CHINA AND INDIA: A COMPARISON OF TWO TRADE INTEGRATION APPROACHES

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Summary

The comparison of the key features of trade integration processes and the economic outcomes in China and India reveals that while much has already been achieved in both these economies, the Chinese reforms, especially with respect to manufacturing trade, have gone further and that this is likely one of the key determinants of better economic performance of China. Still, China's integration process so far remains characterized by a certain duality. On the one hand the opening up of trade and FDI in manufactured goods has spurred the emergence of a largely private sector. On the other hand the high level of public ownership and important regulatory barriers continue to dominate the services sectors. India has gone a long way in reducing its tariffs on non-agricultural products as well as selected non-tariff barriers but moderate protection still persists which likely adds to the hurdles faced by the Indian manufacturing sector. India has revealed a comparative advantage in certain segments of the services sector but its services trade policy is still very restrictive, even as compared to China. More generally the extent of liberalisation achieved so far in India and the outcomes it brought about suggest that the remaining goods and services trade barriers are just but one item on the list of reforms that India needs to tackle in order to promote trade-led expansion of more labour-intensive activities.

The author is an economist at the Organisation for Economic Co-operation and Development and the material presented here draws on work carried out within the OECD Secretariat, in particular on Greene, Dihel, Kowalski and Lippoldt (2006) and Dihel and Kowalski (2007). The views presented are strictly those of the author and do not necessarily represent the views of the OECD or its member countries or co-authors of the two aforementioned reports. Useful comments by Ralph Lattimore and excellent statistical assistance by Clarisse Legendre are gratefully acknowledged.

Introduction

China's and India's GDP growth rates have outperformed world average growth rates and, indeed, those of other lower and middle income countries for the most part of the last 15 years. China has grown at an average rate of close to 10% annually during 1990-2006; a rate at which income more than doubles every seven years. Although regarded as a success, India's performance was less spectacular than China's with an approximate rate of growth of 6% annually. The growth of world economy in the corresponding period amounted to approximately 3% annually (Figure 1).

As pointed out by the World Bank (2007), the two countries now account for 37.5% of world population and 6.4% of the value of world output and income at current prices and exchange rates; as their per capita production and consumption approach levels similar to those of today's developed economies, as they are indeed already doing (see Figure 2), major effects on global markets and resources can be expected. Indeed, this has already been happening for some time with the great influence of China's demand and supply on the world markets observed since the beginning of the 1990s. India's influence on world markets, despite the several successful stories of individual companies or sectors, has been more limited so far (see Figure 3) but the potential is clearly there (e.g. Lehman Brothers, 2007). In fact, one could argue that because of the more organic way the economic growth is being achieved in India the achievements are more sustainable.

While China and India are both very populous, both have a history of central planning and inward oriented policies and both are poorer as compared to the OECD area, they are in fact two quite different countries with diverging development opportunities and challenges. Some of these broad differences are revealed in Table 1 which compiles a list of selected resource, geographical and economic indicators. Taking a bird's eye view at the two economies India is closer to Europe in terms of geographical distance by some 1500 kilometers (and yet closer if a sea distance is considered) while China is closer to the United States by some 700 kilometers and to Japan by some 3750 kilometers. Culturally, because of the past colonial links with the British Empire and the widespread use of the English language India is much closer culturally to both the EU and the US, while China can be considered closer to Japan. Both countries are very large in terms of surface and population and are quite diverse geographically and ethnically. China has almost three times as much agricultural land as India does but India's arable land resources are larger than those of China by almost 60%. India's population and labour force are growing much faster than China's, including the skilled segment of the labour force. Despite relatively similar populations, China's economy is almost

three times bigger than India's and the Chinese GDP per capita in purchasing power parity terms is double that of India.

These and many other differences, including the scale and scope of economic policy reforms, are reflected in the rather distinctive development paths that the two economies have been following as well as in their distinctive trade profiles. While in both China and India the share of agriculture in GDP has been declining[2], its place has been taken primarily by manufacturing in China and by services in India. As a result in 2006 services accounted for 56% of India's GDP compared to 41% in China. This is also mirrored in the trade developments. India quite clearly has not been able to match China's conquest of the world's goods markets, even though recently more dynamism has been observed in certaing segments of the Indian manufacturing sector (Lehman Brothers, 2007). Yet, for some time now, the developments in India's services sector have generated trade flows that are more comparable to those of China in absolute terms and are much higher than in China if we account for the economy size. Evidence is also mounting that the product composition of these two economies' trade is quite different and that, for the moment, the two enormous economies are not competing directly in the world markets (Dimaranan et al., 2007).

The reminder of this paper goes deeper into the trade and trade policy developments in China and India in order to addresses the implications for their own economy and the world economy as a whole. In particular it aims to shed light on the following set of questions:

- What has been the role of trade in China's and India's recent economic growth?
- What has been the role of trade policy in China's and India's recent economic growth?
- What is the remaining potential for improving economic outcomes associated by reforming trade policy reforms?
- What are other policies that could help these countries to further improve their integration with the world markets?

Main trade developments

General trade trends

China

[2] This is notwithstanding the fact that close to 40% and 60% of respectively China's and India's population live in the rural areas (check this).

China's economic transformation and integration with world markets is one of the most remarkable economic developments of recent decades: China's share in world goods trade has increased from less than 1% in 1970 to close to 8% in 2006 (see Figure 3). The expansion of international trade has been the key feature of the country's rising prominence in the world economy with average annual growth rates of trade at three times the world rates. Already in 2005 China became the third largest trading nation after the United States and Germany and its contribution to the growth of world merchandise trade over the period 1996-2006 amounted to 20%. Looking forward, it is estimated that the China will become the world's top exporter by the beginning of the next decade owing to attractiveness to FDI, a high domestic saving rate, improvements in productivity spurred by reduced internal and external barriers to trade, and a significant surplus of labour (OECD 2005).

The considerable expansion of China's trade in recent years concerns both goods and services. However, as compared with its goods trade, services exports remain at lower levels and are growing more slowly. Indeed, while goods trade surplus reached USD 134 billion in 2005, services saw a gradually deepening deficit that appeared at the beginning of the 1990s and reached USD 9 billion in 2005. Overall, Chinese goods exports account for approximately 90% of its total exports, which is substantially higher than the world average at a little over 80%. Its services exports only account for a little less than 10% compared with a world average of 20% (Table 2). All this suggests that China's services exports are still relatively underdeveloped and its integration into the world economy was mainly driven by goods trade. As we discuss below, among other things, this reflects the duality in China's economic policy: the opening up of trade and FDI in manufactured goods that resulted in the emergence of a largely private sector[3] and the high level of public ownership and important regulatory barriers in services sectors that explain their weaker trade performance.

The composition of China's merchandise trade has undergone a major change since the beginning of reforms with the large rise in the value of manufacturing exports and the significant increase over the years in imports of fuel, energy, and capital goods (Greene et al., 2006). To illustrate more recent changes Table 5 presents the top 25 products (at the six-digit level of the harmonized system) exported by China in 1996 and 2006. First of all, it reveals that China's exports were less concentrated in 1996 than they were in 2006; for instance the top 25 products accounted for 17% and 25% of total merchandise exports, respectively. Furthermore, a clear diversification is observed away from lower technology products such as footwear, toys, apparel and petroleum products towards ICT sector products such as automatic data

[3] In terms of sectoral policies, emphasis was placed on investment in export-oriented manufacturing determining a more rapid development of these sectors.

processing machines, transmission apparatus and parts and inputs into electronic products, amongst others. Similarly, in the services sector China has for some time already been diversifying away from transportation and financial and insurance services toward the exports of other business services (mainly professional services) as well as travel (Table 6).

China's major trading partners are on the export side the European Union followed by the United States and Japan (Figure 6). Together, these three trading partners provided markets for just below 50% of China's total exports in 2006, and made up 34% of China's import bill. On the imports side Japan and ASEAN countries are very important and indeed while China has positive trade balance with the EU and the US it has negative trade balance with the ASEAN group. It is quite clear that China's trade expansion reflects in part greater specialisation in production in the Asia region. As Greene et al. (2007) describe China has emerged as the final processing and assembly platform for a large volume of exports originating from its Asian OECD neighbours but destined for markets in Europe and North America. With time the sourcing increasingly involves other fast growing Asian economies. According to some crude approximations almost half of China's exports are the subject of such "triangular" trade though this share is higher in certain high technology products trade (see section *Importance of trade in China's and India's growth* for more on processing trade). This has resulted in a shift in China's bilateral trade relationships that now show increasing trade surpluses with Europe and North America, and rising deficits with many Asian countries.

China's trade and investment liberalisation has created an attractive business environment and therefore has had a significant impact on FDI inflows.[4] FDI grew from essentially zero in 1979 to USD 636 million in 1983, to USD 60.3 billion in 2005 (Greene et al., 2006). China has been the largest FDI recipient among all developing countries since 1993 and ranked the first in the world in terms of FDI inflows in 2002. Currently, China is the third largest recipient of FDI after the US and the UK (UNCTAD, 2005). It is important to note however that China's FDI performance must be viewed in an international perspective. In terms of FDI inflows per capita, China ranks lower than all OECD countries save for one, and even ranks relatively low among developing countries.[5] Additionally, there are some concerns about the quality of these investment flows; much of China's FDI is relatively short-term, in labour intensive manufacturing, with foreign investment in high-tech and the services sectors lagging behind (Greene et al, 2007).

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4 For a detailed analysis of China's investment policy, see OECD (2003) *China: Progress and Reform Challenges*, OECD, Paris, 2003 and OECD (2006) *China: Open Policies towards Mergers and Acquisitions*, OECD, Paris, 2006.

5 OECD (2003) *op. cit.*, pp. 37-40.

India

India's recent economic dynamism has led many to compare it with China and to expect a similar dramatic insertion in world markets. However, India's trade expansion is much less impressive. Its share in world trade has first declined steadily since the beginning of the 1970s to around 0.5% at the beginning of 1990s and then rose steadily to just above 1% currently. The compound annual growth rate of India's exports of goods and services for the 1990-2005 period was 14%—well above the world average growth of 6%. In particular, in the last five years Indian exports have increased at around 18-20% per annum—three times the rate of world trade growth. Yet, these significant increases reflect to a large extent a relatively low base; India's contribution to the growth of world merchandise trade over the period 1996-2006 amounted to a mere 2%, as compared to 20% in the case of China.

Remarkably, the recent growth in India's trade has been led by services rather than manufacturing. Despite India being relatively abundant in skilled labour and capital, its manufacturing trade is highly concentrated in low-technology goods and the share of high-technology manufactured goods in its total exports has barely changed since the mid-1990s and remains under 5%, as compared to 30% for China (see Table 8). Indeed, India's current merchandise export structure is still heavily skewed towards petrol products, jewellery, furniture, chemical products and textiles and wearing apparel, a structure that resembles to a certain extent the structure of China's exports at the beginning of the 1990s (Table 6). Superficially, the structure of exports seems a little bit more concentrated in 2006 than in 1996 but this is largely driven by the emergence of exports of petroleum oils.[6] Additionally, it is not easy to classify the direction of changes in the structure of top India's exports. On the one hand a few more sophisticated products such as motor vehicle parts made it to the top 25 products in 2006. On the other hand several traditional manufacturing products such as gems and jewellery, wearing apparel and certain food products that already dominated India's exports in 1996 have gained in importance in 2006. This suggests that India has not integrated into the global production networks of high technology products to the extent China did.

The still very traditional profile of India's merchandise trade is also confirmed by a more detailed analysis of its revealed comparative advantage indices and growth rates conducted by Dihel and Kowalski (2007). Most of the products in which India is estimated to have a revealed comparative advantage belong to the primary and labour intensive sectors. During the last 10 years, India has developed a comparative

[6] As argued in Kowalski and Dihel (2007), this is due to the rapid development of domestic refining capacity. In 1996, India imported both crude and refined petrol (around 2/3 crude and 1/3 refined) and exported only negligible quantities. In 2005 its imports of crude petrol have more than tripled (in quantity), its imports of refined petrol have considerably declined, and refined petrol has become a key export. It is yet unclear whether this export boom is sustainable or it was due to an incipient excess domestic refining capacity.

advantage only in chemical and metal manufacturing. In fact, in high-technology segments such as *Office, accounting and computing machinery* and *Radio, television and communication equipment* RCA indices have actually deteriorated over time.

In addition to the analysis of revealed comparative advantage indices, Dihel and Kowalski (2007) employed two different analytical approaches to capture the skill intensity evolution of India's export mix. The first methodology based on the skill intensity classification developed by UNCTAD[7] revealed that despite the rapid growth in trade flows, India has not managed to develop a high-technology export sector and that its export mix in terms of skills requirements remains worryingly stable in period (1996-2005) (Figure 8). Another classification developed by the Hamburg Institute of International Economics based on the ISIC-classification enabled breaking down individual manufacturing sectors according to the intensity with which they use technology. This analysis revealed that the share of high-technology manufactured goods (such as pharmaceuticals, radio and telecommunication equipment, office and computer equipment) in India's total exports has barely changed since 1996 and remains under 5%. Even the share of medium-technology products which include the whole of the chemical sector and motor vehicles has increased by less than 5 percentage points and stood at 19% in 2005. To complement these findings Table 9 presents the World Development Indicators classification of high technology exports; they provide higher estimates of shares of which technology trade but a similar flat trend and performance relative to Brazil and China.[8]

Services trade appears to have done much better and India has emerged as a global player in some services sectors such as information technology and business process outsourcing, as well as services related to pharmaceuticals. Mode 4- related trade is also important amounting in value terms to over 90 % of total cross-border services exports (Dihel and Kowalski, 2007). A process of export reorientation is clearly underway and a significant shift has taken place towards more advanced, in some cases high-skill intensive, services. Moreover, new services, such as computer and selected professional services, have emerged in India's exports to a greater extent than in other (developing and BRIC) countries. A closer look at the sectoral composition of services trade in Table 10 reveals *Other services* being the top export category during the period 1994-2004. *Computer and information services* have experienced the largest increases, while transport and travel services registered a considerable drop between 1994 and 2003. In 1994 three types of services (*Travel*, *Transportation*, and *Other business services*) accounted for almost 100 % of all services exports; in 2000 they represented 57% and in 2003 only 42%. The most spectacular

[7]. Source: UNCTAD, The Least developed Countries Report 2002, New York and Geneva 2002. The original categories are supplemented with the category of primary.

[8] The figures are in percentage of manufactured exports and not total exports.

evolution was recorded by *Computer and information services* whose share in India's services exports almost doubled between 2000 and 2003 to reach almost half of India's services exports.

The structure of India's services imports has remained considerably more stable. Other services (*Other business services*, *Communication* and *Construction*) as well as travel services seem to be the most dynamic categories. *Transport* imports experienced a steady decline in India's total imports: from more than 50 % of total services imports in 1994 to 36 % in 2003. While imports of insurance, financial and construction services are relatively important, the three main import categories–transportation, travel and other business services—accounted for 82% of Indian services imports in 2003 (compared to 92% in 1994).

A more detailed analysis of India's services export performance based on selected trade indicators such as sectoral revealed comparative advantage and intra-industry trade indices performed by Dihel and Kowalski (2007) confirms that India has a strong revealed comparative advantage in *Computer and communication services*. *Travel, Financial* and *Communication services* feature high levels of intra-industry trade, indicating India's integration into the global service supply chain. Interestingly, trade in *Computer services* in India seem to be entirely an inter-industry phenomenon.

In terms of geographical orientation of goods and services trade in recent years India had managed to increase its shares in all partner countries' markets but these shares remain relatively small and are concentrated in few low-technology products. Since 2000, India ´s orientation towards OECD markets has been slowly decreasing, from 55% of its merchandise exports to only 43% in 2004. The EU remains the top destination but has seen its share of Indian exports reduced by 3 percentage points in 5 years. In merchandise trade, the rise of China as a key export destination is particularly noticeable. Exports to China increased from less than 2% of total India's exports (rank 14) in 2000 to more than 6.6 % in 2004 (rank 3) and still growing at 58% per annum. Exports to Singapore have also considerably intensified and now represent around 5% of India's total. However, apart from the phenomenal rise of exports to Singapore, which was heavily influenced by exports of refined petroleum, there are few signs that India is fully integrating into the south and/or South-East Asia trading hub. A similar trend can be identified in terms of India's services trade with OECD countries: the OECD countries' group share in India's services exports decreased from approximately 33% in 1999 to about 26% in 2003.

India's inward FDI has increased considerably since 1991 and the annual FDI inflows grew from US$3.13 billion in 2002/03, to US$5.6 billion in 2005/06.[9] As in many other parts of the world, but perhaps for different reasons, FDI inflows into India are shifting increasingly away from manufacturing towards services sectors. In fact, in India, FDI is heavily concentrated in services. The share of services sector in total FDI inflows rose from 5% in 1990 to more than 50 % during the post reform period (1991-2005). However, likely reflecting the structure of services trade barriers (see below), the inflow of services FDI has been restricted to a few sectors such as transport and financial services. Between 1991 and 2005, the top six recipients of FDI have been electrical equipment (14.5%), transportation industry (11%), telecom (11%), power and oil refinery (10%) and other services sector (8.45%).[10] When it comes to FDI outflows from India, a similar concentration in services sectors is observed. The share of services in total FDI outflows increased to around 45% in the period 1999-2003. Non-financial services constitute around 36% and trade approximately 5% of total FDI outflows.

Importance of trade in China's and India's growth

The remarkable parallel growth and trade performance in both China and India prompts the classic "chicken and egg question", namely, whether the opening up to trade drove the growth of GDP or whether trade increased simply as a consequence of GDP growth and expansion of their shares in the world GDP. To illustrate the influence of trade on GDP several analysts consider the evolution of exports to GDP or exports and imports to GDP ratios. Yet, the use of such ratios can be criticised as meaningless or even misleading since exports or imports are turnover measures whilst GDP is a valued added concept. Still, as long as we remember this important distinction these measures can give us a feeling of the extent of exporting activity as compared to economy's income.

In China, clearly, the observed trade expansion reflects at least in part greater specialisation in production in the Asia region where China engages in the final processing and assembly of large volume of exports originating from its Asian neighbours that are destined for markets in Europe and North America. As mentioned above, according to certain rough approximations almost half of China's exports are the subject of such "triangular" trade though this share is higher in certain high technology products trade. Certainly, existence of such a processing activity would be reflected in relatively high exports to GDP ratios.

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9 Based on data from UNCTAD and the Indian Secretariat for Industrial Assistance. There is a discrepancy in FDI numbers in certain cases. The RBI calculates FDI inclusive of reinvested earnings. However, the numbers used here, which were provided by the Department of Industrial Policy and Promotion, look only at investment made through the automatic or approval route.

10 Monthly Reports by the Indian Secretariat for Industrial Assistance.

In this context some commentators have suggested that that the claim that China is an export-led economy might be a myth (UBS, 2007). Processing activity is not nearly as present in India but a similar question about the actual contribution of exports to its GDP can be asked. UBS (2007) argues that despite the fact that imports and exports are rising in absolute terms when expressed as ratios of GDP, the estimate of actual value added contribution of exports to GDP is barely rising over time. Yet, the UBS (2007) analysis is itself not free of limitations; the value added contribution is calculated by using very broad assumptions about the domestic content and the shares of valued added in domestic content. They assume a 50% domestic content share for light manufacturing, a range from 20% to 50% for electronics[11] and 70% for heavy industry and resource exports. Next a constant value added to total domestic content of 50% is assumed. When this is done, unsurprisingly, the actual exports value added share for most Asian economies is far less than the exports/GDP ratio; for China this ratio is 10% and is not increasing over time as rapidly as the exports to GDP ratio does.

We have taken the same approach as the UBS (2007) with the improvement that the actual data from social accounting matrices was used to measure the value added content in the final value of production by broad sector.[12] These where then multiplied by corresponding exports data extracted form the UN Comtrade database to obtain an estimate of the export value added. The results of this exercise for China and India are presented in Figures 10 and 11.

It is evident that both for China and India a simple export to GDP ratio statistic overestimates the actual contribution of exports to GDP. For China the simple ratio of exports to GDP is four times larger than the estimated export value added to GDP ratio (36% in 2005 compared to 8% in 1996). For India the simple ratio is 3.25 times larger (13% in 2005 compared to 4% in 1996). More importantly, however, both the simple and the more sophisticated ratios are much lower for India (e.g. 4% of exports value added in GDP as compared to 8% for China) suggesting that international trade likely plays currently a less important role in India's growth as compared to China. Moreover, this ratio has clearly been increasing for China, especially since 2000, while for India it has been lingering around the 3% level.

Trade policy developments

China

[11] This is differentiated by country according to their per capita levels.
[12] The data comes from the Global Trade Analysis Project database.

China initiated gradual and incremental economic reforms over 25 years ago, beginning the transition from a centrally planned to a more market based economy. Access to foreign markets and capital and advanced technology through greater integration into the multilateral trading system were important ways in which this process was to be facilitated. The resulting opening to world trade over the past quarter of a century is one of the more impressive aspects of China's economic reform and structural change and its accession to the WTO in 2001 symbolises the sustained integration efforts by providing more secure and predictable market access both for China and its trading partners and supporting the reforms of domestic institutions and policies.

As already foreshadowed, China's transition to a more open economy was a gradual and highly managed transition. It began with export processing in a few authorised special export processing zones (EPZs) along China's southern coast. By the mid-1980s export processing was more widely spread and China was increasingly characterised by a two-tiered export regime: a very open export processing segment benefiting from duty-free imports and a domestic export sector that was afforded high levels of protection through tariffs and multilayered non-tariff barriers (Greene et al., 2007).

In 1992 China declared its intention to establish a "socialist market economy" and began to make substantial tariff cuts. This process was greatly strengthened by the extensive reforms that China agreed to implement as a part of its WO accession. These included lowering of trade barriers in almost all sectors of its economy, providing national treatment, protecting intellectual property rights, improving transparency and eliminating non-tariff barriers among others. Some of these commitments are still being implemented and this ongoing process is likely to further deepen China's integration with the world economy

Upon accession to the WTO, China agreed to bind all its import tariffs. After implementing all commitments China's average bound tariff on agricultural products will decrease to 15%, ranging from 0 to 65%, with the highest rates applied to cereals. For industrial goods this average will decrease to 8.9% with a range from 0 to 47%, with the highest rates applied to photographic film and automobiles and related products (WTO, 2001). The two panels of Table 17 present bilateral trade-weighted tariffs imposed by China in year 2001 and after implementation of its WTO commitments which were scheduled mostly for 2004 but in no case later than 2010 (WTO, 2001). China also has committed to a further phased reduction and removal of non-tariff barriers, for the most part by 2005, but no later than 2010. China has also committed to limit its subsidies for agricultural production to 8.5% of the value of farm output (Greene et al., 2007).

As Table 12 shows, the reduction of tariffs during the 1990s has resulted in China being perhaps one of the most open developing countries with tariff levels close to OECD levels. The simple average Chinese tariff rate on non-agricultural products was reduced from 41% in 1992 to 14% in 2001 and further to 9% in 2005. The simple average tariff on agricultural imports was reduced from 47% in 1992 to 24% in 2001 and 15% in 2005.

The trade reforms that China has embraced as a result of its WTO accession are a continuation of a long standing trend that saw sustained reduction in non-tariff barriers and in levels and dispersion of tariffs. However, in the area of services, China's WTO commitments represent milestones. Plans include the opening of key services sectors to foreign participation, elimination of geographical limitations, forms of establishment, and scope of business activities among others. Indeed, trade in services was a key area in China's WTO negotiations that resulted in commitments to substantially open a broad range of services sectors through the elimination of many existing limitations on market access. China agreed to allow foreign services suppliers to engage in the retailing of all products by the end of 2003. By the end of 2004, all firms have the right to import and export all goods except those subject to state trading monopolies (such as oil or fertilizers). Foreign firms have been allowed to distribute virtually all goods domestically since the end of 2006. Foreign financial institutions are permitted to provide services without client restrictions for foreign currency business upon accession; local currency services to Chinese companies by December 2003; and services to all Chinese clients by December 2006.

Critical sectors such as telecoms, banking and insurance will now be confronted with greatly increased competition. China promised to eliminate by the end of 2006 most restrictions on foreign entry and ownership, as well as most forms of discrimination against foreign firms. Full access will be ultimately guaranteed to foreign providers through transparent and automatic licensing procedures. It will remove restrictions on trading and domestic distribution for many products. The full impact of increased competition in China will not be felt until the liberalisation of the remaining sectors has taken place as per the schedule agreed under the WTO agreement. (more on the actual implementation and on the allegations of reform reversal in 2007)

Greene et al. (2007) provide a detailed analysis of China's services liberalisation commitments as specified in its GATS schedule. Indices of trade restrictiveness are calculated to describe the consequences of implementation of China's commitments in five services sectors (banking, insurance, telecommunication,

distribution and engineering services).[13] It is estimated that implementation of WTO commitments in banking would lower the restrictiveness of this sector below the OECD average. By contrast, in all other sectors, despite significant liberalisation measures, the restrictiveness indices remain above the OECD average but are lower than in most developing countries covered in the analysis (see Greene et al. , 2006).

What are the implications of implementing the China's WTO commitments in goods and services for China and the world economy? Greene et al. (2007) provide some estimates on the basis of a multi-country, multi-sector computable general equilibrium model of the world economy that features increasing returns to scale and large-group monopolistic competition. Importantly, the model includes a treatment of foreign direct investment on a bilateral basis which, given the importance of foreign presence in the Chinese economy, is essential for understanding the impacts of its liberalisation. The results indicate that China itself clearly stands to gain substantially from its liberalisation. Implementation of the WTO commitments by China in goods and services sectors is estimated to increase its real income by almost 2%, while a scenario with full liberalisation is expected to yield a 3% increase in its real income, the estimates that are considered as quite high in this type of analysis. The estimated impact OECD economies is limited and heterogenous across the group. This is because of the still limited extent of trade integration with the the OECd area and the structure of bilateral trade flows between China and individual OECD economies which reflect divergent patterns of comparative advantages as well as differences in structure of trade barriers and geographical location. The most direct impact is expected through improved export performance of OECD countries that are already trading with or investing intensively in China but still face significant market access barriers. The observed trade patterns suggest that the impact through the market access channel is likely to be more important for Korea, Japan, Australia, and New Zealand, while the impact on other OECD economies is likely to be limited.

Overall China's integration process so far is characterized by a certain duality. On the one hand the opening up of trade and FDI in manufactured goods has spurred the emergence of a large private sector. On the other hand the high level of public ownership and important regulatory barriers seem to dominate the services sectors. Services activities continue to be constrained by high entry barriers, excessive state involvement, opaque regulatory process and overly burdensome licensing and operating requirements. The full implementation of GATS commitments would imply significant reforms and liberalisation measures with important gains for China and many of its trading partners. It is worth noting that the 11th Five Year Plan for the first time emphasised development of the services sector with a view to alleviate the

[13] The approach is described in OECD (2007a), Modal Estimates of Services Barriers, OECD Trade Policy Working Paper No. 51.

potentially negative impact on the overall structure of industry, job opportunities and comprehensive competitiveness.

India

2005 has marked India's tenth anniversary as a member of the WTO and more than fifteen years of sustained reductions in trade protection. Indeed, India's customs duties on imports have been declining since the end of 1980s both as a percentage of the value of imports and as a percentage of GDP and total government revenue. Quantitative restrictions on imports of agricultural products have been phased out in 2001. Services trade barriers have also come down and contributed to the expansion of a new dynamic services sector.

However, the remaining protection in both goods and services sectors is still much higher when compared to China or other BRICs. First, this means that intermediate inputs and capital goods remain expensive. Second, the remaining trade barriers combine with the high levels of domestic red tape restricting new entry and competition to keep India's competitiveness at low levels, particularly in agriculture and manufacturing sectors. As a result, pro-competitive effects in the tradable sector—the main driver of growth in most transition countries—are not as common as they could be.

The extent of India's tariff liberalisation is well illustrated by the fall in collected customs duties expressed as a percentage of the value of imports (from more than 60% in 1990 to around 10% currently) as well as the reduction of the share of customs duties in government revenue (from above 40% in 1990 to less than 10% currently, Figure 12). The decreasing reliance on trade taxes reflects continuing commitment to trade liberalisation but also the shifting of revenue collection from tariffs to more efficient ways of collecting taxes by broadening the tax base and movements towards a value added tax.

Tariff reductions seem to have been implemented across the board generating market access improvements but also entailing the added benefit of reducing tariff dispersion, and thus economic distortions and complexity (Table 13). Over the period 1990-2005 (for which we have consistent data) the proportional tariff reductions on imports of manufacturing merchandise have gone deeper than corresponding cuts in the agricultural sector. In fact, for agricultural products the reduction in tariffs calculated on trade-weighted basis is negative with tariffs actually increasing by 2 percentage points over the period while that for manufacturing (38) suggests considerable liberalisation effort in the past. The corresponding proportional tariff cuts for agriculture and manufacturing are respectively -4% and 75%. Tariff peaks for non-agricultural products have continued falling from 30% in 2003 to 12.5% in 2006, tariffs peaks on

agricultural products have remained unchanged. By focusing tariff reduction on tariff peaks, India has been narrowing protection differentials between raw materials, capital goods and consumer goods.

These statistics point to a significant liberalisation effort, especially in manufacturing. Yet, it has to be remembered that at the beginning of reforms India's tariffs were amongst the highest in the world and that the current trade-weighted average tariffs of close to 52% in agriculture and 12% in manufacturing still imply a significant wedge between domestic and world prices, and act as an indirect tax on exports through imports. This puts Indian producers that rely on imported inputs at a competitive disadvantage, and holds inefficient producers in the domestic market. The lowered but still high tariff barriers are consistent with the low growth of the industrial sector observed in Figure 4 and the fact that employment in the agricultural sector persists despite its decreasing contribution to India's GDP.

Statistics presented in Tables 14 and 15 are even more revealing and show that the overwhelming majority (between 72 and 100%) of India's imports are not imported for domestic consumption but, rather, are used as intermediate inputs by the domestic manufacturing and services sectors. Table 14 presents the 10 top India's imports and shows that over 60% of India's imports on average face applied tariffs higher than 10% and bound tariffs of around 30%. Within a number of these product categories the maximum tariffs are as high as 100% and there are a number of national and international tariff peaks.

Taking the example of imports of machinery and equipment, the simple average tariff of almost 15% is entirely a production cost increasing measure—99% of imports machinery and equipment imports are used as intermediate inputs in production. Another example is 10% tariff on imports of crude oil—the biggest India's import (26% of the total). 100% of these imports are an intermediate input into the production of the petroleum products a part of which are successfully exported (9% in 2003). Other similar examples include inputs into the production of the chemical, rubber and plastic products and services sectors such as construction, transport and electricity generation. All in all, in an alarming majority of cases, moderate to high tariff hurt mostly domestic firms that rely on imported inputs.

In an effort to offset the high taxation of intermediate products and barriers to services trade, India has opted to maintain and cultivate an extremely complex system of duty exemption schemes, special investment and establishment rules and special economic zones (SEZs) that provide incentives particularly to exporting firms. There are 134 duty exemption Acts in place covering all types of activities from restaurants to agriculture, handlooms, leather and footwear or gems and jewellery. The majority of special focus initiatives involve some type of duty-free exemption in general between 2.5% and 5% of the FOB value of exports. For sectors dominated by very small players, specific instruments are in place to channel duty-free imports through trade associations. Other schemes such as the export promotion of capital goods

scheme (EPCG) promises a 5% duty for imports of capital goods subject to an export obligation equivalent to 8 times the duty saved over a period of 8 years. Agri-export zones grant duty-free imports of capital goods. In the last few years, each financial bill has added to the number of special focus initiatives and other promotional measures undermining parallel efforts to simplify export procedures such as efforts to launch an automated electronic environment for all exports.

The extensive and complex duty exemption schemes mean that it is difficult to know which tariffs really apply in India and may create an impression that the protection levels may not be that high. As reported earlier, there is a significant gap between average tariffs and customs revenue as a percentage of imports but no publicly available information was found detailing customs revenue per import category, data which would allow to identify the areas and products for which most duty exemptions apply. Nevertheless, Table 21 clearly indicates that most of the output of the main importers of intermediate products is directed towards the domestic market, not exports. It is therefore quite likely that duty exemptions may not solve the problem of taxation on intermediate inputs.

There are currently no signs that the system will be simplified in the near future but it appears that the Indian government is planning to alleviate the burden on domestic industry. Indeed, in 2006 the Trade Minister Kamal Nath announced two new schemes *Focus Products* and *Focus Markets* aimed at providing a thrust to employment generation, particularly in semi-urban and rural areas. The objective of the *Focus Products* scheme is to promote exports of labour intensive industrial products by allowing a duty credit facility at 2.5% of the FOB value of exports on fifty percent of the export turnover of notified products such as value added fish and leather products, stationery items, fireworks, sport goods and handloom, and handicraft items. The *Focus Markets* scheme aims at promoting exports to specified markets and allows duty credit facility at 2.5% of the FOB value of exports of all products to the notified countries.

Various reports dealing with India's services sectors highlight particular problems related to market access in financial, telecommunication and distribution services. The OECD (2007) assessed barriers in banking, insurance, telecom (fixed and mobile), and distribution service and liberalisation effects in many countries, including India.[14] By using alternative weighting methods and improved econometric specifications that include barriers affecting each mode of services supply and additional sector-specific regulatory variables, the paper draws conclusions as to India's trade restrictiveness compared with both developing countries and the OECD. The results show that India is quite restrictive in banking, insurance, mobile telecom, and distribution. The sectoral analysis below describes the trade restrictiveness index (TRI) in selected services

[14] See OECD (2007a) "Modal Estimates of Services Barriers", OECD Trade Working Paper No. 51.

sectors in India and the underlying barriers, while Figures 13 to 15 graphically illustrates the results for India and selected emerging markets[15].

The results show that despite significant liberalisation steps, which in the analysed sectors far exceed India's GATS commitments, barriers remain high. The TRIs are well above the OECD average and most of the selected emerging economies, including China. Moreover, most of these services sectors have for a long time been in the public domain and they suffer not only from high barriers to trade, but also from domestic constraints in terms of burdensome regulatory measures and state monopolies. These services consequently suffer from inefficiencies and low growth. The negative impact of restrictions on the performance of banking and distribution services is elaborated on in more detail in Kowalski and Dihel (2007).

Finally, it is worth noting that given the important role of services as intermediate inputs in the production of most industries, an inefficient services sector can be costly for the Indian economy as a whole. The high protection of services inputs reinforces the taxing effect of non-services inputs hurting domestic production of goods and services producing firms.

The goal of the *New Foreign Trade Policy* is to double India's percentage share of global merchandise trade within the next five years. In 2004 when the government announced the new policy this was interpreted as achieving a 20% growth per annum in exports and increasing India's share in world trade from 0.8% to 1.5% by 2009. As far as means are concerned, the New Foreign Trade Policy[16] appears to be based on: continuing liberalisation efforts by reducing tariffs, unshackling controls, simplifying procedures and bringing down transaction costs; extensive use of duty rebates and exemptions to neutralize the incidence of all levies and duties on inputs used in export products; establishing export processing zones, so called special economic zones, to boost exports and harness FDI into infrastructure building

The objective set for the *New Foreign Trade Policy* must be seen as quite ambitious. Figure 16 traces the historical trend in exports growth and the projected, much higher, growth that would be implied by the *New Foreign Trade Policy.* Whether the means the government envisages will be sufficient to achieve such an ambitious outcome will be sufficient is unclear. In particular it is doubtful whether export-related duty

15 The OECD (2007a) attempted to include a large number of measures that can impede trade in services via various modes of supply. It is important to note that, at this stage, the study considers a combination of formal and actual barriers. A country can have regulatory measures in place which restrict trade, but these may not be applied in practice. Moreover, even if restrictions are applied, their effect depends on how they are applied in practice. Given these caveats, the proposed lists of restrictions and the results should be treated with caution. Where possible, this analysis indicates how results may change if the practical application on regulatory measures is taken into account.

16. Foreign Trade Policy 2004-2009, Directorate General of Foreign Trade, Ministry of Commerce and Industry, Government of India, 2004.

exemptions and preferential treatment of economic agents operating in the SEZs are the best way to promote economic efficiency and growth. While strong exports are the sign of an economy's competitiveness and the source of foreign currency earnings, exporting firms do not operate in a vacuum and discriminatory exports-oriented policies may in some circumstances produce more harm than good. At a very general macroeconomic level, maintaining moderately high import tariffs with a system of export-oriented duty exemptions can be called a system of "negative incentives"; costs of production are higher than in less protected transition countries except for those Indian producers which are already capable of exporting. This is bound to have a negative impact on the Indian economy in general and perhaps even on exports since this activity is also carried out within an inefficient national economy. Indeed, as much as 75% of the capital in the SEZs originates from domestic sources. Is it plausible to expect increased investment in exporting activity with policies that prevent the efficient domestic production?

All these elements suggest that the economic benefits of the SEZs in India are open to question, notwithstanding the private sector support and the government's enthusiasm. EPZs are always a suboptimal policy from an economic point of view (Engman, 2007). They can merely provide an interim solution to countries with poor business environments where bridging deficiencies at a national level is temporarily impossible. This may indeed be the case in India—a large, low income country with enormous population, poor infrastructure and fiscal problems—but it would not be rational to treat this as a sustainable, long-term solution that can substitute for reforms aimed at making business easier for everyone. Even as a temporary solution, the benefits are not guaranteed especially if the rents associated with operating within SEZs create perverse economic incentives.

In this context the two main elements on India's *New Foreign Trade Policy* seem somewhat contradictory. On the one hand the across-the-board liberalisation efforts are to be continued. On the other hand duty exemptions and other privileges geared mainly towards export promotion are to be enhanced. In fact, if the first objective is realized, the second, at least when it comes to import duty exemptions, becomes redundant. It seems that across-the-board import duty reduction can have more beneficial economy-wide and export effects than selective duty exemptions in export sectors. We would therefore propose that a cost-benefit analysis of India's import duty reductions through duty exemptions and SEZs and across-the-board liberalisation be a subject of further research.

In addition, a number of studies point out adverse factors that impede the development of the tradable sectors in India as well as that of the economy as a whole. One of the key hurdles to Indian productivity growth has been a lack of infrastructure support from the government. In 2005, infrastructure spending was US$28 billion in India (3.6% of GDP), compared with US$201 billion in China (9.0% of GDP). It is

estimated that poor and poorly used infrastructure cuts India's growth rate by about 1 to 1.5 percentage points a year[17] and without change the desired double-digit growth seems highly unlikely.

The Licence Raj[18] is considered to have been dismantled in 1990, but India still faces significant challenges in terms of the ease of doing business. For example, the cost for a start-up is much greater than in China. Despite significant reforms in the area of licensing systems, much more time to obtain the necessary licenses is needed in India than in China or other countries in South Asia. Furthermore, the time required for exporting and importing and its cost to export and import remain much higher than in China. The enforcement of contracts remains inefficient and extremely difficult. Finally, labour regulations are inflexible, as reflected by the rigidity of the employment index that is much higher than in China or other South Asian economies (Table 16).

Finally, both China and India are confronted with skill problems due to low educational standards but, as opposed to China, India will have increasing working population for another generation (e.g. Lehman Brothers, 2007).

Looking into the future: China and India in a baseline scenario 2001-2020

How is international trade in China and India likely to evolve? To shed some light on this question this section considers the evolution of the two economies in the context of a baseline scenario that depicts how the world economy might be expected to change over the next 20 years. In principle, baselines are developed in order to reflect as closely as possible the changes expected to occur in the world economy, excluding the policies that are under investigation. The baseline that we employ in the reminder of this section is the scenario developed for the Dynamic GTAP model (Walmsley, 2006). This scenario assembles projections on various macroeconomic aggregates in 92 regions over the period 2001-2020 that were collected by GTAP from a range of sources.

The idea is to summarize the baseline projections with a particular focus on China and India to study the predicted changes in the pattern of world production and trade by implementing this baseline in a CGE model. Such an exercise informs us about the structural changes within the Indian and other economies that are consistent with the long-term forecasts with respect to production factors and aggregate incomes across the world. It also informs us of the importance of international trade and sectoral policies for the realization

[17]. Analysis – India's politics block much-needed economic reform, Reuters 2006

[18] The term "Licence Permit Raj" refers to the elaborate licences, regulations and the accompanying red tape that were required to set up business in India between 1947 and 1990. The Licence Raj was accorded on a selective basis to selected companies.

of the assumed scenario. Additionally, the associated trade and structural changes can de decomposed by factor of production and total factor productivity and this, combined with the information on past performance and policy constraints, can help assess the importance of various structural policies, including commercial policy, that are necessary to sustain the predicted growth path.

Because of our focus on trade and trade policy we adopt a structural approach to projections where the aggregate output growth is decomposed into its underlying drivers using the standard neoclassical production function. In a nutshell, the growth rate of aggregate output of any given country is explained by the growth rate of its TFP plus a weighted average of the growth rates of the four inputs, where the weights are the corresponding input shares (see Annex). Having identified the components of growth by country we are in a position to implement these changes in a computable general equilibrium model which yields information on sectoral output, consumption and trade changes that would be consistent with the aggregate projection.

Real GDP and capital stock projections come respectively from the datasets used in the World Bank Global Economic Perspectives 2005 and 2002. The scenario reflects relatively recent views on potential trend growth over the forecast period. The labour force projections that break labour force into skilled (secondary and territory educated) and unskilled categories have been constructed by GTAP (Walmsley, 2006) based on the information provided for developing countries by Ahuja and Filmer (1995) and for developed countries by CPB (1999). Since we have no information on projected land use, land supply is assumed fixed. Importantly, the total factor productivity growth rate is inferred from projections of the aggregate income, primary factors of production and input shares in income. Hence, it is uniform across sectors. Though the described data is available for each year in the projection period, discussion here focuses on cumulated growth rates of variables of interest.

Exogenous assumptions

The summary of the baseline projections presented in Table 18 indicates a rather favourable outlook for both China and India with cumulated growth of real GDP of respectively 263% and 185 % in the 2001-2020 period. This makes China and India respectively the first and the third most dynamic economy in the world in the analysed period. This is consistent with the average annual real GDP growth of 13.8% for China and 9.8% for India. This scenario moves India from being the 13th largest economy in the world in 2001 with a share in world GDP of 1.5% to 12th position with a share of 1.7% in world GDP by 2020.[19]

[19]. It is worth pointing out that the portrayed scenario is less favourable for India than that presented by PriceWaterhouseCoopers (2006) where India with the annual growth rate of 7.6% is the world's fastest growing

According to the initial input shares in each countries' income (see Table A.4 in Annex 2) India's economy is characterised by a relatively high land input into aggregate income (11%) both among the BRICs (China 7%, Russian Federation 9%, Brazil 2%) and worldwide. The contribution of capital is just below the world average but higher than in China (38%) and the Russian Federation (40%). In Brazil this share amounts to 45%. As far as the labour input into income is concerned India comes out as a relatively heavy user of unskilled labour in its production (35%). The share of skilled labour (11%) is much below the world average of around 20% which is consistent with weaker than expected performance in the manufacturing sector.

The initial input shares analysed together with the projected growth rates of individual production factors allow us to assess the projected contribution of those production factors to the real GDP growth over the analysed period. In China and India, capital accumulation is predicted to be the most important source of income growth in period 2001-2020. In this period, India's capital stock is predicted to increase by 210%. This compares favourably with Brazil and the Russian Federation where this increase is predicted to be around 83% but falls much short of the stunning boost to China's capital stock of 420%.

Skilled labour is predicted to grow by 122% but its initial share of India's income in 2001 is relatively low and its overall contribution to income growth over the 20 years period is below 10%. Still, this is the highest predicted rate of skilled labour growth among BRICs though China follows closely expanding its skilled labour force by just over 100%. Corresponding rates for Brazil and the Russian federation are respectively 83 and 9%. This suggests relatively favourable prospects for the manufacturing and services sectors which use this type of labour relatively intensively.

India's unskilled labour is predicted to grow by 35% as compared to 17% for China, albeit from a large base contributing to income growth slightly less than skilled labour growth. This is the highest percentage increase in unskilled labour among BRICs. Overall, projected developments in the labour market seem to be a distinctive characteristic of India's growth as compared to its BRIC counterparts. This is consistent with the anecdotal suggestion put forward by some analysts that while India's population growth was once a constraining feature of the economy now it may become an opportunity. This is especially since for its main rival, China, population growth rates are projected to be half those projected for India.

Cumulative total factor productivity growth, calculated as a residual after accounting for factor growth is estimated in India at around 56%. This falls short of 76% estimated for China and 72% for the Russian Federation, but higher than Brazil at 35%.

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economy in period 2005-2050. In the same source China's growth for the same period is estimated at 6.3%, Brazil's at 5.4 and Russia's at 4.6%.

Overall, the discussed baseline portrays the evolution of China's and India's economy as investment and total factor productivity-driven growth. Consequently, the contribution of changes in the labour market seems limited but it is larger in India which is experiences a significant change in the structure of labour with skilled workers accounting for ever increasing share of the labour pool. Indeed, as already mentioned, India's already enormous labour force is additionally predicted to grow at rates exceeding those in other BRICs. This may strengthen India's position in the world economy as a democratic labour-abundant economy which attaches particular importance to skills and innovation. Hence, the importance of India's labour market may be higher than that suggested by a simple growth decomposition.

Simulation results

The described exogenous changes in the composition of factors of production available in individual countries and their trading partners have implications for the pattern of efficient allocation of these factors across sectors of economy as well as for their comparative advantage vis-à-vis trading partners. This section reports selected results of a simulation of the described baseline using the standard GTAP computable general equilibrium model of world economy reflecting an assumption of perfect competition and full employment of factors of production.[20] The model is aggregated to 92 regions (all regions available in the GTAP database) and 10 sectors.

Table 19 presents the simulated implications of the baseline for export performance. With 495% growth in the volume of exports, India stands to be the fastest expanding country, just above China where exports are projected to expand by 490%.[21] China takes the place of the world largest exporter with the US and Germany following. India would become the source of 2.7% of world's exports and is promoted to the 10th largest world exporter in 2020 as compared to the 30th in 2001.

Table 20 addresses the same issue from the sectoral perspective. India becomes the third largest exporter of textiles, wearing apparel and leather, the 5th largest exporter of services (with all the qualifications that are attached to the underlying services trade data) and the 7th largest exporter of machinery and equipment (in this sector India improves its world ranking by a stunning 29 positions). The table includes information about the underlying sectoral output changes which are a result of changes in world trade pattern as well as domestic consumption. India records output growth rates in excess of 200% across most non-agricultural sectors. Production in agricultural sectors also expands but at lower rates in the range of 90%. The largest expansions are observed in textiles, wearing apparel and leather (305%) and machinery and equipment

[20] This model is documented in detail in Hertel (1997).

[21] Given the uncertainties associated with the exogenous assumptions this difference is in all probability insignificant though we have not conducted a proper sensitivity analysis with respect to assumptions.

(337%) reflecting India's emerging position as one of the world's most important exporters of these products. (more on China here)

The portrayed decomposition of growth in both China and India suggests an expansion that is concentrated in the capital-intensive sectors with high productivity growth that are relatively more reliant on skilled labour. This suggests mainly manufacturing sector driven growth where competitiveness is achieved with the use of ever more abundant skilled labour, particularly in India. Yet, as already discussed, this would stand in stark contrast with the policy stance and the actual performance of the manufacturing sector in India. Prospects for India's services trade performance are also bright given their relatively high reliance on skilled labour and capital and they are more consistent with the recently observed trends.

It is crucial that the portrayed scenario is predicated on sustained sectorally neutral total factor productivity growth close to 3% per annum in India and 4% in China, as well as a continued rate of fixed capital formation close to 11% per annum in India and 22% in China. The actual variation of TFP rates across sectors in India (see Dihel and Kowalski, 2007), with services sector recording four times as large a growth rate of TFP as the manufacturing sector, calls for a cautious interpretation of simulation results, especially at the more disaggregated level. An exercise that takes into account the sectoral differences in TFP growth and determinants of growth would undoubtedly offer a more accurate assessment of projected changes.

Concluding remarks

The analysis in the preceding sections demonstrates that international trade will remain probably the single most important factor that can allow China and India to continue, or perhaps even speed up, the growth enjoyed in the last decade. Indeed, the projected expansion of the world economy implies close to 500% cumulated growth in volume of exports of both these countries.

The comparison of the key features of trade integration processes and the economic outcomes of China and India reveals that while much has already been achieved in both these economies in terms of opening up, the Chinese reforms, especially with respect to manufacturing trade, have gone further and that this is likely one of the key determinants of better economic performance of China.

Of the two countries, China is probably the example to be followed but China's integration process so far remains characterized by a certain duality. On the one hand the opening up of trade and FDI in manufactured goods has spurred the emergence of a largely private sector. On the other hand the high level of public ownership and important regulatory barriers continue to dominate the services sectors. The full implementation of China's GATS commitments would imply significant reforms and liberalisation measures with important gains for China and many of its trading partners.

India has gone a long way in reducing its tariffs on non-agricultural products as well as certain non-tariff barriers but moderate protection still persists which likely adds to the costs of intermediate inputs and thus to the hurdles faced by the Indian manufacturing sector. India has revealed a comparative advantage in certain segments of the services sector but its services trade policy is still very restrictive, even as compared to China. The extent of liberslisation achieved so far and the outcomes it brought about suggest that the remaining goods and services trade barriers are just one item on the list of reforms that India needs to tackle in order to promote trade-led expansion of labour-intensive activities. Other important priorities include: reforming small scale industry policies that prevent realisation of economies of scale and productivity increases in the sector; relaxing of labour market rigidities that hinder the inter-industry and interstate labour mobility and underpin misallocation of resources across industries and states; tackling infrastructure bottlenecks; reducing regulatory differences across states.

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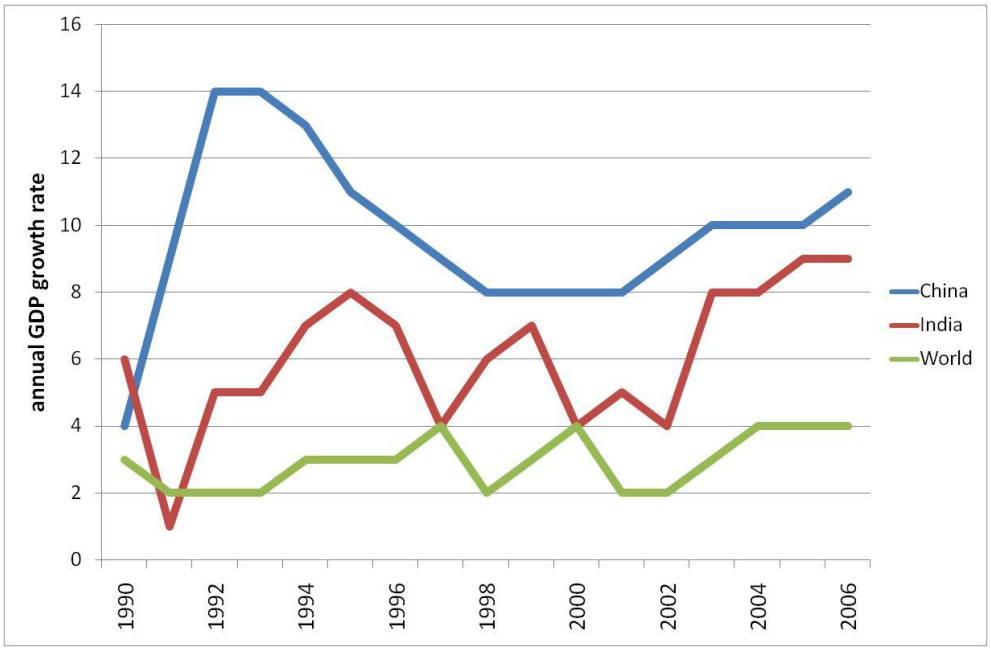
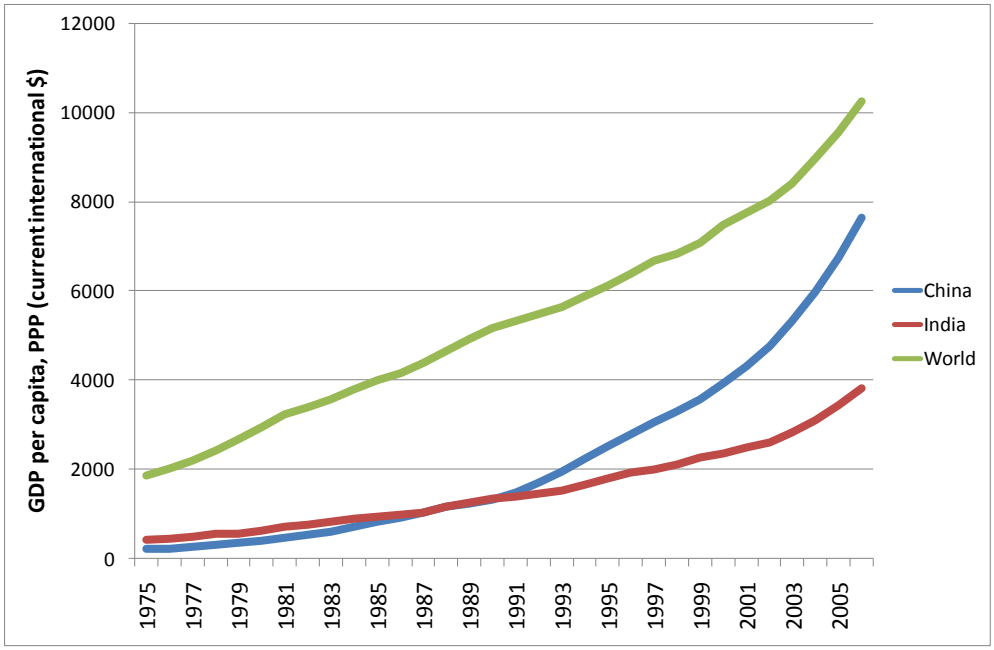
FIGURES AND TABLES

Figure 1. Annual GDP growth rate 1990-2006



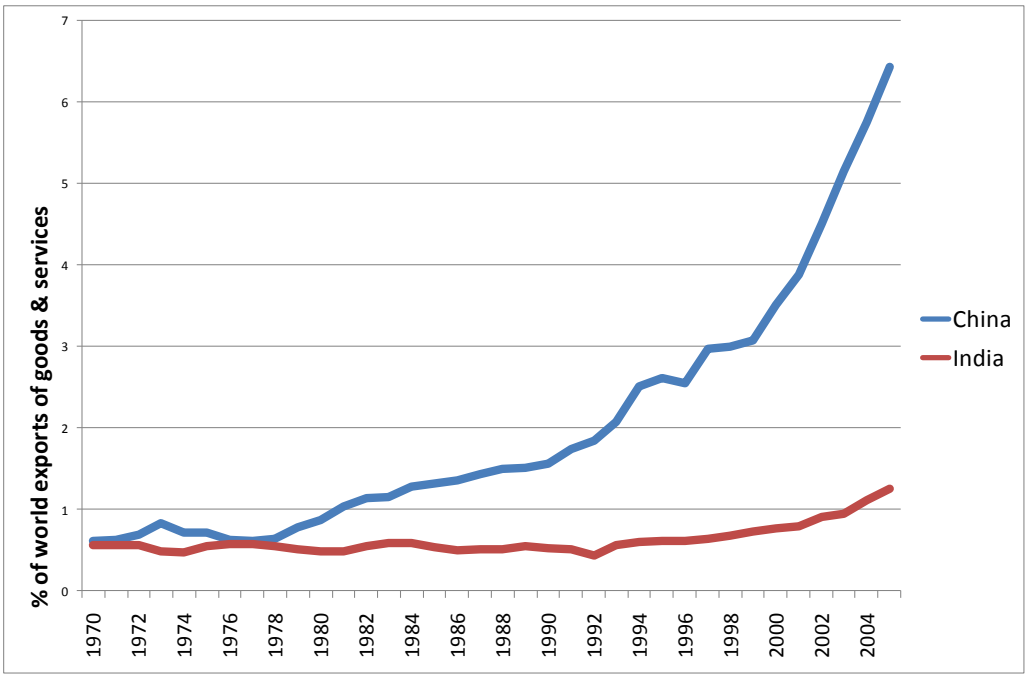
Source: WDI

Figure 2. GDP per capita in China and India 1975-2006



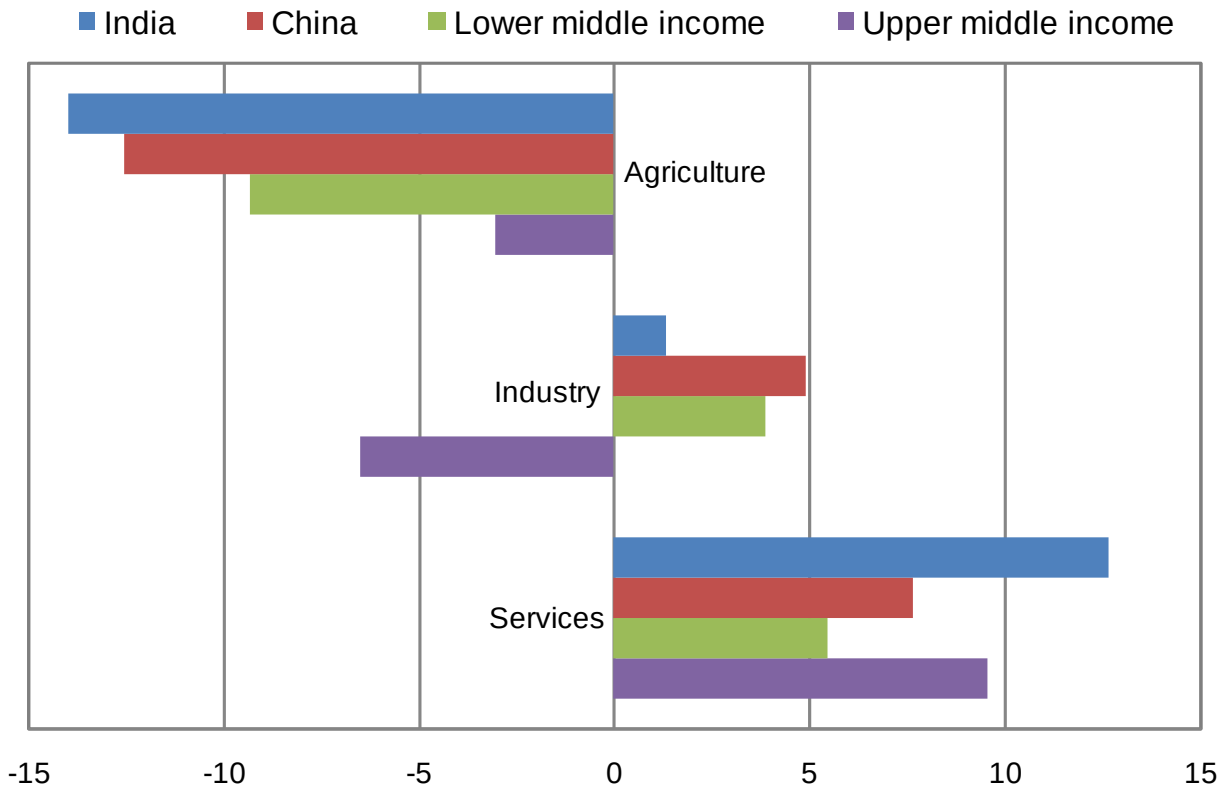
Source: WDI

Figure 3. Shares in world exports



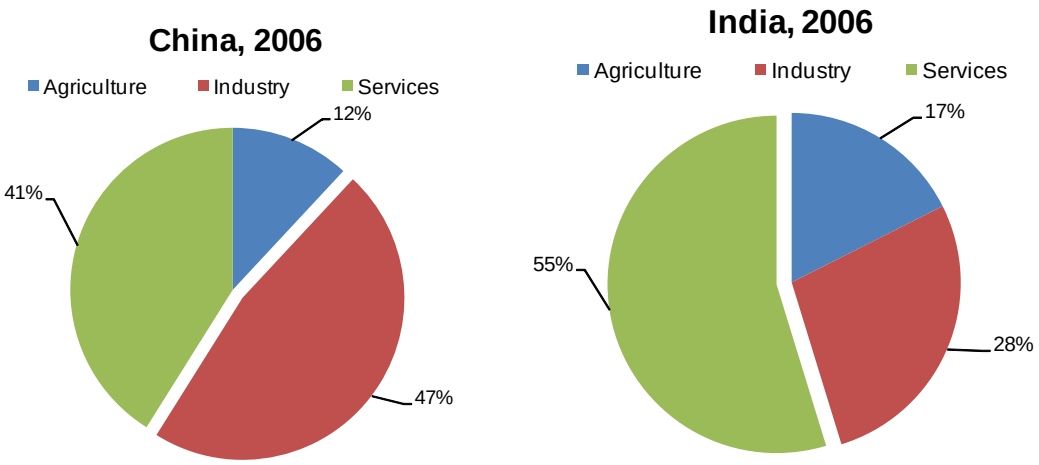
Source: WDI

Figure 4. Percentage change in sectoral value added, 1991-2006, % of GDP



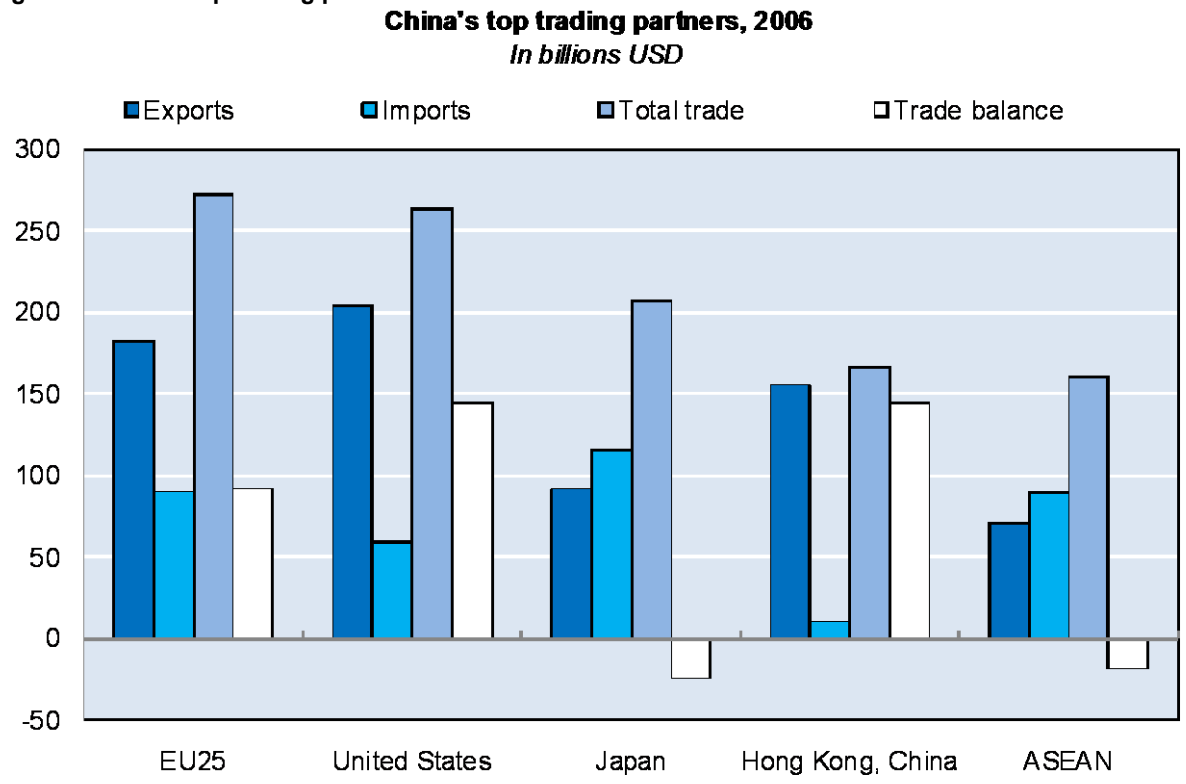
Source: WDI

Figure 5. Composition of value added



Source: WDI

Figure 6. China's top trading partners

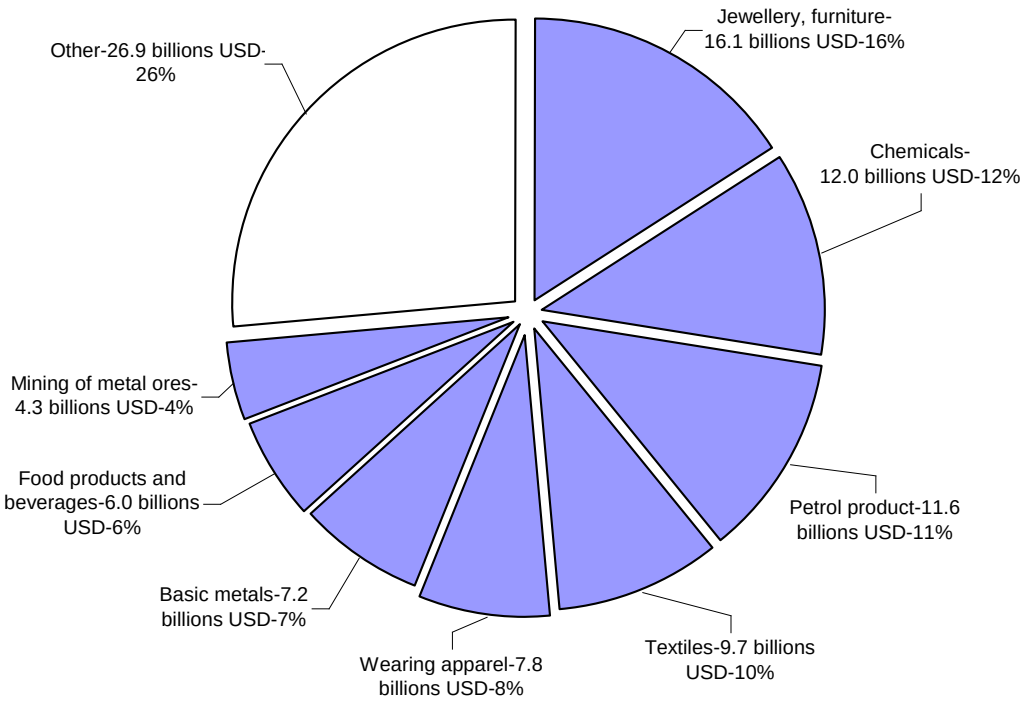


Note: ASEAN corresponds to Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam
Source: UN ComTrade

Source: WDI

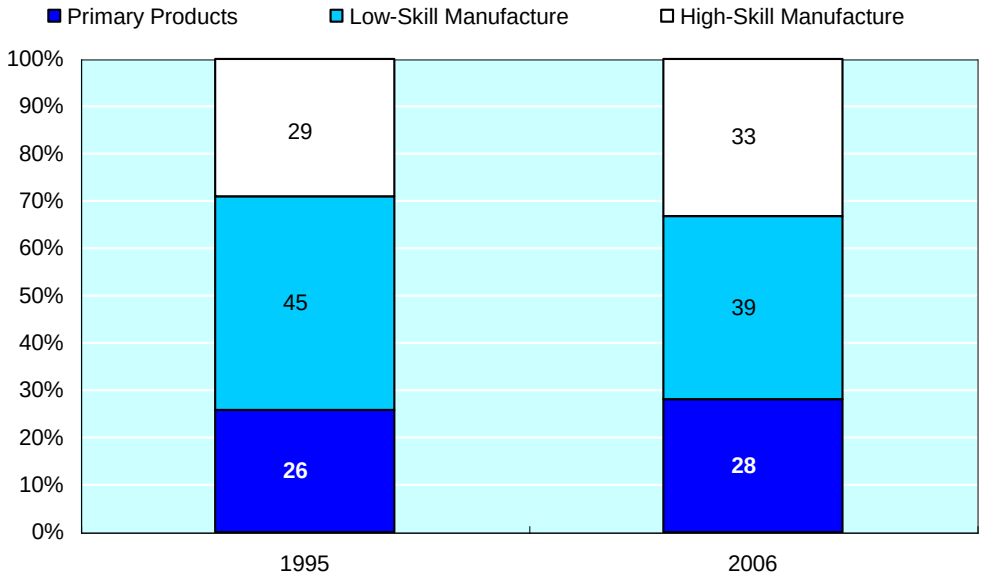
Figure 7. India key exports, 2005

In billions USD and percent of total



Source: UN COMTRADE.

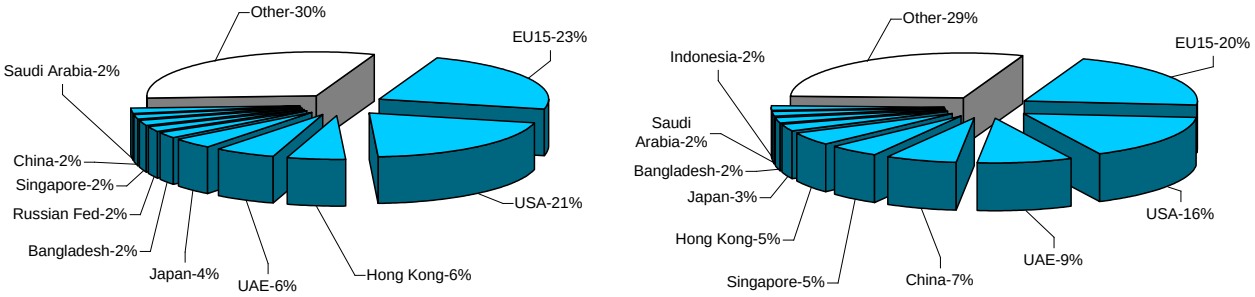
Figure 8. Evolution of India's export mix according to skill intensity (1996 and 2005)



Source: UN COMTRADE.

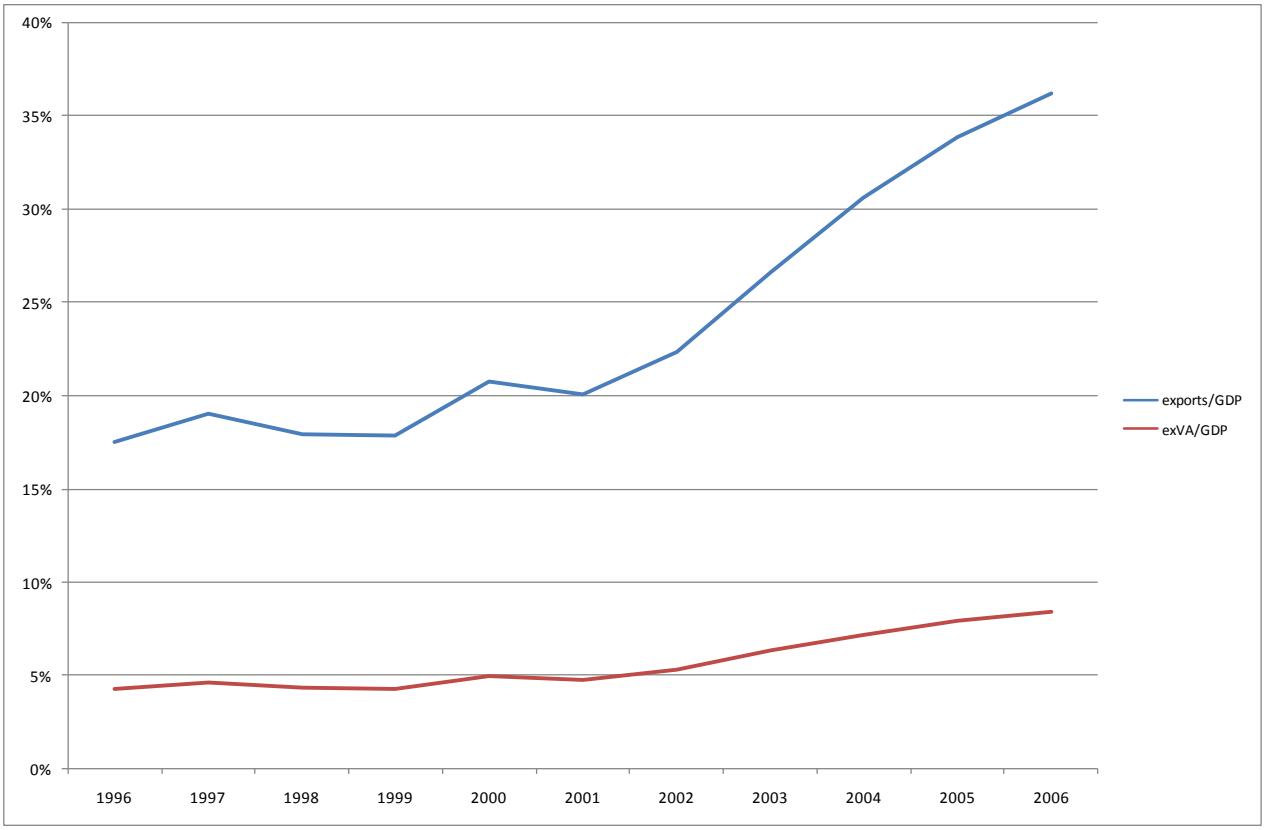
Figure 9. Top 10 export destinations of India in 2000 and 2004, merchandise trade

A. 2000 **B. 2004**



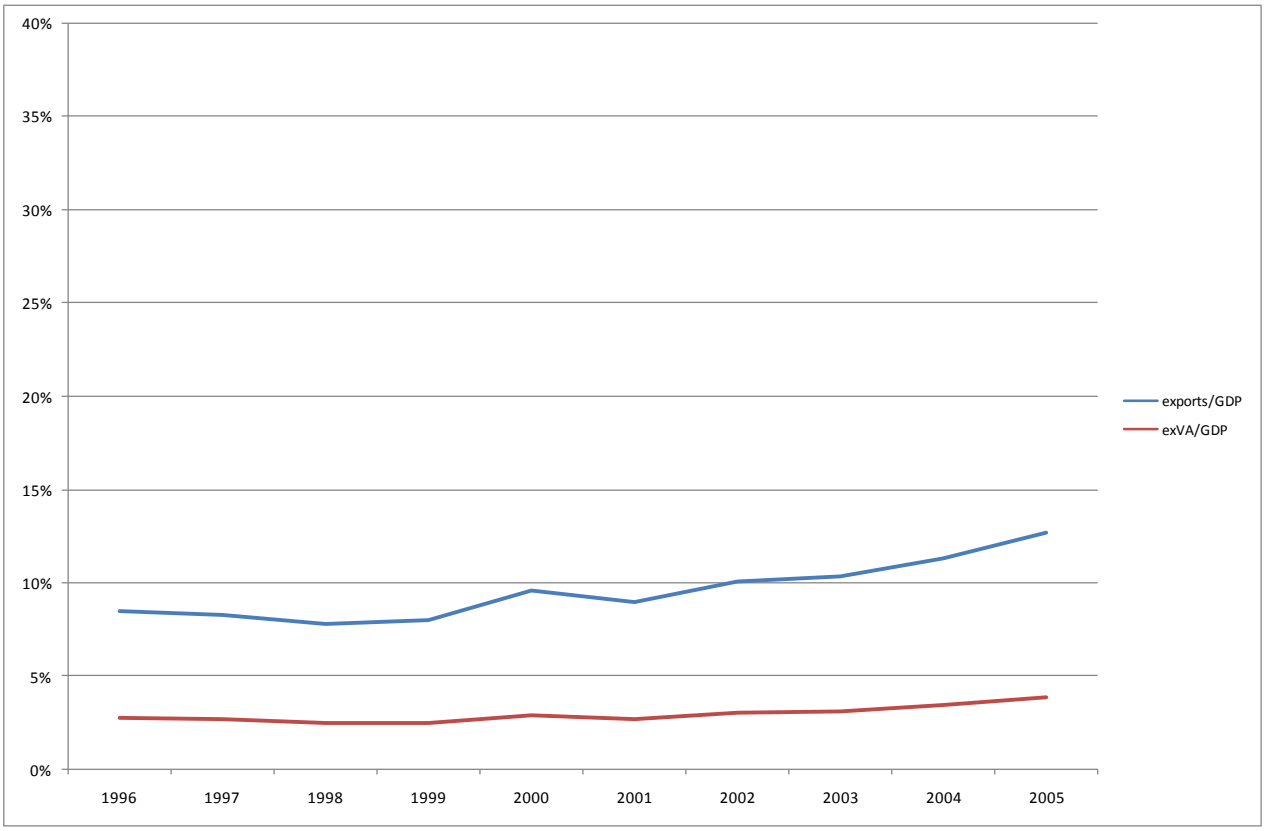
Source: UN COMTRADE.

Figure 10. China: Exports to GDP and exports value added to GDP ratio



Source: GTAP, Comtrade, author's calculations

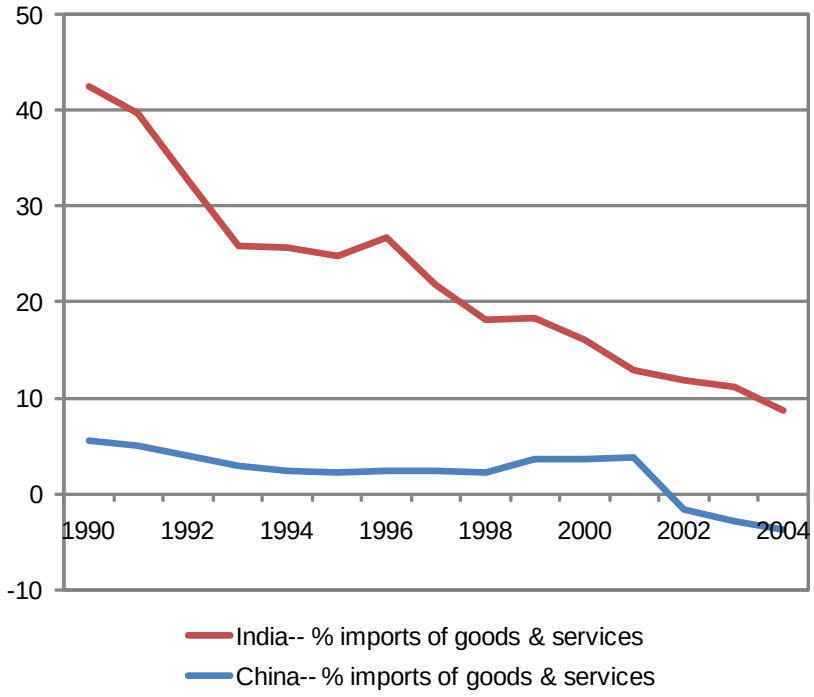
Figure 11. India: Exports to GDP and exports value added to GDP ratio



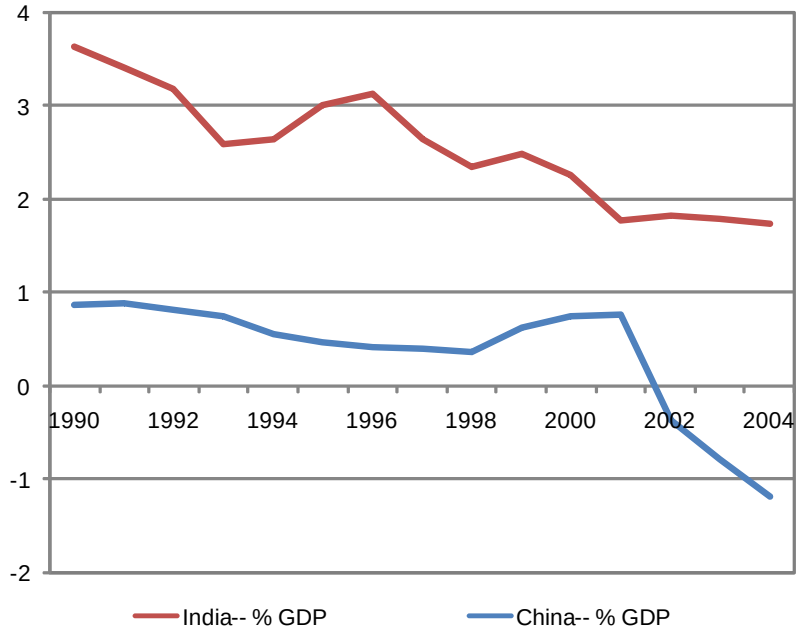
Source: GTAP, Comtrade, author's calculations

Figure 12. Taxation of international trade:

duties as % of value of imports of goods and services

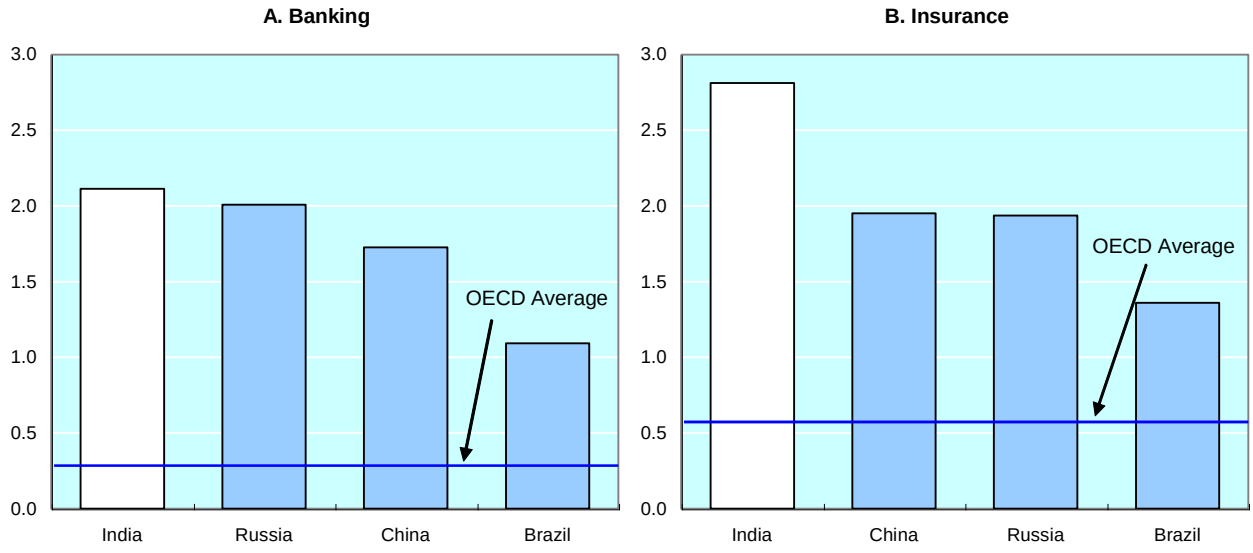


Duties as % of GDP



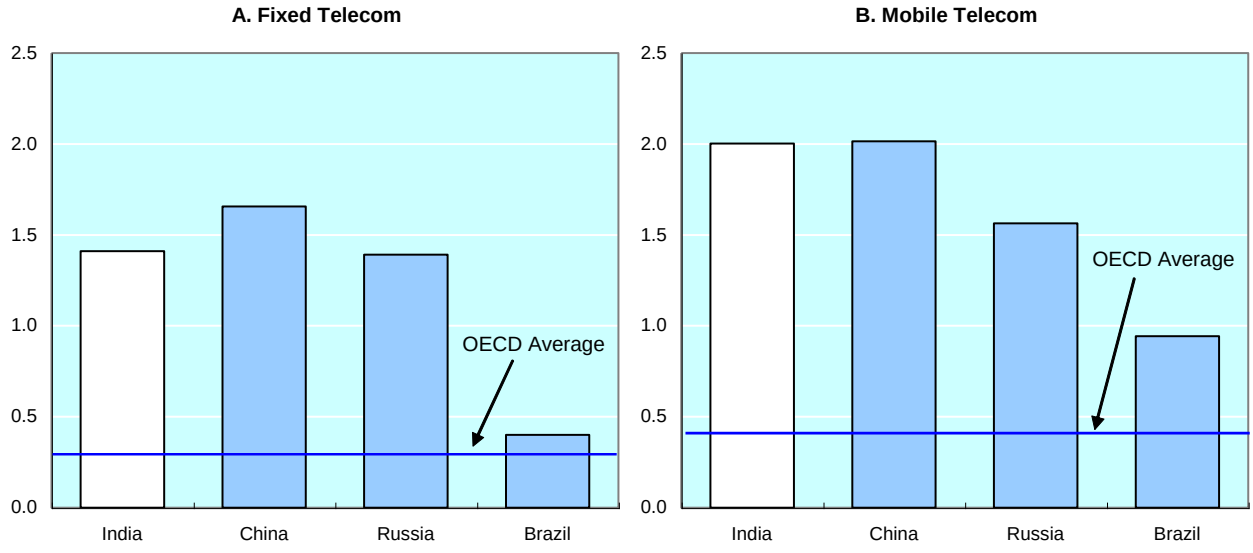
Source: IMF GFS, author's calculations

Figure 13. Banking and Insurance TRIs- India and selected emerging economies



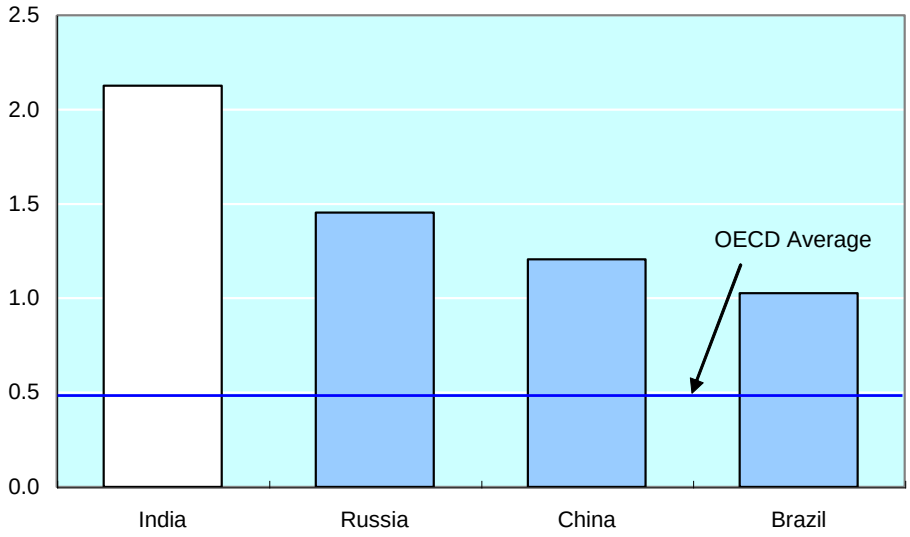
Source: Calculations based on the methodology described in OECD (2007a).

Figure 14. Telecom TRIs- India and selected emerging economies



Source: Calculations based on the methodology described in OECD (2007a).

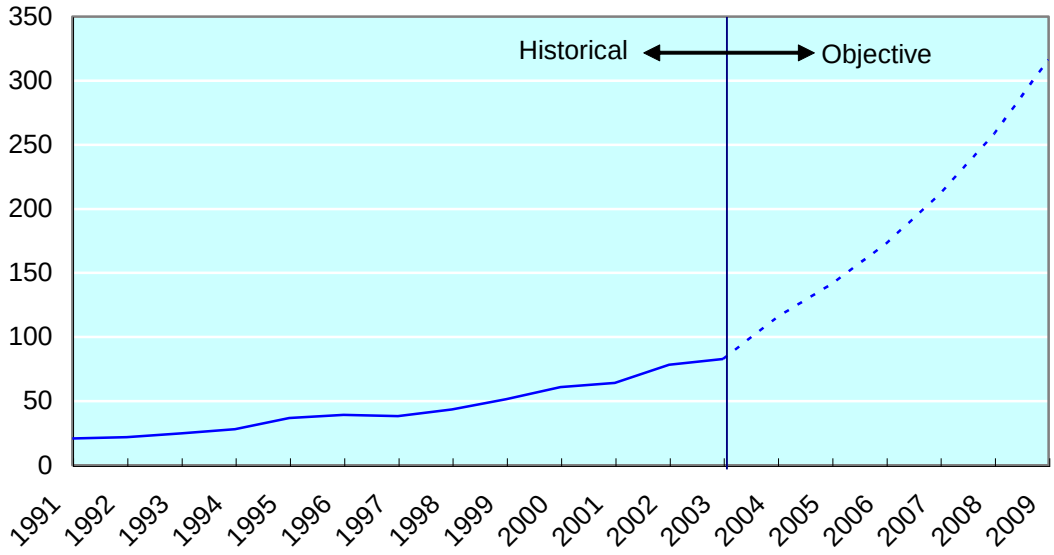
Figure 15. Distribution TRIs- India and selected emerging countries



Source: Calculations based on the methodology described in OECD (2007a).

Figure 16. Doubling India's share of world trade: the size of the challenge

Exports in billions USD



Source: authors' projection based on assumption of 6.5% world trade and WDI data on Indian exports.

Table 1. Selected indicators

	China	India	Germany	Japan	United States	World
Agricultural land (000' sq. km) in 2003	5549	1800	170	47	4169	49377
Arable land (hectares, mln) in 2003	103.4	159.4	11.8	4.4	176.7	na
Population, total (mln)	1,312	1,110	82	128	299	6,518
Birth rate, crude (per 1,000 people) in 2005	12	24	8	8	14	20
Death rate, crude (per 1,000 people) in 2005	6	8	10	9	8	9
GDP (current US$, bln) in 2006	2,668	906	2,907	4,340	13,202	48,245
GDP per capita, PPP (current international $) in 2006	7,660	3,827	31,744	32,385	44,155	10,252
GINI index in 2004	47	37	28	na	41	na
Goods exports (BoP, current US$ bln) in 2003	438	59	745	449	717	7498
Goods imports (BoP, current US$ bln) in 2003	394	68	600	343	1261	7406
Service exports (BoP, current US$) in 2003	47	23	124	78	299	1921
Service imports (BoP, current US$) in 2003	55	26	173	112	250	1881
Distance from EU (in km)	7971	6420	-	-	-	-
Distance from US (in km)	10994	11762	-	-	-	-
Distance form Japan (in km)	2098	5848	-	-	-	-

Source: WDI, CEPII, author's calculation

Table 2. Trade in Goods and Services, World and China

(Percentage)

		Goods		Services	
		World	China	World	China
Exports					
	1994	80	86	20	14
	2001	80	89	20	11
	2004	80	90	20	10
Imports					
	1994	79	85	21	15
	2001	80	85	20	15
	2004	80	88	20	12

Source: IMF Balance of Payments Statistics (2006)

Table 3. Services exports and imports in total- World and India

Percentages

	1994	1997	2000	2003
Services exports				
World	20.32	19.7	19.29	20.17
India	19.13	20.33	27.83	28.28
Services imports				
World	20.97	20.12	19.5	20.33
India	21.65	21.39	26.26	27.37

Source: IMF BOP (2006)

Table 4. Growth rates of goods and services trade- Selected countries and regions, 1994-2004

Percentages

	Goods exports	**Services exports**
Regions/ Countries		
World	7.87	7.54
Brazil	8.14	9.87
China	19.19	14.15
India [a]	9.83	16.24
Russia	10.53	10.22
Industrial Countries	6.36	7.13
Developing Countries	10.53	8.6
	Goods imports	**Services imports**
World	8.05	7.29
Brazil	6.57	5.35
China	18.82	16.04
India	9.69	13.54
Russia	6.68	8.86
Industrial Countries	7.41	6.99
Developing Countries	9.25	8.09

a) 1994-2003 for India.

Source: IMF BOP (2006).

Table 5. Changing structure of China's trade: 25 top exports and their share in total exports

Product name	1996 value	1996 share	Product name	2006 value	2006 share
Petroleum oils and oils obtained fr	2,789,285	1.5%	Digital auto data process mach cntg	43,383,744	3.4%
Input or output units, whether or n	1,984,923	1.1%	Transmission apparatus, for radiote	35,753,598	2.8%
Footwear with rubber... soles, leat	1,901,782	1.1%	Parts and accessories of automatic	32,618,566	2.5%
Footwear, nes, not covering the ank	1,831,672	1.0%	Input or output units, whether or n	25,676,922	2.0%
Toys nes	1,653,536	0.9%	Parts suitable for use solely or pr	23,969,022	1.9%
Parts and accessories of automatic	1,626,778	0.9%	Monolithic integrated circuits, dig	18,410,882	1.4%
Articles of apparel of leather	1,440,980	0.8%	Optical devices, appliances and ins	13,231,578	1.0%
Trunks, suit-cases..., etc, with ou	1,397,615	0.8%	Television receivers including vide	12,837,204	1.0%
Radio broad rece combined with soun	1,301,715	0.7%	Storage units, whether or not prese	11,917,080	0.9%
Other articles of plastics, nes	1,254,054	0.7%	Video recording or reproducing appa	7,699,542	0.6%
T-shirts, singlets and other vests,	1,136,873	0.6%	Printed circuits	7,649,519	0.6%
Storage units, whether or not prese	1,113,778	0.6%	Petroleum oils, etc, (excl. crude)	7,048,166	0.5%
Men's or boys' trousers, breeches,	1,067,967	0.6%	Video recording or reproducing appa	6,994,314	0.5%
Cargo containers designed to be car	1,062,390	0.6%	Digital process units whether or no	6,940,671	0.5%
Bituminous coal, not agglomerated	933,028	0.5%	Static converters, nes	6,870,148	0.5%
Prepared or preserved fish (excl. m	926,594	0.5%	Jerseys, pullovers, etc, of man-mad	6,010,093	0.5%
Parts and accessories of apparatus	907,436	0.5%	Cargo containers designed to be car	5,983,951	0.5%
Stuffed toys representing animals o	894,411	0.5%	Sound reproducing apparatus, not in	5,899,948	0.5%
Cargo vessels nes and other vessels	886,313	0.5%	Footwear with rubber... soles, leat	5,642,838	0.4%
Telephone sets	864,714	0.5%	Apparatus, for carrier-current line	5,354,160	0.4%
Cigarettes containing tobacco	832,530	0.5%	Footwear, nes, not covering the ank	5,308,018	0.4%
Fans: table,roof etc with a self-co	794,176	0.4%	T-shirts, singlets and other vests,	5,132,081	0.4%
Parts suitable for use solely or pr	792,810	0.4%	Automatic data processing machines	5,091,647	0.4%
Other footwear,with rubber or plast	788,533	0.4%	Video games of a kind used with a t	5,077,359	0.4%
Men's or boys' anoraks, wind-cheate	781,899	0.4%	Cargo vessels nes and other vessels	5,070,829	0.4%
total	30,965,793	17%		315,571,880	25%

Source: author's calculations

Table 6. Changing structure of India's trade: 25 top exports and their share in total exports

Product name	1996 value	1996 share	Product name	2005 value	2005 share
Diamonds non-industrial nes excludi	4,028,039	9%	Petroleum oils, etc, (excl. crude)	11,439,920	8%
Semi-milled or wholly milled rice	891,755	2%	Diamonds non-industrial nes excludi	11,214,411	8%
Oil-cake and other solid residues,	769,332	2%	Non-agglomerated iron ores and con	3,519,748	2%
Men's or boys' shirts of cotton	748,712	2%	Art. of jewellery and pts thereof o	3,357,736	2%
Frozen shrimps and prawns	725,340	2%	Other organic compounds, nes	1,690,186	1%
Combed single cotton yarn, with >=8	557,561	1%	Other medicaments of mixed or unm	1,424,499	1%
Women's or girls' blouses, shirts,	526,754	1%	Semi-milled or wholly milled rice	1,364,245	1%
Art. of jewellery and pts thereof o	517,244	1%	T-shirts, singlets and other vests,	1,107,091	1%
Petroleum oils, etc, (excl. crude)	482,013	1%	Flat rolled prod, i/nas, plated or	1,059,096	1%
Non-agglomerated iron ores and conc	428,364	1%	Women's or girls' blouses, shirts,	1,018,038	1%
Articles of apparel of leather	424,351	1%	Oil-cake and other solid residues,	968,327	1%
Cotton, not carded or combed	413,215	1%	Frozen shrimps and prawns	853,041	1%
Cashew nuts, fresh or dried	362,095	1%	Furnishing articles, nes, of cotton	800,439	1%
Furnishing articles, nes, of cotton	353,989	1%	Motor vehicle parts nes	780,573	1%
Coffee, not roasted or decaffeinate	307,810	1%	Men's or boys' shirts of cotton	688,108	0%
Uncombed single cotton yarn, with >	304,175	1%	Copper cathodes and sections of cat	677,377	0%
Other medicaments of mixed or unmix	303,013	1%	Cotton, not carded or combed	639,447	0%
T-shirts, singlets and other vests,	284,767	1%	Skirts and divided skirts of cotton	619,769	0%
Uppers and parts thereof (excl. sti	218,913	0%	Cashew nuts, fresh or dried	586,046	0%
Men's or boys' shirts of cotton, kn	216,426	0%	Frozen boneless bovine meat	559,829	0%
Pile floor coverings of wool., wo	216,382	0%	Made up articles (incl. dress patte	517,458	0%
Frozen fish, nes	205,101	0%	Insecticides, put up for retail sal	496,891	0%
Dresses of cotton	194,191	0%	Automobiles with reciprocating pist	485,405	0%
Insecticides, put up for retail sal	185,512	0%	Flat rlld prod, i/nas, in coil, hr,	455,084	0%
New pneumatic tyres, of rubber of a	185,445	0%	p-Xylene	440,296	0%
total	13,850,499	30%	total	46,763,060	31%

Source: author's calculations

Table 7. China: Services Trade Composition

(USD million and %)

	1990	1994	2001	2004
SERVICES - Total trade	1503	321	-5933	-9699
Services exports	5855	16620	33334	62434
Transportation services	46.2	18.5	13.9	19.3
Travel	29.7	44.1	53.4	41.2
Other services	24.1	37.4	32.7	39.4
Communications	2.7	4.2	0.8	0.7
Construction	na	na	2.5	2.4
Insurance	3.9	10.2	0.7	0.6
Financial	na	na	0.3	0.2
Computer and information	na	na	1.4	2.6
Royalties and licence fees	na	na	0.3	0.4
Other business services	15.7	21.3	25.3	32.0
Personal, cultural, and recreational	na	na	0.1	0.1
Government, n.i.e.	1.8	1.6	1.3	0.6
Services imports	4352	16299	39267	72133
Transportation services	74.6	46.8	28.8	34.0
Travel	10.8	18.6	35.4	26.5
Other services	14.6	34.6	35.7	39.4
Communications	0.3	0.9	0.8	0.7
Construction	na	na	2.2	1.9
Insurance	2.2	11.5	6.9	8.5
Financial	na	na	0.2	0.2
Computer and information	na	na	0.9	1.7
Royalties and licence fees	na	na	4.9	6.2
Other business services	6.7	19.0	19.1	19.3
Personal, cultural, and recreational	na	na	0.1	0.2
Government, n.i.e.	5.5	3.2	0.6	0.7

Source: IMF Balance of Payments Statistics (2006)

Table 8. Revealed comparative advantage indices and growth rates

	1996	2006	Annual average growth rate
01 - Agriculture, hunting and related service activities	2.16	1.94	-1.08
02 - Forestry, logging and related service activities	2.97	3.26	0.93
05 - Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing	1.19	1.16	-0.29
10 - Mining of coal and lignite; extraction of peat	0.17	0.14	-1.87
11 - Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction excluding surveying	0.00	0.01	109.36
13 - Mining of metal ores	3.96	7.18	6.14
14 - Other mining and quarrying	1.50	1.86	2.14
15 - Manufacture of food products and beverages	2.04	1.24	-4.81
16 - Manufacture of tobacco products	0.20	0.38	6.97
17 - Manufacture of textiles	4.47	3.55	-2.29
18 - Manufacture of wearing apparel; dressing and dyeing of fur	4.29	3.74	-1.37
19 - Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	2.25	2.02	-1.09
20 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	0.10	0.11	0.59
21 - Manufacture of paper and paper products	0.13	0.22	5.57
22 - Publishing, printing and reproduction of recorded media	0.69	0.78	1.11
23 - Manufacture of coke, refined petroleum products and nuclear fuel	1.93	2.92	4.22
24 - Manufacture of chemicals and chemical products	0.89	1.00	1.19
25 - Manufacture of rubber and plastics products	0.77	0.71	-0.78
26 - Manufacture of other non-metallic mineral products	0.80	1.03	2.49
27 - Manufacture of basic metals	0.72	1.28	5.91
28 - Manufacture of fabricated metal products, except machinery and equipment	0.95	1.20	2.39
29 - Manufacture of machinery and equipment n.e.c.	0.21	0.37	5.57
30 - Manufacture of office, accounting and computing machinery	0.17	0.09	-5.57
31 - Manufacture of electrical machinery and apparatus n.e.c.	0.26	0.39	4.05
32 - Manufacture of radio, television and communication equipment and apparatus	0.11	0.07	-5.07
33 - Manufacture of medical, precision and optical instruments, watches and clocks	0.13	0.19	4.42
34 - Manufacture of motor vehicles, trailers and semi-trailers	0.21	0.29	3.14
35 - Manufacture of other transport equipment	0.28	0.42	4.33
36 - Manufacture of furniture; manufacturing n.e.c.	4.81	5.42	1.21
40 - Electricity, gas, steam and hot water supply	0.03	0.06	8.91

Source: UN COMTRADE.

Table 9. High Technology exports

	2000	2002	2004
Brazil	18.61	16.83	11.59
China	18.58	23.31	29.81
India	5.01	4.76	4.88

Source :WDI

Table 10. India: Composition of Services and Trade

USD millions and percentages

	1990	1994	2000	2001	2002	2003
B. SERVICES	**-1 465**	**-2 162**	**-2 503**	**-2 763**	**-1 563**	**-2 313**
Total credit	**4 625**	**6 038**	**16 684**	**17 337**	**19 478**	**23 397**
Transportation services, credit	20.7	28.4	11.9	11.8	12.7	13.1
Travel, credit	33.7	37.6	20.7	18.4	15.9	16.6
Other services, credit	45.6	34.0	67.4	69.7	71.4	70.3
Communications			*3.6*	*6.4*	*4.0*	*4.6*
Construction			*3.0*	*0.4*	*1.2*	*1.2*
Insurance	*2.7*	*2.4*	*1.5*	*1.6*	*1.7*	*1.7*
Financial			*1.7*	*1.8*	*3.1*	*1.7*
Computer and information			*28.3*	*42.7*	*45.6*	*48.6*
Royalties and licence fees	*0.0*	*0.0*	*0.5*	*0.2*	*0.1*	*0.1*
Other business services	*42.5*	*31.5*	*24.9*	*13.5*	*13.9*	*11.1*
Government, n.i.e.	*0.3*	*0.1*	*3.9*	*3.1*	*1.8*	*1.3*
Total debit	**6 090**	**8 200**	**19 187**	**20 099**	**21 041**	**25 710**
Transportation services, debit	56.1	55.7	45.4	42.3	40.5	36.4
Travel, debit	6.5	9.4	14.0	15.0	14.2	13.7
Other services, debit	37.4	35.0	40.6	42.8	45.3	50.0
Communications			*0.5*	*1.3*	*4.8*	*2.4*
Construction			*0.7*	*2.3*	*2.9*	*4.7*
Insurance	*5.6*	*6.0*	*4.2*	*4.0*	*4.2*	*4.5*
Financial			*6.7*	*8.9*	*6.8*	*1.9*
Computer and information			*3.0*	*4.5*	*4.3*	*2.6*
Royalties and licence fees	*1.2*	*1.1*	*1.5*	*1.6*	*1.6*	*1.6*
Other business services	*28.2*	*25.8*	*22.5*	*18.6*	*19.4*	*31.5*
Government, n.i.e.	*2.4*	*2.1*	*1.5*	*1.5*	*1.2*	*0.8*

Source: IMF BOP (2006).

Table 11. Revealed comparative advantages indices- Selected services sectors

	1994	2000	2001	2002	2003
Communication services		2.74	4.52	2.96	3.49
Computer and info services		15.22	20.07	20.09	19.91
Construction services		2.55	0.30	0.95	0.97
Financial services		0.42	0.46	0.89	0.51
Insurance services	1.08	1.35	1.27	0.92	0.91
Other business services	1.22	1.79	0.91	0.91	0.74
Royalties and license fees	0.00	0.15	0.07	0.03	0.03
Transportation	1.09	0.86	0.85	0.91	0.98
Travel	1.07	1.10	0.98	0.84	0.94

Source: IMF BOP (2006)

Table 12. China's tariff structure

	Agricultural products			*Non Agricultural products*			*Maximum Tariff*
	Simple mean tariff	Weighted mean tariff	Std dev	Simple mean tariff	Weighted mean tariff	Std dev	
1992	46.58	19.20	26.53	41.39	33.04	33.12	220.0
2001	24.47	54.30	20.99	14.45	12.61	9.34	121.6
2004	16.52	22.76	12.02	9.55	5.15	6.76	68.0
2005	14.96	11.83	10.58	8.96	4.61	6.23	65.0

Source: UN TRAINS

Table 13. India's tariff structure

	Agricultural products			*Non Agricultural products*			*Maximum Tariff*
	Simple mean tariff	Weighted mean tariff	Std dev	Simple mean tariff	Weighted mean tariff	Std dev	
1990	82.87	50.27	46.26	82.17	49.55	38.53	355
2001	40.64	49.07	26.76	31.00	24.81	8.64	210
2004	37.37	60.89	30.10	27.81	20.95	8.48	182
2005	37.57	52.30	33.48	15.00	11.97	7.35	182

Source: UN TRAINS

Table 14. Top 10 India's imports

Product Name	Value of imports	% of total imports	Simple average		Weigthed average		Standard deviation	Maximum	Domestic peaks	International peaks
			Applied	Bound	Applied	Bound				
OIL - Oil	39 101 473	26.36	10.00		10.00		0.00	10	0	0
OME - Machinery and equipment n.e.c.	16 895 653	11.39	14.57	31.19	13.77	27.07	2.46	15	0	0
CRP - Chemical, rubber, plastic products	15 427 099	10.40	15.38	42.72	14.43	37.59	4.62	100	4	127
NFM - Metals n.e.c.	14 129 823	9.53	14.68	39.39	15.00	39.65	1.47	15	0	0
ELE - Electronic equipment	11 071 414	7.46	7.55	9.86	2.00	0.91	7.47	15	0	0
OMN - Minerals n.e.c.	8 650 334	5.83	12.04	36.28	12.91	38.86	4.39	15	0	0
OTN - Transport equipment n.e.c.	8 130 431	5.48	20.21	29.96	7.71	8.45	30.05	100	20	20
P_C - Petroleum, coal products	7 101 582	4.79	13.61	25.00	13.90	25.00	1.64	15	0	0
I_S - Ferrous metals	6 150 379	4.15	18.90	39.59	19.45	39.94	2.08	20	0	511
COA - Coal	3 380 848	2.28	21.67	31.25	15.00	25.00	12.57	55	0	1

Source: UN TRAINS

Table 15. Disposition of top 10 India's imports

Product Name	Disposition of imported goods (%)			Main importing sector	% of imports	Disposition of ouput of main importing sector	
	production	consumption				domestic	exports
OIL - Oil	100	0		P_C - Petroleum, coal products	100	94	6
OME - Machinery and equipmen	99	1		CDGS-Investment in capital good	42	100	0
CRP - Chemical, rubber, plastic	90	10		CRP - Chemical, rubber, plastic p	56	87	13
NFM - Metals n.e.c.	100	0		OME - Machinery and equipment	30	89	11
ELE - Electronic equipment	86	14		CDGS-Investment in capital good	80	100	0
OMN - Minerals n.e.c.	100	0		CNS-construction	66	100	0
OTN - Transport equipment n.e.c	96	4		CDGS-Investment in capital good	73	100	0
P_C - Petroleum, coal products	72	28		OTP-transport nec	41	96	3
I_S - Ferrous metals	100	0		I_S - Ferrous metals	48	93	7
COA - Coal	88	12		ELY- electricity	68	100	0

Table 16. Doing Business – selected indicators, 2006

		India	China	South Asia	OECD
Overall Indicator	Rank	**134**	93		
Starting a Business	Cost (% GNI per capita)	**73.7**	9.3	46.6	5.3
Dealing with Licenses	Procedures (number)	**29.0**	20.0	16.1	14.0
	Time (days)	**367.0**	270.0	226.6	149.5
	Cost (% of income per capita)	**84.0**	606.0	375.7	72.0
Trading Across Borders	Time for export (days)	**27.0**	18.0	34.4	10.5
	Cost to export (US$ per container)	**864**	335	1,236	811
	Time for import (days)	**41.0**	22.0	41.5	12.2
	Cost to import (US$ per container)	**1,244.0**	375.0	1,494.9	882.6
Registering Property	Procedures (number)	**6.0**	3.0	5.8	4.7
	Time (days)	**62.0**	32.0	118.6	31.8
	Cost (% of property value)	**7.8**	3.1	5.3	4.3
Enforcing a contract	Procedures (number)	**56.0**	31.0	38.7	22.2
	Time (days)	**1,420.0**	292.0	968.9	351.2
	Cost (% of debt)	**35.7**	26.8	26.4	11.2
Employing workers	Difficulty of hiring index	**33.0**	11.0	41.8	27.0
	Difficulty of firing index	**70.0**	40.0	37.5	27.4
	Rigidity of employment index	**41.0**	24.0	34.8	33.3
	Non-wage labour cost (% of salary)	**16.8**	44.0	5.8	21.4
Closing a Business	Time (years)	**10.0**	2.4	3.6	1.4
	Cost (% of estate)	**9.0**	22.0	6.3	7.1
	Recovery rate (cents on the dollar)	**13.0**	31.5	19.5	74.0

Source: The World Bank (2007) Doing Business Comparing Regulations –http://www.doingbusiness.org/

Table 17. China's average trade-weighted tariffs by trading partner and product

in the baseline, year 2001

	Australia	New Zealand	China	Hong Kong-China	Russia	Japan	Korea	Canada	United States	Mexico	EU15	Rest of Western Europe	Rest of World	Average for product category
Agriculture and fishing	19.3	12.9	0.0	27.1	23.9	9.0	14.5	20.7	68.4	4.5	21.0	11.9	65.1	50.4
Natural resources	0.0	0.0	0.0	3.0	0.3	2.9	2.8	1.2	2.3	0.1	1.5	2.8	0.5	0.6
Coal	4.5	4.5	0.0	0.0	4.3	3.5	0.0	0.0	4.5	0.0	3.6	0.0	4.1	4.3
Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Food products and beverages	17.1	20.3	0.0	33.5	16.7	24.3	22.2	19.5	18.5	9.6	24.5	17.4	15.4	18.3
Textiles, clothing and leather	18.6	10.8	0.0	21.7	19.3	21.7	18.8	10.5	17.0	13.0	16.7	17.5	18.0	19.4
Chemicals and chemical products	15.6	10.6	0.0	14.5	9.1	12.6	11.6	8.7	10.9	14.2	11.4	10.1	15.7	12.9
Other manufacturing	14.7	8.0	0.0	14.1	3.3	14.6	16.0	2.3	10.4	18.5	14.5	14.3	9.9	11.7
Metal products	11.4	7.2	0.0	4.7	5.5	8.0	9.4	4.2	5.3	7.1	9.0	4.2	6.4	7.5
Motor vehicles and parts	22.5	14.9	0.0	17.8	17.6	42.3	47.7	32.5	30.3	23.9	36.2	43.9	35.4	38.1
Machinery and equipment	13.4	12.4	0.0	13.8	6.0	13.0	12.9	8.0	10.3	14.5	12.1	12.8	13.5	12.1
Electronic equipment	11.6	10.9	0.0	10.0	12.8	10.5	11.3	11.4	10.2	9.2	10.8	11.3	8.9	10.1
Average for partner country	10.8	11.9	0.0	4.7	6.3	13.6	13.4	10.0	13.6	7.6	10.9	8.4	12.2	

After implementation of WTO accession commitments

	Australia	New Zealand	China	Hong Kong-China	Russia	Japan	Korea	Canada	United States	Mexico	EU15	Rest of Western Europe	Rest of World	Average for product category
Agriculture and fishing	18.9	8.3	0.0	10.0	15.3	8.1	10.8	19.6	4.7	6.3	20.2	9.3	6.3	9.7
Natural resources	0.0	0.0	0.0	3.0	0.2	2.9	2.8	1.2	2.2	0.1	1.5	2.7	0.6	0.5
Coal	4.5	4.5	0.0	3.5	4.3	3.5	4.1	5.0	4.5	3.7	4.8	4.4	4.2	4.4
Oil	0.0	0.0	0.0	0.0	0.0	3.0	0.0	6.0	0.2	3.0	0.1	0.0	0.0	0.0
Food products and beverages	11.5	10.0	0.0	17.5	9.8	13.8	14.8	9.6	11.2	5.3	12.0	11.1	10.9	11.2
Textiles, clothing and leather	16.0	10.1	0.0	13.7	12.0	9.2	9.4	5.3	8.9	6.8	9.5	9.4	8.6	9.6
Chemicals and chemical products	8.6	6.9	0.0	7.2	6.0	7.2	6.4	5.1	6.6	7.7	7.1	6.7	11.4	8.2
Other manufacturing	7.2	3.5	0.0	7.5	1.4	10.9	9.8	0.8	6.2	9.9	8.6	8.7	5.9	7.2
Metal products	6.0	3.8	0.0	3.7	4.4	5.4	6.0	3.1	3.6	4.3	5.9	3.6	4.9	5.1
Motor vehicles and parts	12.2	10.3	0.0	9.2	11.9	15.9	18.3	11.4	13.8	8.9	14.6	16.3	13.9	15.0
Machinery and equipment	6.9	6.4	0.0	7.5	5.0	6.7	6.7	4.9	5.2	7.8	6.9	7.7	7.4	6.6
Electronic equipment	1.1	0.8	0.0	2.0	4.0	2.4	4.2	1.0	0.6	0.9	1.4	1.9	1.2	1.8
Average for partner country	8.0	6.5	0.0	2.6	4.4	6.2	6.8	6.1	4.0	2.0	5.3	4.8	5.1	

Table 18. Baseline summary: cumulated growth rates for 2001-2020 by country

Percentages

	Labour total	Unskilled labour	Skilled labour	Capital	Total Factor Productivity	Real GDP	Population
Brazil	19.4	13.9	82.5	83.7	34.5	86.5	22.5
Russian Federation	-0.4	-1.4	8.9	83.4	71.9	103.4	-10
India	**39.8**	**35.6**	**121.6**	**210.1**	**55.6**	**185.4**	**25.5**
China	17.7	16.6	101.8	420.3	75.7	262.8	12.4
USA	25.3	31.5	18.2	111.8	22.4	82.5	15.7
Japan	-4.3	3.1	-11.6	62	18.6	39.2	-3.4
Germany	2.7	8	-2.6	44.9	14.8	35.1	-4.2

Source: authors' own calculation based on WB and GTAP data

Table 19. Projected export performance in the baseline (at constant prices)

	% change	Post export value USD Millions	Rank pre-simulation	Rank post simulation	Δ rank
Brazil	42.5	98 661	28	31	-3
Russian Federation	73.17	187 420	19	23	-4
India	**495.09**	**376 282**	**30**	**10**	**20**
China	490.66	2 294 000	4	1	3
USA	82.54	1 656 572	1	2	-1
Japan	-1.49	471 284	3	7	-4
Germany	35.34	849 365	2	3	-1

Source: authors' own calculation based on WB and GTAP data.

Table 20. Projected export performance in the baseline by sector

	Final ranking in world exports	Change in ranking	Percentage change in industry output	Top Exporter
Natural resources	30	0	210	Rest of Middle-East
Primary agriculture	92	-77	85	USA
Processed agriculture	21	0	99	USA
Textiles, wearing apparel & leather	3	3	305	China
Chemical products	**10**	**15**	**306**	**USA**
Wood Products	40	3	236	China
Motor vehicles and parts	**17**	**18**	**204**	**Germany**
Machinery & equipment	**7**	**29**	**337**	**China**
Other manufacturing	16	15	249	China
Services	**5**	**21**	**249**	**USA**

Source: authors' own calculation based on WB and GTAP data.

ANNEX--GROWTH ACCOUNTING IN THE BASELINE SCENARIO

The growth rate of aggregate output is decomposed using the standard neoclassical production function:

$$Y(t) = A(t) \cdot F\left[K(t), L^S(t), L^U(t), N(t)\right]$$

where *A* is total factor productivity (TFP), *K* is stock of capital, L^S is skilled labour, L^U is unskilled labour and *N* is land. Taking logarithms and time derivatives yields the following expression for the growth rate of aggregate output:

$$\frac{\dot{Y}}{Y} = \frac{\dot{A}}{A} + \left(\frac{AF_K K}{Y}\right) \cdot \left(\frac{\dot{K}}{K}\right) + \left(\frac{AF_{L^S} L^S}{Y}\right) \cdot \left(\frac{\dot{L}^S}{L^S}\right) + \left(\frac{AF_{L^U} L^U}{Y}\right) \cdot \left(\frac{\dot{L}^U}{L^U}\right) + \left(\frac{AF_N N}{Y}\right) \cdot \left(\frac{\dot{N}}{N}\right)$$

Under the assumption of perfect competition in the factor markets the marginal products of factors equal their prices, so that $\left(\frac{AF_K K}{Y}\right)$ is the share of the rental payments to capital in total income and the expression $\left(\frac{AF_{L^S} L^S}{Y}\right)$ is the share of wage payments to skilled labour in total income. According to the expression above, the growth rate of aggregate output equals the growth rate of TFP plus a weighted average of the growth rates of the four inputs, where the weights are the corresponding input shares.