100	100	100

Source: Directorate General of Commercial Intelligence and Statistics

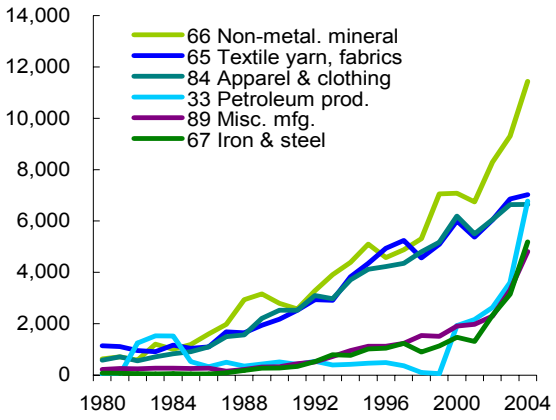
In order to bring out the sharp differences in the performance of Indian and Chinese exports, it is useful to consider the evolution of some major export items. Figures 1 and 2 show the evolution of the top six exports of India and China, respectively, as indicated by their exports in 2004. As I noted earlier, gems and jewelry (non-metallic mineral manufactures) emerged as India's largest export in the mid 1980s and have kept their lead. Textiles and apparel, which have been running neck-to-neck, are a close second and third. With occasional switching, this ranking has been preserved over the last two decades. Among the next three items, petroleum is known to show an erratic pattern. The other two, iron and steel and miscellaneous manufactures, rose from relatively low levels until at least the mid 1990s.

China's exports present a more dramatic picture. In the mid to late 1980s, textiles and apparel, in that order, led the way. Then, apparel began to expand extremely rapidly, becoming China's dominant export in the mid 1990s.[6] But from the mid 1990s, textiles rapidly declined in importance and was replaced by miscellaneous manufactures as the second most important export by the second half of the 1990s. More importantly, three new categories of exports began to takeoff in a major way in the second half of the 1990s: office machinery and automatic data processing machinery; telecommunications and sound-recording equipment; and electrical machinery, apparatus, and appliances. By 2004, these items had become China's dominant exports.

Figures 1 and 2 do not fully bring out the difference between India and China in the scale of exports. It is possible to guess this difference by noting that as we move up the horizontal gridlines, we climb only $2 billion in figure 1 compared to $10 billion in figure 2 and that the gridlines are closer together on the latter graph. But the true difference in magnitude becomes apparent only when we put the exports of the two countries on the same graph. This is done for the top two exports of the two countries in figure 3. Clearly, India and China are in different leagues in so far as merchandise exports are concerned.

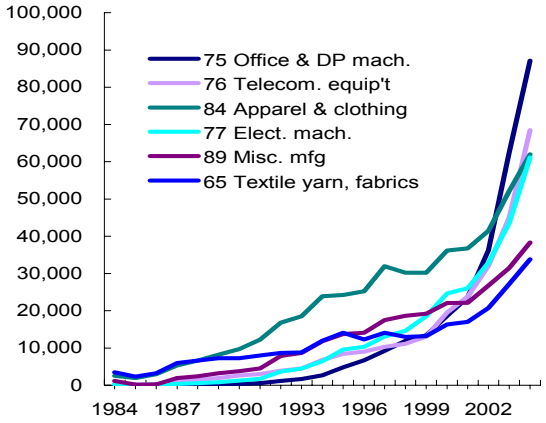
[6] The movements in the export shares in the world markets for textiles and apparel shown in Srinivasan (2006, Table 8) exhibit the much greater dynamism of China's exports relative to India's.

Figure 1: India's top six exports, 1980-2004 ($ millions)



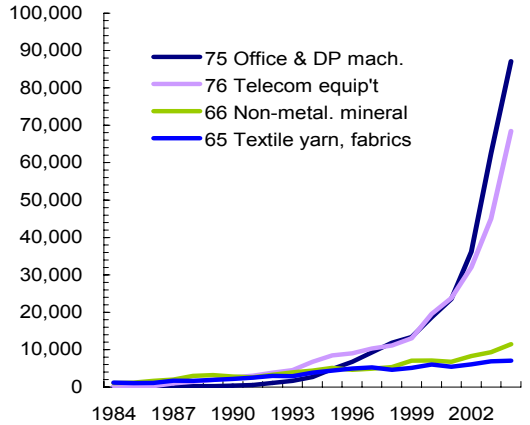
Note: See table 1 for full description of product category by SITC code

Figure 2: China's top six exports, 1984-2004 ($ millions)



Note: See table 1 for full description of product category by SITC code

Figure 3: Top two exports of India and China, 1984-2004 ($ millions)



Note: See table 1 for full description of product category by SITC code

A final dramatic point relating to the differences between India and China in the pattern of merchandise exports is due to Martin (2006). Using six-digit SITC export data for the year 2004, he compiles lists of the two countries' top 25 exports. These 25 items account for 38.4 and 58.4 percent of the total merchandise exports of China and India, respectively. Given the similarity in the factor endowments of India and China, we would predict a large overlap in the top 25 export items of the two countries, but it turns out that, except for one item, their lists are entirely mutually exclusive. And for the only item that appears on both lists, petroleum oils (excluding crude) (SITC 271000), exports and imports are not related to factor endowments as conventionally defined.

Service Exports

A key difference between India and China in the pattern of exports is that services form a much larger proportion of the total exports of India than China. This has resulted from both slower growth of merchandise exports and faster growth of services exports in India than in China. In 2005-06, India's merchandise exports were $102.7 billion and services exports stood at $60.6 billion, or 37 percent of total exports of goods and services. This ratio was only 9.6 percent in China in 2003, the latest year for which data are available, and in that same year it was 28.3 percent in India.

Figure 4 shows the evolution of India's services exports since 1990-91. The upper line shows total services exports and the lower one the category labeled "miscellaneous" in India's balance of payments statistics, a major component of which was software exports beginning the mid 1990s. Two other major services export items are travel and transportation. A key feature of figure 4 is the sharp expansion of services exports in the last three years. From just $20 billion in 2002-03, they have tripled to $60 billion in 2005-06.

Figure 4: India's service exports, ($ billions)

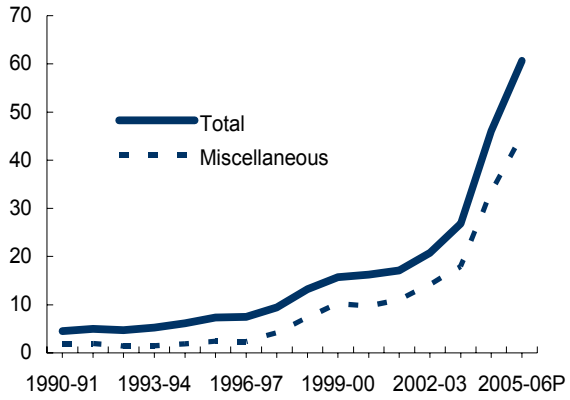


Table 3 offers some details about software exports, which accounted for 39 percent of India's total services exports in 2005-06. The growth rate of total software exports has averaged 31 percent between 2001-02 and 2005-06. If we include the earlier years, the growth rate is even higher. Likewise, the growth rate during only the last three years has averaged 35 percent. If the current growth rate is sustained for another five years, this sector will match the performance of the top two or three merchandise products of China. But there are some doubts as to whether this growth can be sustained. There remain questions regarding the ability of India's higher education system to continue to produce the high-quality graduates required to maintain the current momentum.

Table 3: India's software exports ($ billions)

	IT Services 1	ITES-BPO 2	Software Total 3 = (1 + 2)
1995-96	0.8		0.8
1996-97	1.1		1.1
1997-98	1.8		1.8
1998-99	2.6		2.6
1999-00	3.4	0.6	4.0
2000-01	5.3	0.9	6.2
2001-02	6.2	1.5	7.6
2002-03	7.0	2.5	9.5
2003-04	9.2	3.6	12.8
2004-05	13.1	4.6	17.7
2005-06	17.3	6.3	23.6

Note: ITES stands for Information-technology enabled services and BPO for business-process outsourcing. Source: RBI *Annual Report* (2004, Table 6.5, and 2006, Table 1.71)

Software exports are divided into information technology (IT) and information-technology-enabled services (ITES). The latter are also referred to as Business Process Outsourcing (BPO). Exports of the IT sub-sector currently account for the bulk of total software exports. In the last four years, the IT share has been between 26 and 28 percent. It would seem that ITES have greater scope for expansion than IT, but at least in the last four years, the two components have grown at approximately the same pace.

Merchandise Imports

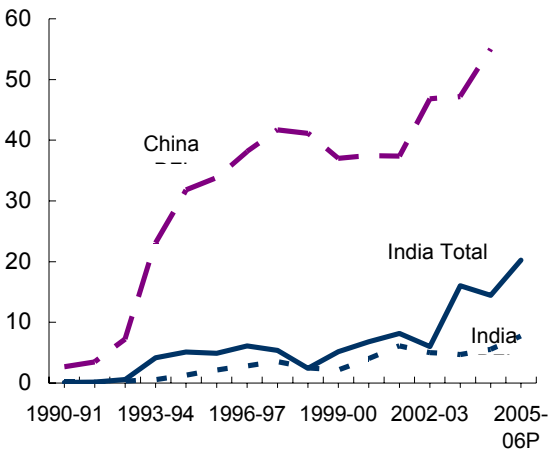
Before I turn to direct foreign investment, let me briefly note just one important difference between the patterns of merchandise imports of India and China. In 2004, the latest year for which comparable data are available, 46 percent of China's import expenditures were concentrated in SITC category 7, which includes machinery and transport equipment, while only 19 percent of India's import spending was in this category. This difference reinforces the point made earlier: for its needs, India is far more specialized than China in the capital goods industries. The difference between India and China looks even more impressive in terms of the absolute level of import expenditures on SITC category 7: $253 billion by China versus just $22 billion by India.

4. FOREIGN INVESTMENT

The phenomenal success of China in attracting direct foreign investment (DFI) is well known. To some degree, this success has been one of the inspirations behind progressive opening up of the DFI regime in India. But India has achieved only limited success in attracting DFI. Instead, it has been more successful in attracting portfolio investment, especially in the last three years.

Figure 5 shows DFI for India and China as well as total (DFI plus portfolio) foreign investment for India. If we trace the liberalization of the DFI regime in China to the early 1980s and in India to the early 1990s, matching China's performance would mean that India achieved today the DFI level that China achieved in the mid 1990s, which was in excess of $30 billion. But India has not yet succeeded in attracting this amount of DFI, and it remains far behind China, even if we assume that round-tripping artificially inflates the data for China by as much as 20 percent.

Figure 5: Foreign investment in India and China ($ billions)



Quite apart from the quantitative dimension, the DFI into China shows much greater complementarity with exports and hence trade in general than that of India. This is a point forcefully made by Prasad and Wei (2006) with reference to the inflows from 1998 to 2004 as follows:

> [Table 2 shows that] about two-thirds of these flows [to China] have been going into manufacturing, with real estate accounting for about another 10 percent. Within manufacturing, the largest identifiable share has consistently gone to electronics and communication equipment. The share of manufacturing has risen by almost 15 percentage points since 1998, largely at the expense of the shares of utilities, construction, transport and telecommunication services, and real estate. Since the industries with declining FDI shares are largely focused on non-traded goods, the evolution of this pattern of FDI seems to be consistent with the notion that these inflows have been stimulated by China's increasing access (both actual and anticipated) to world export markets following its accession to the World Trade Organization (WTO) in 2001.

Table 4 shows the composition of DFI into India between August 1991 and December 2005. While the inflows are somewhat connected to India's exports, the link is weaker than in China. At the top of the table, most investments in electrical equipment, transportation, and telecommunications are aimed at the domestic market. The textiles industry, which figures prominently on the export front, has received only 1.32 percent of DFI into India.

Table 4: Sectoral composition of DFI flows into India, August 1991 to December 2005

Rank	Sector	Amount ($ mil.)	Share of total (%)
1	Electrical equipment (incl. computer software)	4,885.9	16.0
2	Transportation industry	3,143.1	10.3
3	Services sector	2,971.7	9.8
4	Telecommunications	2,890.1	9.5
5	Fuels (power & oil refinery)	2,521.5	8.3
6	Chemicals (other than fertilizers)	1,889.5	6.2
7	Food processing Industries	1,173.2	3.9
8	Drugs and pharmaceuticals	948.5	3.1
9	Cement and gypsum products	746.8	2.5
10	Metallurgical industries	627.3	2.1
11	Consultancy services	444.5	1.5
12	Miscellaneous mechanical & engineering	491.5	1.6
13	Textiles (including dyed, printed)	430.1	1.4
14	Trading	374.2	1.2
15	Paper and pulp including paper products	363.5	1.2
16	Hotel & tourism	308.5	1.0
17	Glass	255.6	0.8
18	Rubber goods	233.3	0.8
19	Commercial, office & household equipment	231.7	0.8
20	Industrial machinery	204.8	0.7
21	Machine tools	155.4	0.5
22	Other	5,162.0	17.0
23	Total	30,452.6	100.0

Note: Each individual sector aggregated into the Other category accounts for less than 0.5 percent of total DFI.
Source: Foreign Direct Investment Policy, Ministry of Commerce and Industry, Government of India, April 2006.

5. TRADE AND FOREIGN INVESTMENT LIBERALIZATION[7]

Technically, trade liberalization in India and China began almost simultaneously in the late 1970s. But the liberalization was faster and became systematic much earlier in China than India. Liberalization of foreign investment began in the late 1970s to the early 1980s in China, compared with India's beginning in the early 1990s. In recent years, however, India has nearly caught up with China on both trade policy in industrial goods and services and foreign investment policy. India remains more protected than China only in agriculture.

In the mid 1970s, all imports to India were subject to licensing with an import policy issued every six months. That policy listed permitted imports, their quantities, and

[7] The discussion in this section relies principally on Lardy (2002) and Panagariya (1993) for China and on Panagariya (2004, 2006b) for India. An excellent additional source on India is Srinivasan and Tendulkar (2003).

the conditions to be satisfied by the importer for each six-month period. As a rule, consumer goods imports were not permitted. All essential consumer goods imports were "canalized" through a designated governmental agency. Only the actual user could apply for a license and had to demonstrate that the product was domestically unavailable. Total imports depended on the quantum of foreign exchange available.

Beginning in 1976, India introduced an Open General Licensing (OGL) list, which was gradually expanded, especially in the second half of the 1980s. A reduction in the need for canalized imports such as food grains and petroleum, foreign borrowing, and the expansion of exports following the expansion of several export incentives and depreciation of the rupee all helped relax the foreign exchange constraint. Pursell (1992) estimates that by 1987-88, almost 30 percent of the total imports came under the OGL.

More systematic liberalization in India began following the 1991 balance of payments crisis. With minor exceptions, India did away with import licensing on capital goods and intermediate inputs although it continued to ban consumer goods imports except some specific items permitted under a special license issued in limited quantities to large exporters. This ban ended only on April 1, 2001 following a World Trade Organization (WTO) ruling. In the meantime, India kept moving ahead with the liberalization of tariffs and foreign investment. With respect to the latter, India began to open its market to both direct and portfolio investment starting in the early 1990s.

Currently, with a handful of exceptions applying to the auto sector, the highest industrial tariff in India is 12.5 percent. In 2005-06, customs duty as a proportion of total merchandise imports was 4.9 percent compared with 3 percent in China. In agriculture, India remains more protected with its tariffs averaging 30 percent compared with 15 percent in China.

India has also liberalized services imports as a part of the liberalization of the foreign investment policy. The foreign investment regime now operates on the "negative list" approach such that absent specific restrictions spelled out in the foreign direct investment (FDI) policy and subject to sectoral rules and regulations, up to 100 percent foreign investment is permitted under the automatic route. Exceptions include retail trade where no foreign investment is allowed (except single-brand product retailing where foreign investment up to 51 percent is allowed) and insurance, defense, and publishing of newspapers and periodicals dealing with current affairs, where foreign investment is limited to 26 percent. Foreign Institutional Investors (FII) are allowed to invest relatively freely in India's capital market with forward cover available on all investments.

In the mid 1970s, so-called Foreign Trade Corporations (FTCs), controlled by the Ministry of Foreign Trade (MFT) and organized along product lines such as iron and steel and textiles and clothing, conducted all trade in China. Each FTC had branch offices in the main provinces that produced export products or used imported inputs.

Liberalization in China took the form of decentralization of trade beginning in the late 1970s. At the center, line ministries created their own FTCs. In the provinces and at the local levels, branch offices of central FTCs were allowed to trade on their own in addition to fulfilling their traditional role of carrying out trade on behalf of their central counterparts. Provinces also created their own FTCs for special needs. The government also gave foreign-invested enterprises, whether wholly foreign owned or just joint ventures (with 25 percent or more foreign capital), the right to conduct their own trade.

In 1984, China freed the FTCs from their administrative departments and allowed them to carry out the day-to-day operations related to trade. In 1988, the government also began to confer trading rights on large enterprises. Provinces also got the authority to confer these rights subject to certain conditions. The result of these reforms was that, from just 12 FTCs with monopoly rights on trade in 1978, the number of FTCs rose to 800 in 1985 and to more than 5,000 in 1988. The number of manufacturing enterprises with trading rights also expanded although it remained small in relation to the total number of such firms.[8]

China added further export incentives through foreign exchange retention rights to exporters and through depreciation of the domestic currency, the renminbi (RMB). The currency was devalued from RMB1.5 per dollar to RMB2.8 per dollar in 1984 and to RMB3.7 per dollar in 1986. This trend continued with the exchange rate reaching RMB8.3 per dollar in 1995. Taking all changes together, the Chinese currency depreciated a little more than 80 percent between 1978 and 1995.[9]

[8] See Lardy (2002, Table 2-3, pp. 40-45).
[9] See Lardy (2002, p. 49).

Decentralization of trade was by China was accompanied by the introduction of import licensing, canalization of certain imports, and increased tariffs to retain partial control on imports. According to Lardy (2002, p. 39), at its peak in the late 1980s, the share of all imports under licensing was 46 percent. The average statutory tariff rose from negligible levels in the pre-reform era to 56 percent in 1982. There was a major overhaul of the tariff regime in 1985, which brought the average tariff down to 43 percent. The system remained intact, however, for the rest of the 1990s (Lardy 2002, Table 2-1).

In 1992, the share of China's imports subject to licensing fell to 18 percent. Towards the end of the decade, this proportion fell to 8.45 percent with only 4 percent of tariff lines subject to licensing. In 2001, as a part of its WTO entry conditions, China agreed to eliminate all import quotas, licensing requirements, and other non-tariff barriers by the end of 2005.

The average tariff in China fell from 43 percent at the end of the 1980s to 40 percent in 1993, to 23 percent in 1996, and to 15 percent in 2001. As a part of WTO entry conditions, it agreed to lower the average industrial tariff to 9 percent and average agricultural tariff to 15 percent by 2005. China also agreed to bind all tariffs with the WTO. It further undertook to limit agricultural subsidies to 8.5 percent of the value of production. This is below the *de minimis* limit of 10 percent applicable to developing countries under the Uruguay Round Agreement on Agriculture.

China has undertaken the bulk of the liberalization in services as result of its WTO entry conditions. Under these conditions, it has opened telecommunications and Internet services but on a limited basis, falling well short of India. In banking, China agreed to lift all geographical limits and numerical limits on foreign banks providing domestic currency services by January 2005. China's central bank is now committed to license all applicants that meet the prudential norms. Two years after their entry, foreign banks can conduct domestic currency business with Chinese firms and three years after entry they can transact with individuals in the local currency. Five years after accession, foreign banks will enjoy full national treatment.

In insurance, China now allows foreign companies to offer property and casualty insurance on a nationwide basis. Within three years after the accession, China was to lift all geographic restrictions on the operation of foreign insurance companies. China permits foreign equity share up to 50 percent in life insurance and 51 percent in non-life-insurance companies.

China also agreed to open its distribution sector to foreign suppliers. It was to eliminate all geographical restrictions on retailing within three years of accession. It permits majority equity in foreign companies engaged in retail trade. Joint ventures engaged in the provision of wholesale services have been permitted since the accession. Within five years of accession, China was to allow foreign companies to retail and wholesale all products except salt and tobacco.

Compared with China, India's trade and foreign investment regime is less open, but not by much. This implies that the response of both trade and foreign investment to opening up has been far more muted in India than China. On the surface, this difference is rooted in the much poorer performance of the organized, large-scale manufacturing sector in India. The ability of a developing country to export services on a large scale or of its services sector to absorb foreign investment or imports is limited. Without rapid growth in modern, formal-sector manufacturing, which can absorb both foreign investment and imports in greater volumes than services, rapid growth in either foreign trade or direct foreign investment is difficult.[10]

If one accepts this hypothesis, we are confronted with the question: Why has the organized, large-scale manufacturing sector done poorly in India? I have discussed this question in detail in Panagariya (2006a). I argue that domestic policy constraints, most notably very stringent labor markets and infrastructure bottlenecks, are behind this phenomenon. The former factor has been particularly responsible for pushing firms into either capital-intensive or skilled-labor-intensive sectors and away from unskilled-labor-intensive sectors.

6. LOOKING AHEAD

Looking ahead, three policy issues deserve careful consideration: trade policies at the national level, preferential trade area (PTA) agreements, and multilateral trade negotiations at the Doha Round. I consider each of these in turn.

[10] I originally advanced this hypothesis in Panagariya (2002) and elaborated upon it in Panagariya (2004). Subsequently, Joshi (2004) and Kochhar et al. (2006) have embraced it.

National Trade Policies

On industrial products, India has made good progress but it must continue on the current path of progressive tariff reductions. The top tariff rate should be brought down further from its current level of 12.5 percent to the 7-8 percent range in the next year. India is not vulnerable to a balance of payments crisis and has a flexible exchange rate in place. As such, further tariff reductions complemented by exchange-rate adjustment are entirely politically feasible and desirable.

India must also tackle the problem of high tariffs in some specific sectors, most notably automobiles, which are subject to custom duties nearing 100 percent. Even more important is to bring down the prohibitive duties on used cars. Used small cars, available at relatively low prices from Japan, offer a cost-effective substitute for the old, polluting cars currently on the road and for two-wheelers that are clearly risky for the transportation of a family of four. High duties on both new and used cars serve the singular purpose of protecting the domestic car and two-wheeler industries at the expense of the consumer.

Time is also ripe for at least a beginning on agricultural liberalization. It is a pity that liberalization in this sector has now become hostage to the Doha negotiations, since any unilateral move in this area is seen to have an adverse effect on bargaining power. Additionally, the leadership in India has also taken the wrongheaded view that any liberalization in this sector by India will hurt farmers, especially the marginal and landless ones. I will return to this issue below as a part of the discussion of the multilateral negotiations.

Finally, both India and China have taken to using the anti-dumping measures in a big way. India began earlier and quickly became the top user in the world. In recent years, it has shown some restraint but is still among the heaviest users. The number of cases initiated by China rose rapidly at the end of the 1990s and the beginning of the 2000s but has hovered around 25 in the last three years. Figure 6 depicts the total number of cases initiated by the major anti-dumping players and figure 7 offers the evolution of the initiations in the three largest players and China.

Figure 6: Total anti-dumping cases initiated 1995-2005, by country

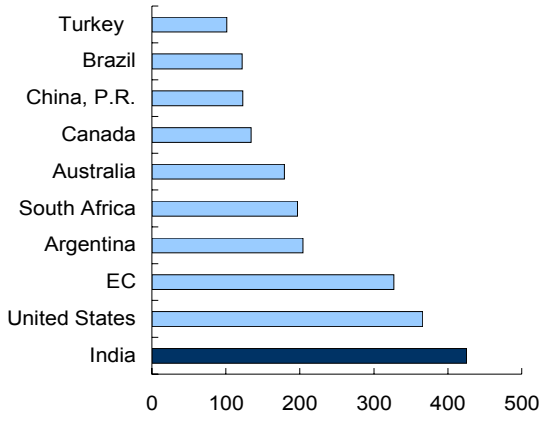
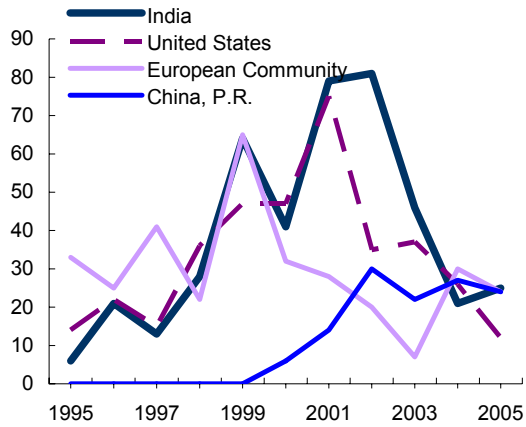


Figure 7: Number of dumping cases initiated by the top three countries and China, 1995-2005



Evidence provided by Aggarwal (2002) points to strong protectionist motives behind many of the anti-dumping cases initiated by India. She analyzes the anti-dumping cases initiated by India between 1993 and 2001 and finds that in 76 of these cases, imports accounted for less than 25 percent of total demand. Among these cases, import share was less than 5 percent in 33 cases and less than 10 percent in another 24 cases. In principle, we cannot rule out the possibility of injury to the domestic industry by imports, even when the initial import share is low, since injury depends on expansion at the margin rather than the existing share. Nevertheless, the likelihood that this would happen is low since even a large proportionate expansion over a small base is going to be small in absolute terms.

Preferential Trade Area (PTA) Arrangements

In the 1990s, while the rest of the world, including the United States and the EU, aggressively pursued PTAs, the countries in Asia stayed largely away from these

arrangements. This has now changed: recognizing that the trade blocs in North America and Europe have resulted in their exclusion from these markets on the margin, the countries in Asia are now catching up, forming PTAs of their own.

Table 5 lists three categories of PTAs currently on India's plate: those it has already concluded and is implementing; those under negotiation; and those under discussion. India has three FTA agreements in place: with Sri Lanka, Thailand and Singapore. The last of these extends to services and cooperation in other areas including investment. India also has in place agreements for partial exchange of trade preferences on a limited set of commodities with Chile, Mauritius, and member countries of the South Asian Association for Regional Cooperation (SAARC). A framework agreement for the negotiation of a comprehensive economic cooperation agreement with the Association of Southeast Asian Nations (ASEAN) exists but the actual agreement is still under negotiation. A South Asian Free Trade Agreement (SAFTA) has been signed although the list of sectoral exceptions and the rules-of-origin remain to be negotiated. An agreement for partial trade preferences with the Mercosur (Argentina, Brazil, Uruguay and Paraguay) has also been signed though not implemented. Finally, agreements with China, South African Customs Union (SACU), Malaysia, South Korea, and Japan are under consideration.

Like India, China has also been pursuing PTAs with a number of countries. It has signed agreements to exchange partial preferences with two countries: Thailand and Pakistan. It has a framework agreement to negotiate an FTA with the ASEAN. Among the countries with which China is negotiating or contemplating negotiations for preferential trade arrangements are India, Pakistan, Japan, Singapore, South Korea, EU, Iceland, Gulf Cooperation Council, South African Customs Union, Australia, and New Zealand.

There is now widespread scepticism of PTAs as vehicles of trade liberalization. Few trade economists are not critical of them. The view among many enthusiasts in the early 1990s that these arrangements were a complement to multilateral liberalization has now given way to the realization that they have fragmented the trading system through the creation of the "spaghetti bowl" of tariffs and are a nuisance to live with.

Table 5: India's PTA scorecard

Existing agreements:

Bangkok Agreement
Global System of Trade Preferences (GSTP)
SAARC Preferential Trading Agreement (SAPTA)
India-Sri Lanka FTA
India - Thailand FTA
India Singapore Comprehensive Economic Cooperation Agreement (CECA)
Indo-Nepal Trade Treaty
India-Mauritius PTA
India-Chile PTA

Ongoing PTA negotiations with:

Indo-ASEAN CECA
South Asian Free Trade Agreement (SAFTA)
BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical & Economic Cooperation)
India - MERCOSUR PTA

PTAs under study and consideration:

Gulf Cooperation Council (GCC), China, South Korea, Japan, Malaysia, Pakistan, Southern African Customs Union (SACU), Egypt, Israel, Russia, Australia

Note: PTA refers to an arrangement involving partial trade preferences with limited commodity coverage. An FTA is also a PTA but refers to an arrangement eliminating tariffs on substantially all intra-union trade.

In this context, the PTAs being concluded by India and China are doubly problematic. India's agreements with Chile, Mauritius, and member countries of South Asian Association for Regional Cooperation (SAARC) are explicitly limited to the exchange of partial preferences on a handful of commodities. The signed, but not yet implemented, agreement with Mercosur falls into the same category (see table 5). But even the agreements formally termed FTA agreements have long lists of sectoral exclusions and strict rules of origin. These exceptions and rules-of-origin are designed to keep out products that are likely to threaten inefficient domestic producers and to give preferential entry when they are likely to displace more efficient outside suppliers.

For example, consider the India-Sri Lanka FTA, which came into force in March 2000.[11] This agreement makes generous use of sectoral exceptions. For example, the top 20 exports of Sri Lanka to the world at the six-digit HS (Harmonized System) level accounted for 46 percent of its total exports in 1999. India subjects as many as 15 of these products to either a tariff-rate quota (meaning the tariff preference applies only up to a pre-specified quantity of imports) or negative-list

[11] I base the following discussion of the India-Sri Lanka agreement on Baysan, Panagariya, and Pitigala (2006).

exception. Thus, the exclusionary policies apply with potency to products in which Sri Lanka showed the greatest comparative advantage.

The rules of origin further restricted the exports of Sri Lanka. For example, not only are apparel exports from Sri Lanka subject to the tariff-rate quota of 8 million pieces, but at least 6 million of these pieces should be manufactured from fabrics of Indian origin exported to Sri Lanka from India. Likewise, exports of tea from Sri Lanka at the preferential tariff are not to exceed 12.5 million kilograms within a calendar year. Both products are also subject to a uniquely South Asian restriction that we may call the rule of destination: the preference applies only if the products enter through specific Indian ports.

Similar observations apply to preferences given by Sri Lanka to India. Weerakoon (2001) points out that at the time the lists of concessions were finalized, of the 319 items on which Sri Lanka offered zero duty to India, the latter exported only three to the former. Looked at another way, of the 2,907 products India exports to Sri Lanka, only 21 percent received any tariff preference at all. Conversely, of the 1,351 items in the zero-tariff list of India, Sri Lanka exported only 68 items to India. Of the 380 items Sri Lanka exports to India, 50 were on India's negative list, 44 received a 25 percent tariff preference, 218 received a 90-percent preference (expanded to 100-percent as of March 1, 2003) and 68 received a 100-percent preference.

The India-Singapore FTA likewise contains stringent rules of origin. It requires that at least 40 percent of the value-added be from within union and that the four-digit SITC classification of the product be different from that of every intermediate input imported from outside the union to produce it. In many cases, the application of both of these criteria would likely result in a 100-percent within-union value-added for the grant of the preference. On top of this stringency in rules of origin, India placed on the negative list 5,099 out of the total 11,650 tariff lines at the eight-digit HS level (i.e., 44 per cent of the total tariff lines). Such a large exclusion hardly meets the condition of liberalization in substantially all products stipulated in Article XXIV of the General Agreement on Tariffs and Trade (GATT) even though, ironically, the agreement has been informed to the WTO under Article XXIV.

The agreements signed to-date by China have a similar flavor. For example, its agreement with Thailand is limited to the elimination of duties on 188 fruits and vegetables. Likewise, its agreement with Pakistan involves an exchange of preferences whereby Pakistani mangos and oranges enter duty-free into China in return for zero-duty on the Chinese textile machinery and organic chemicals entering Pakistan. From the available accounts, the agreement with Chile is also partial: China will lift tariffs on 2,834 products imported from Chile in return for duty-free status by Chile on 5,891 items from China. But China will maintain tariffs on 7,391 products imported from Chile and Chile on 7,750 items imported from China. China has a framework agreement for negotiating an FTA with ASEAN but the negotiations have not made any significant progress to-date.

This account raises serious questions about the wisdom of the PTAs that India and China are seeking. Even when they take a clean approach, as in the case of the North American Free Trade Agreement (NAFTA), which is a full-fledged FTA, such arrangements are problematic, as is now widely accepted. The partial-PTA approach that India and China have taken is even worse. When countries pick and choose the products subject to trade preferences, trade diversion dominates. This is because domestic producer lobbies ensure preferences are applied to imports that would displace imports from third countries.

I do not endorse the pursuit of PTAs by India or China, but if they must do it, the best starting point is a genuine Article XXIV-compatible FTA between them. Allowing for the facts that full implementation of such an agreement would take minimally 10 years and that the two countries together have a good chance of growing at 10 percent per year in constant dollars, by the time such an FTA became a reality, their combined market would be close to $8 trillion in 2005 dollars. Given that both countries have considerably liberalized their external tariffs, the damage from trade diversion will be limited. In addition, the prospects that other countries in the region would join and, thus, help create an Asia-wide bloc are excellent. In that event, the region may also acquire a strategic advantage in opening up the North American and European markets, which currently discriminate against it.[12]

The Doha Round

Negotiations for the Doha Round are currently suspended. With the Democrats having taken control of both the House and the Senate in the United States, the

[12] I elaborate on the India-China FTA in Panagariya (2005).

mood on the trade front is gloomy. All indications at the moment are that the new Congress is unlikely to renew the Trade Promotion Authority (TPA) of President Bush. If this prediction turns out to be true, the Doha negotiations will go into hibernation for some years until the atmosphere changes.

This scenario is gloomier than reality warrants, however. If the rest of the world continues to run after PTAs at its current speed, it is unlikely that the United States will withdraw from the race. Under such circumstances, even a Democratic Congress will be compelled to rethink its opposition to the TPA. Moreover, once the dust settles and Democrats begin to govern, they too will have to take into consideration the long-term interest of the United States in opening world markets.

From the viewpoint of this paper, the important question is what strategy India (and China) should follow in case the United States and the EU are able to muster the political courage to move the Doha negotiations forward. At present, India's position is that it is willing to undertake liberalization in industrial products and services as per the July 2004 Framework Agreement. But it has taken a much harder line on agriculture. I think this aspect of India's position needs rethinking. Two points must be considered.

First, despite the existence of large subsidies in developed countries and large inefficiencies in domestic agriculture, India enjoys a greater share in world agricultural exports than in non-agricultural exports. Indian agriculture is not uncompetitive. If India introduces domestic agricultural reforms as it opens externally, it stands to expand rather than lose its share in the world agricultural market.

Second, India's own experience in the past two decades contradicts the argument often made by policy makers that opening up would injure Indian agriculture and undermine the livelihood of marginal and landless farmers. In the last fifteen years, India has gone from strict licensing and an extremely high tariff wall to total elimination of licensing and a maximum tariff of 12.5 percent in industrial goods. At the time the liberalization was initiated, many had expressed the same fears with respect to industry. Yet, Indian industry is far more competitive and efficient today than it was prior to the liberalization. We should expect similar results in agriculture. Indeed, the experience of Chile, which has greatly expanded its agricultural exports while liberalizing that sector, reinforces this argument. Opening up will allow efficient agricultural sectors to expand and create high-wage employment opportunities for landless workers. Current agricultural employment is often based on farms that are barely profitable and therefore unable to pay high wages. Moreover, the pressure to become competitive in a more open economy will also speed up agricultural reforms in other areas that are long overdue. For example, the absence of land titles has been in the way of the consolidation of small holdings as well the creation of larger farms that would be able to offer better wages to farm workers.

The implication of these arguments is that India needs to consider extending its national trade liberalization program to agriculture as well as to take a more flexible position in this sector in the Doha talks. The latter is an especially attractive option since liberalization in the multilateral context will also bring down the barriers currently prevailing in the rich countries. Through liberalization and internal reforms, India can position itself to capture a substantial share of the expanded world markets that would emerge out of a Doha agreement.

7. SUMMARY

In this paper, I begin by arguing that the recent rise in India's growth rate represents a shift in the trend growth rate rather than just a business cycle effect. If this reading is correct, India is one step closer to bridging the gap with China. Nevertheless, roadblocks remain.

To substantiate this latter argument, I briefly review the process and extent of liberalization of trade and foreign investment by India and China and its impact on the respective economies. My discussion leads me to conclude that although technically India initiated the process of liberalization around the same time as China, it was much slower to move in practice. As a result, by the end of the 1980s, China was far more open than India. Since that time, however, India has bridged much of the gap in industrial products and services—although China still keeps a small lead—except in agriculture.

Both India and China have been handsomely rewarded for their liberalization through increased integration into the world economy and higher growth rates. Yet, the response of trade and foreign investment in India has been far more muted than in China. Given the similarity of factor endowments between India and China, this seems puzzling on the surface. The answer lies in the labor-market inflexibilities and considerably poorer infrastructure in India. Unless future reforms tackle

these crucial areas, unskilled-labor-intensive products such as apparel, toys, footwear, and sports goods will continue to perform poorly in India.

In the final substantive section of the paper, I consider future trade policy challenges facing India. Here I offer four main suggestions. First, India must continue to liberalize industrial tariffs and eliminate the tariff peaks applying with potency to imports of automobiles—both new and used. Second, India must restrain the use of anti-dumping. From its total absence, India has emerged in the last ten years as by far the largest user of this highly self-destructive weapon. Third, insofar as PTAs are concerned, it will be best not to pursue them. But if it must do so for their political appeal, the current approach of exchanging preferences on a small number of countries with small countries is virtually the worst way to go about promoting these arrangements. Instead, India should go after China, a large and highly competitive country, and forge a genuine free trade area with it. Together, India and China not only contain almost one-third of the world's population but also in ten years time they will represent an $8 trillion market, which is two-thirds of the current U.S. GDP. An India-China FTA will also open the door to an Asia-wide FTA.

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ACCOUNTING FOR GROWTH: COMPARING CHINA AND INDIA

Barry Bosworth
Susan M. Collins

The emergence of China and India as major forces in the global economy is one of the most significant economic developments of the past quarter century. Their continued growth is likely to dominate the course of the world economy for the next several decades. Up to now, only a small fraction of the world's population has enjoyed the fruits of economic well-being, with high-income industrial countries accounting for less than a fifth of the world's population. However, China and India together comprise over a third of the world's population; and since 1980, they have achieved remarkable rates of economic growth and poverty reduction.[1]

The purpose of this paper is to examine sources of economic growth in the two countries and to compare and contrast their experiences over the past 25 years. In many respects, China and India seem similar. Both are geographically large countries with enormous populations that remain very poor. In 1980, roughly the beginning of our analysis, both had extremely low per capita incomes, although we note that there is some controversy in the literature about their relative income levels.[2] Since then, GDP per capita has more than doubled in India and has increased a remarkable seven-fold in China. The details of their economic growth are in fact quite different, however. While initially both were largely autarkic countries, isolated from the global economy, China acted more quickly and aggressively to lower trade barriers, and attract foreign direct investment inflows. In addition, as discussed more fully in later sections, China has experienced explosive growth in its industrial sector, whereas India's growth has been fueled by the expansion of service-producing industries.

In this paper, we investigate the patterns of economic growth for China and India by constructing a set of growth accounts for each that uncover the supply-side sources of output change. In addition to aggregate output, the accounts are constructed for the three major economic sectors: primary (agriculture, forestry and fisheries), industry (manufacturing, mining, construction, and utilities), and services. This level of detail enables us to assess the magnitude of efficiency gains associated with the movement of workers out of agriculture, where they are frequently under-employed, into higher productivity jobs in industry and services.

CONSTRUCTION OF THE GROWTH ACCOUNTS

Growth accounting provides a means of allocating changes in a country's observed output into the contributions from changes in factor inputs (capital and labor) and a residual, typically called total factor productivity (TFP). The latter is best interpreted as a measure of gains in the efficiency with which inputs are used, including technical progress as well as myriad

[1] We are very indebted to Anthony Liu and Gabriel Chodorow-Reich for extensive assistance in understanding the data and constructing the growth accounts.

[2] China has not participated in past rounds of the international comparison project, and measures of GDP at purchasing power parity are quite speculative. India last participated in 1985. Maddison (2001) shows them with nearly equal levels of income per capita of about $1,000 in 1980, but he obtained those values from a 1987 comparison of China to the United States, combined with a lower rate of growth between 1980 and 1987 than indicated by the official Chinese statistics. The World Bank and the Penn World Tables show GDP per capita for China at about two thirds of the estimate for India in 1980.

other determinants. While highlighting proximate, not fundamental causes of growth, the approach provides extremely useful benchmarks for analyzing economic performance.

As discussed in more detail in Bosworth and Collins (2003), we essentially assume a Cobb-Douglas production function with fixed factor shares:

(1) $$Y = AK^{\alpha}(LH)^{1-\alpha}$$

Y, K, A and α are measures of output, physical capital services, TFP, and capital's share, respectively. *L* is labor, which is adjusted for improvements in educational attainment (*H*) as a proxy for skills. The capital share, α, is assumed equal to 0.40 for both countries with a modest change in the case of agriculture to allow for the role of land.[3] We report our results in a form that decomposes the growth in output per worker (*y/l*) into the contributions of growth in capital per worker (*k/l*), increases in education per worker (*h*), and a residual measure of the contribution of improvements in TFP (*a*):

(2) $$y/l = \alpha(k/l) + (1-\alpha)h + a$$

We specify that the growth of capital services is proportionate to that of the capital stock. We measure the gains in educational attainment with average years of schooling, *s*, assuming a constant (7 percent) return to each additional year:

(3) $$H = (1.07)^{s}$$

DATA SOURCES

Issues of data availability and quality are always of great concern in the construction of growth accounts, and the problems are often more severe for emerging markets. We provide a detailed discussion of the data sources and issues for India in a prior publication (Bosworth and others, forthcoming). Thus, the discussion of data sources here focuses on China.

[3] It would be preferable to rely on a more general formulation of the production process and use the income shares of each factor to infer its contribution. However, the large numbers of self-employed persons in developing countries, with their mixture of income from both capital and their own labor makes it difficult to obtain meaningful measures of the income shares. As discussed in Bosworth and Collins (2003), we believe that the simplifying assumption of a constant share has minimal effects on the conclusions.

However, it is important to highlight that the data concerns we encounter in the two countries are quite different. India has a very large informal sector, where output and employment are concentrated in small enterprises. Thus, construction of India's national accounts is centered around large periodic surveys of households, rather than relying on reports from major enterprises. China, in contrast, can make greater use of reports from large enterprises for the industrial sector, but must still rely on household surveys to obtain high quality information on some service-producing industries. We have a wealth of information on the methods that India uses to construct its statistical accounts, but lack important details for China.

China's transition from a command economy to one based on markets raises some additional concerns about its economic statistics. One set relates to the major problems of adjusting values for significant changes in quality. In addition, China is still in the process of converting its statistical reporting system over to one more closely aligned with international standards. In particular, the conversion from the Soviet Material Product System (MPS) to the system of Standard National Accounts (SNA) raises concerns about the comparability of the data over time. Such concerns are less relevant for India, which has had a coherent statistical system for a longer period of time, and for which a larger amount of methodological information is available in English.

Output

The national accounts of each country provide our basic source for data on output for the total economy and for the three major sectors (primary, secondary, and tertiary). While India's national accounts data are used without modification, the Chinese data are often claimed to overstate the rate of real growth. The most extensive criticisms are those of Maddison (1998) who reduced the growth of China's GDP by an average of 2.4 percent per year for the 1952-95 period. However, his adjustments were severely criticized by Holz (2006a), and in contrast to the downward adjustments, the official estimates were recently revised up to correct for an underestimation of the services sector over the period of 1993-2004. Others continue to argue that the estimates of real growth are overstated because of an underestimate of price inflation. The real output data come from asking firms to report the change in their production based on prices of the prior year. The difficulty of making that calculation may lead many

enterprises to report equal rates of nominal and real change (Woo, 1998). Thus, some researchers have sought to construct alternative price indexes that could be used to deflate the nominal values (Young, 2002, and Dekle and Vandenbrouck, 2006).

We experimented with using the price indexes suggested by Young (2002). The alternative output measure for agriculture has a very similar growth rate to that reported in the official national account statistics. Woo's argument seems most applicable to the large enterprises of the industrial sector, where the alternative price indexes do indicate substantially more rapid inflation than the implicit price deflators embedded in the official data. We find that the alternative index for the secondary (industry) sector does indicate a significantly slower rate of output growth.

Finally, the only available price indexes for services are those in the services component of the consumer price index. However, the items included in that index are far from representative of the product mix of the tertiary sector, where the major activities are transportation, communications, finance, and trade. The rate of increase for the services price index seems implausible in comparison with increases in wage rates (the primary input), and prices of industrial goods. This is probably because the consumer price index for services has been dominated by the elimination of a large array of subsidies and price controls for the services provided to households, particularly with regard to housing.

While we computed the growth accounts using both the official output measures and those based on the alternative price deflators, our preferred set uses the official output data for the primary and tertiary sectors and the alternative only for the secondary sector. We also note that, although much of the discussion of China's data has focused on the potential understatement of inflation implying an over estimate of output growth, research on other countries has highlighted equally severe problems in the construction of price indexes that result in an overestimate of inflation. The two major problems are the failure to incorporate substitution effects and inadequate allowances for quality change, which are both likely to be of substantial importance in China. While we agree that the current estimates of output growth leave substantial room for error, the evidence for significant bias seems unproven.

Employment

For India, employment estimates are only available from the quinquennial household surveys, and values for intervening years must be interpolated. Estimates of the workforce follow international standards of including wage earners, the self-employed, and unpaid family members. As a result, they include a substantial number of underemployed workers. We use a measure based on a worker's primary activity (employed, unemployed, out of the labor force) in the prior year.

The data for China have more complex origins, reflecting the results of both the population censuses and administrative reports from enterprises. However, only limited information is available on the methods used to generate these series. At the level of the three sectors, we have two alternative measures of employment. The first, derived from administrative data from the employment reporting system, extends back to 1952. The primary problem with these data is that in the years prior to 1998, they include workers who were effectively laid off (Holz, 2006b). It is difficult to judge the magnitude of the break in these data because layoffs were largely unknown prior to the 1990s. A second set of data, adjusted to be consistent with the population censuses, begins in 1990; and consistent estimates for the earlier years were obtained from Holz (2006b). This series is conceptually most comparable to the data for India, and is significantly higher in levels than the first. However, it has also been subject to frequent revision, and little is known about the precise methods used to compute it. We use both series in computing the growth accounts and discuss their impact on the conclusions below.[4]

Capital

The data on fixed capital are taken directly from the national accounts of the two countries. India produces its own estimates of the capital stock by major sector, which we adopted. In the case of China, information from the provincial reports must be used to allocate the national data on gross fixed capital formation (GFCF) among the three major sectors (Hsueh and Li, 1999).[5] We constructed our own perpetual-inventory estimates

[4] Both employment series are published in the *Chinese Statistical Yearbook*. In the 2005 edition, the first series, sector totals from establishment reports, is shown in table 5-6. The series that is closer to a census concept is shown in table 5-2.

[5] In addition, the expenditure-side estimates of GDP have not yet incorporated the revisions that resulted from the last economic census and that are included in the output data. Thus, the data may be subject to revision in the near future.

of the capital stock assuming a geometric rate of depreciation of 0.06.

Land

Our growth accounts include land as well as capital and labor as factor inputs to produce agriculture. For India, an estimate of the volume of land used in agricultural production is available annually. We use an estimate of total cropped land that adjusts for irrigated lands, which are sown more than once per year. For China we used a measure of total sown land area.[6] These two measures of land-use show a growth over the past quarter century of about 9 percent for India and 3 percent for China. In both countries, there are no available estimates of current market value of the land that would enable us to construct measures of the annual flow of capital services. Thus, we simply focus on the growth in the aggregate amount of land.

Educational Attainment

We constructed an index of educational attainment for each sector of the Indian economy using information from the quinquennial household surveys (Bosworth and others, forthcoming). For China, we relied on prior estimates that we had assembled from census data (Bosworth and Collins, 2003). In this case, we are unable to distinguish among the three sectors and use a common education index.

GROWTH ACCOUNTS

We have constructed growth accounts covering the period 1978 to 2004 for India and China for both the aggregate economy and the three major sectors. The results confirm many of the now standard themes that have emerged from the prior literature on the economic development of the two countries. However, some new findings emerge as well.

Table 1 provides a basic summary of the results. We first report the results for the full 26-year period that corresponds to China's economic reform period. This works as well for India, which also experienced an acceleration of its rate of economic growth in the early part of this period, though the precise dating of the change is controversial. We divide the period at 1993 for three reasons: it is a benchmark year for the Indian national accounts, it avoids the 1991 economic crisis, and the second sub-period can be identified with India post-reform. The table is based on our preferred measures of output for China, in which an alternative price deflator is used to convert output of the industrial sector to constant price values. Official national data are used to measure output for the primary and tertiary sectors. This change lowers industrial sector output growth by an average of 1.3 percentage points and that of the total economy by 0.8 percentage points. In addition, the estimates reported in the table are based on the employment series most comparable to the census concept.

Table 1: Sources of growth–China, India, and East Asia, 1978-2004 (annual percentage rate of change)

				Contribution of			
	Output	Employ-ment	Output/ Worker	Physical Capital	Land	Edu-cation	Factor Produc-tivity
				Total Economy			
1978-04							
China	9.3	2.0	7.3	3.2	0.0	0.2	3.8
India	5.4	2.0	3.3	1.3	0.0	0.4	1.6
1978-93							
China	8.9	2.5	6.4	2.5	-0.1	0.2	3.6
India	4.5	2.1	2.4	1.0	-0.1	0.3	1.1
1993-04							
China	9.7	1.2	8.5	4.2	0.0	0.2	4.0
India	6.5	1.9	4.6	1.8	0.0	0.4	2.3
				East Asia excluding China			
1960-80	7.0	3.0	4.0	2.2		0.5	1.2
1980-03	6.1	2.4	3.7	2.2		0.5	0.9
1980-93	7.3	2.7	4.6	2.6		0.6	1.4
1993-03	4.5	2.0	2.5	1.8		0.5	0.3

Source: Authors' estimates as described in text; Bosworth and Collins (2003). The employment series is a census comparable concept for both China and India.

Aggregate Economy

Focusing first on the full period, China's extraordinary performance is clearly evident, with output growing at an average annual rate of 9.2 percent. India's rate of growth is substantially lower, at 5.4 percent, but still well above the economy's 3.4 percent growth rate of the prior two decades. Both countries show almost identical rates of employment change, but at the level of the total economy, this is largely determined by growth in the population of labor force age since unemployment is not a realistic alternative. Finally, the growth in output per worker in both countries is equally split between increased capital per worker and gains in TFP, although the values for China are twice those of India.

Second, both countries show an acceleration of the rate of economic growth between the first and second sub-periods. This is most significant for India, but because Chinese employment growth slowed

[6] The data were available online from the China Data Center included in a table entitled "Production Condition for Agriculture of China."

substantially, the acceleration of its labor productivity growth after 1993 is very rapid. The marked slowing of employment growth in China is also evident in the estimates of the population of labor force age, and reflects the sharp decline in the birth rate during the 1970s.

Both China and India have had serious deficiencies in their educational institutions that have limited the contribution of improvements in educational attainment relative to the norm of other Asian countries. The measures of educational attainment for India and their contribution to labor quality are discussed more fully in Bosworth and others (forthcoming), which cites a number of studies of the Indian educational system. As those studies highlight, the problems are most evident in India's high continuing rate of illiteracy. In China, the process of formal education was greatly disrupted by the cultural revolution of the late 1960s and early 1970s. In later years, an unusually large number of adults took advantage of remedial programs to raise their recorded educational levels, but the value of those programs is controversial. Young (2003) provides a useful overview of Chinese statistics on educational attainment that confirms the evidence of limited gains in educational attainment for the adult labor force. In particular, his analysis of the relationship between earnings and years of schooling finds surprisingly low returns. Knight and Shi (1996) also document a large divide in the educational attainment of rural and urban workers in China. In contrast to India, however, China does appear to have largely eliminated illiteracy. For example, UNESCO reports a literacy rate of 99 percent among youth aged 15-24 in China, compared with just 76 percent for India. It has also succeeded in sharply raising the educational attainment of today's youth. Equivalent improvements have not been achieved in India. In addition, our own investigation found surprisingly low returns to primary education in India, and a rising return to tertiary (presumably implying an increasing shortage of the highly educated).

In the bottom of table 1, we also report similar growth accounts for the East Asian economies, excluding China (Bosworth and Collins, 2003). Their performance is of particular interest in the present context because it has been so frequently cited as a model for remarkable economic performance. These countries are also notable for the extent to which their growth appears to have been the result of extremely rapid gains in both physical capital and educational attainment. The comparison highlights the extent to which China's growth performance has exceeded prior norms. It is also evident that China's gains are coming from both the contribution of a very high rate of capital accumulation and from gains in TFP. There are other historical examples of countries that have achieved growth rates comparable to China's. This short list includes Germany and Japan in their recoveries from WWII, and Taiwan and Korea more recently. However, China's rapid growth has now lasted more than a quarter century, while none of these countries was able to sustain such rapid growth for as long.

India's performance also compares favorably with that of East Asia prior to the financial crisis of 1997-98. Its strong growth is overshadowed only by the even more remarkable performance of China. However, India achieved its growth with relatively little emphasis on capital accumulation and with more substantial gains in TFP. In that mix of gains, it differs from the rest of Asia, where capital accumulation was so important.

While our growth accounts for India accord closely with prior research, the results for China differ in important respects from some of the prior studies. To begin with, a number of studies have expressed concern about what they perceive to be a slowing of the rate of TFP growth in recent years.[7] They, in turn, attribute the slowdown to excessive and inefficient rates of capital accumulation that have lead to widespread waste (Zheng and others, 2006, and Kwan, 2006). Our analysis finds no such slowing. We believe that the differences can be traced to two factors.

First, several studies report a slowing of overall output growth after 1993 that falls through to the residual calculation of TFP. Our study incorporates the recent revisions in the national accounts that raised the level and growth of output in the services sector. The official GDP statistics report a 10 percent growth rate for both the 1978-93 and 1993-04 periods; but as discussed above, we used an alternative price deflator that lowered the overall rate of growth of industrial-sector output for the full post-1978 period. However, it has a bigger impact on the estimate of growth in the early years and raises the rate of growth after 1993 relative to the earlier period. Thus, we show a modest acceleration of GDP growth of 0.8 percentage points after 1993, compared to a 0.7 percent deceleration, for

[7] A slowing of TFP growth is reported in Kuijs and Wang (2006), OECD (2005), and Zheng and others (2006).

example, in the Kuijs and Wang study.

Second, several studies use a greater elasticity of output with respect to capital than our assumption of 0.4. In the case of India, this does not matter greatly because capital and labor inputs grow at relatively similar rates. In China, however, the rate of growth of the capital input is far in excess of that for labor, and this difference accelerates in the second sub-period. Thus, a high weight assigned to the capital input will produce an index of inputs that rises rapidly relative to output, leaving little room for improvement in TFP.[8] Our estimates, like those of Young (2003) and the IMF (2006) that also use a capital elasticity near 0.4, obtain a larger estimate of the contribution of TFP.

Finally, our preferred estimates are based on the census definition of employment (discussed above) with an adjustment for the data break in 1990. If we use the alternative report-based series, it implies about the same rate of employment growth for the full 1978-2004 period, but a larger portion of the growth occurs before 1993. Thus, we find that using the census-based series reduces the average annual growth in output per worker by about 0.4 percentage points in 1978-93 and raises it by an equivalent amount over the 1993-2004 period.

We turn next to an analysis of the sources of growth in each of the three major sectors.

Primary Sector

Both China and India benefited from the Green Revolution, but improvements in the Chinese agricultural sector were also aided by major institutional reforms and the emergence of the household responsibility system. Thus, we find that the output of China's agricultural sector has grown at a very rapid pace, 4.6 percent per year since 1978, compared to a strong but less spectacular 2.5 percent growth rate in India. Although both countries exhibit a slowing in the years after 1993, the primary sector continues to be a major contributor to growth of the aggregate economy.[9] China's growth is particularly impressive because it occurred against the backdrop of declining employment after 1993. Thus, output per worker continued to expand at a very strong 4.3 percent annual rate. China achieved its gains through both substantial increases in capital per worker and rates of TFP growth more than double those for India.

Rawski and Mead (1998) argue that the administrative employment data greatly overstate the share of China's workforce that is employed in agriculture and that as many as 100 million workers should be reclassified as actually working in nonagricultural jobs. They based their estimates on information on labor input requirements and acreage for various crops. We have not incorporated their adjustment in our measures of employment by sector. We use the alternative census-based series, and it is not clear how to adjust for workers who may be employed in both agriculture and non-agriculture. In any case, the adjustment has the greatest effect on the relative growth of the labor input in the years prior to the mid-1980s, when it would sharply raise the growth of labor productivity in agriculture and lower it for the nonagricultural sectors. However, it matters little for post-1993 growth rates.

While India's labor productivity growth is not nearly as impressive, we note that annual increases of more than one percent represent a significant improvement relative to the previous two decades in which there were little or no gains in agricultural productivity (See Bosworth and others, forthcoming). What is striking for India, however, is that employment in the primary sector continued to grow, albeit at a somewhat slower rate in the second sub-period than in the first. As we shall

[8] Kujis and Wang (2006) use a capital share of 0.5; Zheng and others (2006) use the three alternatives 0.4, 0.5 and 0.6, and OECD (2005) uses 0.53. Heytens and Zebreg (2003) use both 0.56 and 0.63, however their study does not include the post-1998 period in which the others find a TFP slow-down. We are surprised by the frequent assumption of a capital elasticity of 0.5 or higher in the growth accounting studies of China. Perhaps it can be traced to econometric studies, such as Chow and Li (2002), that obtain large coefficients on capital in regression estimates of an aggregate production function. A high rate of growth of output and capital relative to labor can generate a strong correlation between the first two and a high capital elasticity without being indicative of the underlying production process. We believe that the low quality of the data makes any estimate of the aggregate production function a bit dubious.

[9] There is some evidence that the official statistics may overstate the growth of output in Chinese agriculture (Fan and Zhang , 1997), but not by an amount that would greatly alter our finding of strong productivity growth. We believe that the reliance on household surveys of food consumption to challenge the official production data is itself questionable. In other countries, household surveys are notorious for their underestimation of consumption. In addition, while Fan and Zhang are correct to point out that Laspeyres indexes overstate growth, the reliance on such indexes is not unique to China.

discuss below, the primary sector continues to employ a surprisingly large share of India's labor force. We attribute this to an insufficient rate of expansion of employment opportunities in industry and services relative to India's population growth.

Industry

The industrial sector (composed of mining, manufacturing, construction, and public utilities) differs dramatically in size between China and India. In China, it has consistently accounted for about half of GDP, whereas in India it has remained below 30 percent. During the 1978-93 period, the sector grew rapidly in both countries, with large increases in employment. Both also had similar rates of gain in capital per worker. However, China experienced a much faster rate of TFP improvement.

In the period since 1993, China has achieved spectacular rates of growth in industrial output per worker. Employment growth slowed to only a little more than one percent per year, while output per worker has averaged nearly 10 percent annually. This has been achieved by a doubling of the growth in both the contribution of increased capital per worker and TFP.[10] India has also witnessed an acceleration of output growth in its industrial sector, but the magnitude has been much smaller and about half of the growth is attributable to increased employment. The rate of gain in India's labor productivity has been only about one-third that for China, the contribution of increased capital per worker much smaller, and the gains in TFP have averaged a very modest one percent per year.

Services

India has attracted considerable attention for the rapid expansion of its service industries; yet, it is striking that the expansion of this sector has also been very strong in China. As shown in table 2, China's services sector has grown as rapidly as its industrial sector, and accounts for most of the growth in employment. Furthermore, output per worker has grown at a steady 5 percent annually over the full 26-year period. Since 1993, China has also had an increase in the contribution of capital per worker in services that is as large as that for industry. Where the sector has performed less well is in its weak rate of TFP improvement.

Table 2: Sources of growth by major sector, 1978-2004 (annual percentage rate of change)

				Contribution of			
	Output	Employ-ment	Output/ Worker	Physical Capital	Land	Educa-tion	Factor Produc-tivity
				Agriculture			
1978-04							
China	4.6	0.3	4.3	2.3	0.0	0.2	1.8
India	2.5	1.1	1.4	0.4	-0.1	0.3	0.8
1978-93							
China	5.2	0.9	4.3	2.5	-0.1	0.2	1.8
India	2.7	1.4	1.3	0.2	-0.2	0.2	1.0
1993-04							
China	3.7	-0.6	4.3	2.1	-0.1	0.1	1.8
India	62.2	0.7	1.5	0.7	-0.2	0.3	0.5
				Industry			
1978-04							
China	910.0	3.1	7.0	2.2		0.2	4.4
India	5.9	3.4	2.5	1.5		0.3	0.6
1978-93							
China	9.3	4.4	4.9	1.5		0.2	3.1
India	5.4	3.3	2.1	1.4		0.4	0.3
1993-04							
China	11.0	1.2	9.8	3.2		0.2	6.2
India	6.7	3.6	3.1	1.7		0.3	1.1
				Services			
1978-04							
China	10.7	5.8	4.9	2.7		0.2	1.9
India	7.2	3.8	3.5	0.6		0.4	2.4
1978-93							
China	11.3	6.5	4.7	1.8		0.2	2.7
India	5.9	3.8	2.1	0.3		0.4	1.4
1993-04							
China	9.8	4.7	5.1	3.9		0.2	0.9
India	9.1	3.7	5.4	1.1		0.4	3.9

Source: Authors' estimates as described in text. For China, the output data are the official series of the national accounts for agriculture and services, and the series for industry is based on the alternative price deflator discussed in the text.

Services is the sector in which India comes closest to matching China's performance. Output growth accelerated after 1993, and the rate of improvement in value added per worker exceeds 5 percent annually. It is also remarkable that India has achieved those gains with only a very modest contribution from increased capital per worker. Unlike for China, India's impressive performance in services is largely reflected in a rapid improvement of TFP.

SECTOR SHARES

The top panel of table 3 shows the distributions of value-added at the beginning of each sub-period as well as for the last year in our sample. In 1978, China and India had quite different sectoral distributions of value added, and these differences have magnified in subsequent years. In 1978, agriculture and services each accounted for roughly one-quarter of China's

[10] These gains are based on our use of the alternative price deflator suggested by Young (2003). The acceleration of output growth and TFP would be less if we used the official data. The alternative price deflator has the greatest impact on lowering the estimated growth of industrial output in the first sub-period.

value added, with industrial activities accounting for the remaining half. In contrast, agriculture was the largest share of India's value added, with services and industry accounting for one-third and just one-quarter respectively.

By 2004, the value added share of agriculture had declined by 20 percent in both economies. For China, this was split equally between increases in the secondary and tertiary sectors. In contrast, India has seen only a small increase in the value added share of its already relatively small industrial sector, with most of the expansion concentrated in services.

Table 3: Value-added and employment by industry as a share of total (percent)

	Primary	Secondary	Tertiary	Total
	Value-added			
1978				
China	28	48	24	100
India	44	24	32	100
1993				
China	17	51	33	100
India	33	28	39	100
2004				
China	9	58	33	100
India	22	28	50	100
	Employment			
1978				
China	71	17	12	100
India	71	13	16	100
1993				
China	56	22	21	100
India	64	15	21	100
2004				
China	47	23	31	100
India	57	18	25	100

Source: China Data Center and CSY; India National Accounts; India NSSO.

Unlike with value-added, the initial sector distributions of employment for China and India were quite similar in 1978. As shown in the bottom panel of table 3, both reported about 70 percent of their workers as being in the agricultural sector. Since then, workers have moved out of agriculture, but the decline in the share of employment in agriculture has been much larger for China: only 47 percent are still in agriculture, compared to 57 percent for India. In addition, China now has a larger portion of its workforce in services than does India.

Are these sectoral distributions unusual relative to those for other similar economies? A recent IMF study (IMF 2006) compares actual value added and employment shares with predicted shares, using a regression analysis to control for country characteristics such as output per capita (PPP), population and geographic size. For both China and India, the authors find that agriculture's share of value-added is about what one would expect, but that this sector continues to employ a surprisingly large share of the labor force. In both economies, this is offset by a significantly smaller than predicted labor force share in the service sector. For India, however, the actual value-added shares for industry and services are also quite similar to predicted shares. In contrast, the industrial sector in China accounts for an unusually large share of value-added, while value-added in services is unexpectedly small.

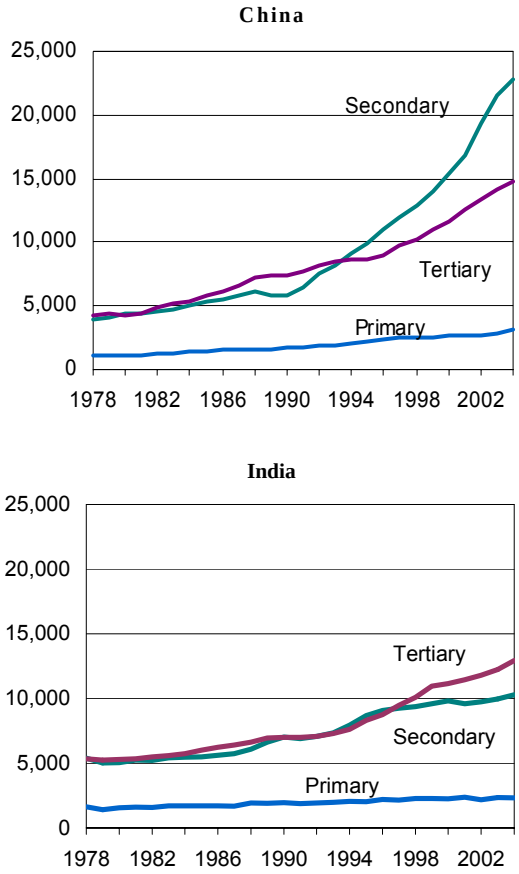
REALLOCATION EFFECTS

Output growth can be generated from the reallocation of resources into higher productivity activities as well as from productivity gains within sectors. Indeed, this reallocation effect is potentially a very important source of growth for economies in which a large share of labor is initially underutilized in agriculture. In the discussion below, we contrast this dimension of the sources of growth for China and India. Our first step is to examine sectoral differences in labor productivity. We then decompose aggregate growth in output per worker into the contributions from each sector and a residual, which can be interpreted as the effects from resource reallocation.

Figure 1 shows the evolution of output per worker by sector from 1978 to 2004. We use PPP exchange rates from the World Bank and constant 2004 prices to construct indicators that are comparable for the two countries.[11] First, the chart provides an alternative look at each country's growth in output per worker, already presented in tables 1 and 2. As shown, the level Chinese labor productivity in each sector was only about seventy percent that for India at the beginning of the period. However, by 2004, Chinese output per worker in services, primary activities, and industry had risen to 110, 130 and 220 percent of the Indian levels respectively.

[11] The results are quite similar if market exchange rates are used instead.

Figure 1: Output per worker by sector, China and India, 1978-2004



Source: China Data Center and CSY; India National Accounts; India NSSO.

Second, the chart highlights the substantial and growing sectoral differences in labor productivity for both economies. In 1978 and for both India and China, output per worker was nearly identical in the secondary and tertiary sectors, and roughly three times that for the primary sector. Since then, India has experienced relatively slow productivity growth in the primary sector, combined with an acceleration for services beginning in the mid 1990s. By 2004, Indian labor productivity in industry and services had risen somewhat to four and five times that for primary activities, respectively. Due to the rapid and sustained labor productivity growth in industry, the productivity differences are even larger for China. In 2004 the levels of value-added per worker were seven times (secondary) and five times (tertiary) that for the primary sector. [12]

How much of the aggregate economic growth in each country can be attributed to sectoral gains in output per worker? A simple measure of the contribution from each sector is just the sector's growth rate (from table 2) weighted by the sector's share in value-added at the outset of each sub-period (from table 3). The difference between total growth and the sum of the sectoral contributions provides a (residual) measure of the effects due to resource reallocation. Table 4 shows the resulting decompositions by period, for each country as well as the cross-country differences in each component.

During the first sub-period, 1978-93, Indian growth can be attributed in roughly four equal proportions to gains in each of the three sectors and gains from resource reallocation. In the more recent period the main difference has been a tripling of the contribution from services, and a doubling of the contribution from resource reallocations.

As expected given the previous discussion, the Chinese performance is dominated by the industrial sector, which accounts for more than a third of aggregate growth during the first period, and more than half during the second. However, the magnitude of the reallocation is larger than that for India in the first period and of equal size in the second. With a higher rate of overall growth, the reallocation effect falls from roughly one-fourth of the total before 1993 to just fifteen percent more recently.[13]

Table 4: Sectoral growth in output per worker, 1978-2004 (percentage contribution to growth)

	Total	Primary	Secondary	Tertiary	Reallocation
1978-03					
China	6.4	1.2	2.4	1.1	1.7
India	2.4	0.6	0.5	0.7	0.6
Difference	4.0	0.6	1.9	0.5	1.0
1993-04					
China	8.5	0.7	5.0	1.7	1.2
India	4.6	0.5	0.9	2.1	1.2
Difference	3.9	0.2	4.1	-0.4	0.0

Source: authors calculations as explained in text.

The table also highlights a striking shift in the sources of the difference in economic growth between the two countries. During both 1978-93 and 1993-2004, China's average annual growth in output per worker exceeded that for India by nearly four percent. While strong

[12] A recent study notes that "for the world as a whole, labor productivity in nonagricultural sectors is about three times higher than in agriculture." IMF (2006, p. 11). Thus, the sectoral productivity gaps that have emerged in India and especially China appear quite large.

[13] The magnitude of these reallocation effects is comparable to those found by Bloom and others (2006) for an earlier sample period, and by IMF (2006).

Chinese industrial sector performance is the most important factor in the earlier period, relatively strong growth in China's primary and tertiary sectors and a larger reallocation effect all contributed to the overall growth differential. In contrast, after 1993, all of the difference between China and India's labor productivity growth rates can be explained by the much larger contribution from China's industrial sector. India's services sector now shows a slightly higher contribution to total growth and the reallocation effects are of equal magnitude.

FUTURE PROSPECTS

Even if we use PPP exchange rates, China and India are still very poor countries relative to the United States. At 15 and 8 percent of the U.S. level of GNI per capita, catch-up will continue to be a major source of growth. China faces a slower increase in the population of labor force age, but it should be able to sustain its economic growth in future years by continuing to shift workers out of agriculture to higher productivity jobs in industry and services. India faces an even more favorable demographic situation of continued growth in its labor force and an even larger share of its workforce still in agriculture.

However, China has made much greater progress in raising the educational skills of younger workers. According to the OECD (2005), illiteracy has essentially been eliminated among new entrants to the workforce. Enrollment rates are rising rapidly at every educational level, and 98 percent of primary school enrollees reach the fifth grade compared to 60 percent for India. Despite an external reputation for having a large pool of highly educated persons, India faces serious deficiencies in the education of the bulk of its youth population.

With respect to capital accumulation, China is actually faced with an excess that threatens to disrupt growth through over-investment in some sectors. In addition to a national saving rate above 40 percent, the country is the recipient of private capital inflows equal to ten percent of the GDP. A continued rate of growth near 10 percent annually seems easily warranted from the supply side of the economy. India faces a more constrained situation. While the private saving rate has increased substantially over the past decade, much of this is drained off into the financing of a large public sector deficit. Similarly, private capital inflows have increased; but as a share of GDP, the flow is about half that of China. Current rates of capital accumulation are consistent with a GDP growth rate near 7 percent, but higher rates would require reductions in the public sector deficit or increased capital inflows from abroad.[14]

Overall, we conclude that the supply-side prospects for continued rapid growth in China and India are very good. Future problems of sustaining growth are more likely to occur in other areas, such as inefficiencies in the financial sector for China, and the lack of an adequate infrastructure in India.

Both countries will also need the stimulus of access to global markets to deepen and sustain their growth. In this respect, China has had extraordinary achievements in raising the ratio of total trade to GDP to 65 percent in 2004 compared to 14 percent in 1978. India was at the same 14 percent of GDP in 1978 and for many years lagged far behind. Recently, however, India's trade has also expanded rapidly and reached 42 percent of GDP in 2004. In the first part of this decade, China's trade has expanded at a 24 percent annual rate, but India has also had extremely rapid growth, 17 percent per year (table 5). However, the composition of the trade has been much different. Just as with the sector composition of GDP, China's exports are concentrated in goods exports whereas India's trade has a much larger services component. The extent of China's lead in goods trade is also evident in table 6, which shows the commodity composition of exports. China's trade has grown seven-fold since 1993 compared with 3 ½ times for India, and the volume of India's merchandise exports is similar to that of China a decade earlier.

[14] The differences in the structure of public-sector finances between China and India are not as great as they may appear. India borrows funds directly to finance its expenditures. China does not report a similar public sector deficit, but only because it covers the losses of state enterprises with loans that are unlikely to be repaid. At some future date, the Chinese government will need to assume the debt directly.

Table 5: Annual growth in exports, China and India, 1995-2004 (percent)

	1995-2004	1995-2000	2000-2004
		China	
Total Exports	18.1	13.7	23.8
Goods	18.6	14.2	24.2
Services	14.0	9.7	19.7
		India	
Total Exports	12.6	9.5	16.6
Goods	10.1	6.7	14.5
Services	20.6	19.8	21.6

Memo: Share of Goods in Total Exports:

	1995	2000	2004
China	87.0	89.1	90.5
India	82.2	72.2	67.1

Source. World Bank. 2006. *World Development Indicators*.

Table 6: Exports by commodity type, China and India, 1984-2004 (US$ millions)

	China		India	
	1993	2004	1993	2004
Food and live animals	8,381	18,844	3,384	6,843
Beverages and obacco	901	1,214	159	303
Crude materials, inedible, except fuels	3,041	5,753	1,299	5,514
Mineral fuels, lubricants and related materials	4,112	14,497	496	6,895
Animal and vegetable oils, fats and waxes	205	148	101	349
Chemicals and related products	4,590	25,995	1,539	9,106
Manufactured goods, classified chiefly by material	16,803	101,713	9,096	28,924
Machinery and transport equipment	15,222	268,218	1,513	7,763
Office machines and computers	1,647	87,101	116	388
Telecommunications and sound-recording equipment	4,522	68,497	48	236
Electrical machinery, apparatus and appliances	4,437	61,137	228	1,546
Miscellaneous manufactured articles	38,093	155,813	4,287	13,285
Clothing, footwear and travel goods	25,308	82,908	3,456	7,752
Other	395	1,131	363	864

Finally, the two countries differ substantially in terms of another measure of integration with the global economy—foreign direct investment inflows. In recent years, the inflows into China have exceeded $50 billion per year, and a few years ago they represented over 4 percent of GDP. The inflows into India have been about $5 billion and less than one percent of GDP. FDI can be important in promoting access to global markets, and accumulation of technology and management skills, all of which have been significant in China's growth.

CONCLUSIONS

Our constructed growth accounts for China and India provide empirical documentation for much of the prior discussion of their growth performance. In international comparisons, China's achievements have truly been extraordinary, but India has also grown at a rate that matches the other industrializing economies of East Asia. Key differences between the two economies also stand out, with China's concentration of growth in industry while India's growth has been strongest in various service-producing industries; but China's growth is remarkably broad across agriculture, industry and services. Overall, the growth of services in China actually exceeds that of India. Thus, juxtaposing the experiences of China and India offers a valuable perspective on each country's individual performance.

Our work also extends the growth accounting literature for these economies in a number of ways. First, it incorporates all of the recent data revisions, some of which are quite large. Second, the analysis disaggregates by major economic sector. This provides new estimates of the contributions to overall labor-productivity growth from growth within sectors versus from the gains due to reallocation of labor and capital among sectors. In China, we document the strong contribution to growth that is provided by both increases in capital per worker and TFP. Surprisingly, we find no support for some of the recent arguments that China is experiencing a significant deceleration of growth in TFP due to wasteful and excessive expansions of capital investment. The comparison of China and India highlights the weak performance of India's manufacturing sector as much as the strong growth of services.

Looking forward, supply-side factors suggest that both economies should be able to sustain their growth. They have plentiful supplies of underutilized labor, though India faces greater challenges of raising educational attainment. Both have high rates of private saving, although again China stands out. India currently devotes much of its saving to finance the large fiscal deficit.

The growth prospects for both depend upon continued integration with the global economy, including trade in

goods and services, and investment flows. India, in particular, will need to broaden its trade beyond the current emphasis on services. Only an expansion of goods production and trade can provide employment opportunities for the current pool of underemployed and undereducated workers. China has done well in the international dimension and now needs to focus on development of domestic markets and a more balanced trade position.

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