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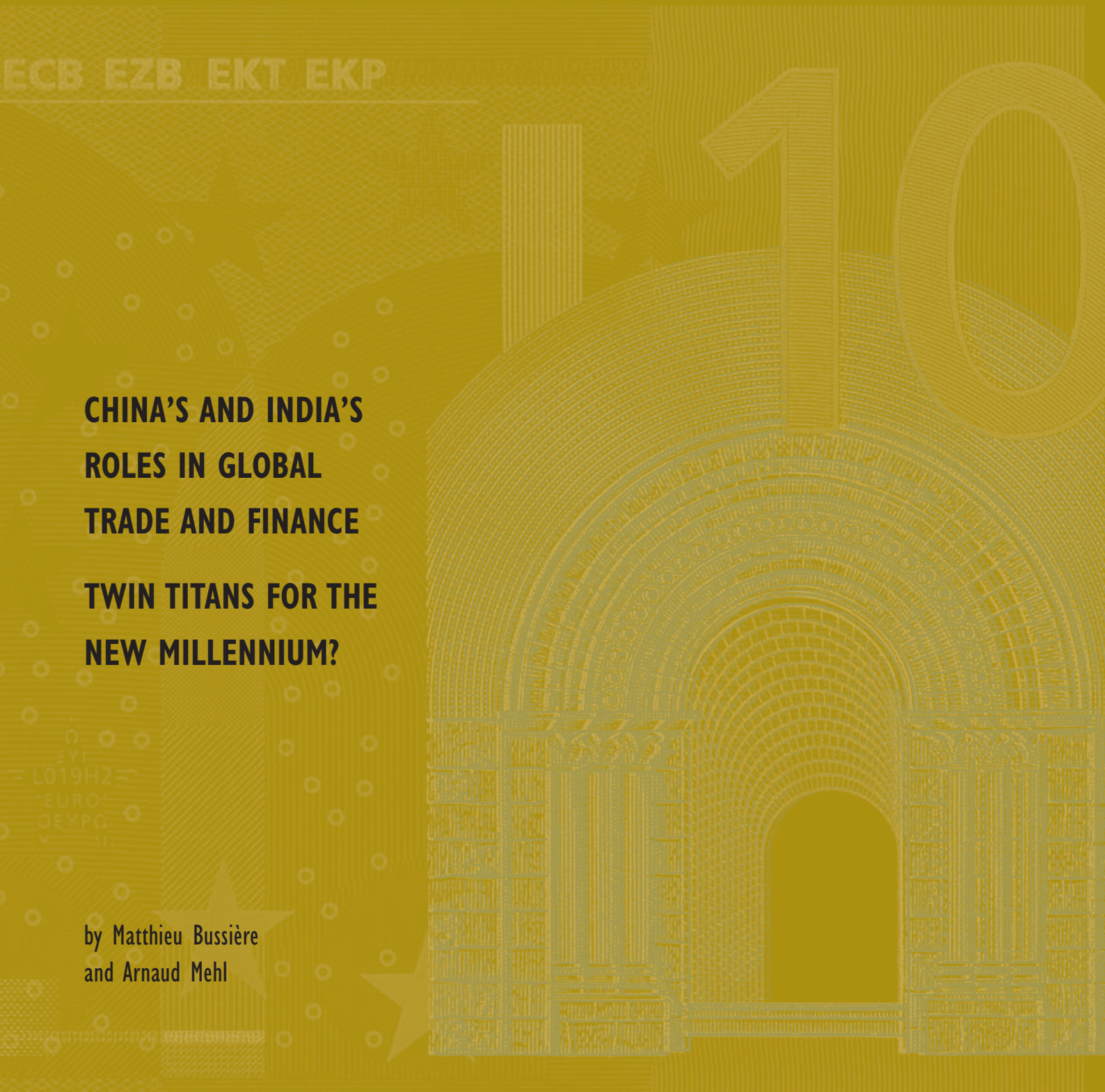

CHINA'S AND INDIA'S ROLES IN GLOBAL TRADE AND FINANCE

TWIN TITANS FOR THE NEW MILLENNIUM?

by Matthieu Bussière
and Arnaud Mehl

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by Matthieu Bussière and Arnaud Mehl [1]

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ABSTRACT

This paper analyses the integration of China and India into the global economy. To this end, it presents estimates from a gravity model to gauge the overall degree of their trade intensity and the depth of their bilateral trade linkages, as well as selected measures of revealed comparative advantage and economic distance. The paper also reviews the key characteristics of the two countries' domestic economies that are relevant to their global integration and analyses their financial linkages with the rest of the world. Four main findings stand out. First, considering trade in goods, the overall degree of China's trade intensity is higher than fundamentals would suggest, whereas the converse is true for India. Second, Chinese goods exports seem to compete increasingly with those of mature economies, while Indian exports remain more low-tech. Third, China's exports of services tend to complement its exports of goods, while India's exports are growing only in deregulated sectors, such as IT-related services. Last, China's and India's roles in the global financial system are still relatively limited and often complementary to their roles in global trade.

Key words: China, India, global trade, gravity models, competitiveness indicators, global finance.

JEL: E44, F3, C5

I INTRODUCTION

There are possibly few issues that academics, policy-makers and market participants alike regard as new chapters in history. The emergence of China and India is probably one of them. In a very short space of time, the body of literature analysing these two economies has grown almost exponentially (see, for example, Ahya and Xie, 2004; Anderson, 2006, 2007; Cooper, 2006; Jahangir et al., 2006; Kalish, 2006; Lee et al., forthcoming; Mandelson, 2007; Srinivasan, 2006; Bosworth and Collins, 2007b; Kowalski, 2006; and Winters and Yusuf, 2007). The reasons underlying this rapidly increasing interest are twofold.

From a domestic perspective, China and India constitute unprecedented stories of economic development. Owing to vibrant growth rates in the last decade, they have already reached heavyweight status in the global economy. Indeed, after adjusting for the price of non-tradables, India is already the fifth largest economy, just behind Japan, while China is the world's second largest economy, still behind the US but ahead of the euro area (see Chart 1).

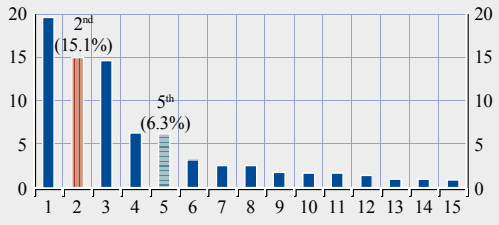
Interestingly, however, the World Bank's International Comparison Program (World Bank, 2007) released recently new estimates of gross domestic product based on purchasing power parities. The World Bank considers the new data – which are benchmarked to the year 2005 and replace previous benchmark estimates, many of them from 1993 and some dating back to the 1980s – as "the most extensive and thorough effort ever to measure PPPs across countries" (ibid.). China participated in the survey program for the first time ever and India for the first time since 1985. The results are more statistically reliable estimates of the size and price levels of both economies. The new, improved methods suggest that China's economy would actually account for almost 10 percent of world GDP, while India's would account for over 4 percent of the world total. Altogether, estimates of China's GDP are 40 percent below the results of previous measures.

The determinants of such rapid development – and whether it can be sustained in the longer run – are important research and policy issues. The findings of a number of studies in respect of China's and India's long-term growth prospects have indeed been startling. According to one such study (see Wilson and Purushothaman, 2003), by 2050 China and India will regain their pre-industrial revolution status as the world's first and third largest economies at market prices.[1]

From a global perspective, China and India are poised to play a key role in four of the most pressing policy debates of recent years. First, China's large current account surplus and accumulation of hefty foreign reserve assets are inherently associated with discussions on global imbalances (see, for example, Dooley, Folkerts-Landau and Garber, 2003; and Caballero, Fahri and Gourinchas, 2006). Second, strong growth in China and India, together with other emerging economies, is also considered to have contributed

Chart 1 PPP share in world GDP in 2006

(percentages)



1 United States
2 China
3 Euro Area
4 Japan
5 India
6 United Kingdom
7 Russia
8 Brazil
9 Mexico
10 Canada
11 South Korea
12 Indonesia
13 Australia
14 Turkey
15 Argentina

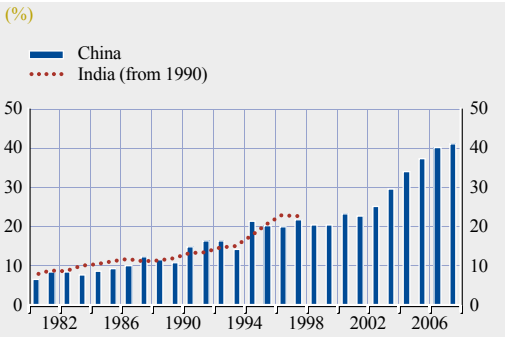
Source: IMF World Economic Outlook, September 2007.

1 Together with Brazil and Russia, China and India could be larger than today's six largest economies – again, at market prices – in less than 40 years. Other studies convey similar messages, notwithstanding some differences: see, for example, Hawksworth (2006) or Poncet (2006).

to recent increases in the prices of energy and other commodities, which may have been a source of upward pressure on inflation over the past few years (see, for example, Pain et al., 2006; Bernanke, 2007; and Trichet, 2007).[2] Third, the rapid pace of China's and India's economic development is often related to mounting concerns about the risks of outsourcing manufacturing activities to China and services to India (see, for example, Head et al., 2006). Fourth, the integration of China and India into the world economy has also deeply affected international capital flows, for instance, through China's large scale purchases of US Treasury bonds or growing merger and acquisition activities by both Indian and Chinese companies abroad.

From a euro area perspective, China and India are becoming increasingly important in the euro area's external environment, particularly with regard to trade and financial relations. Notably, in terms of trade in goods, China is already one of the two main sources of euro area imports, with a share of over 10% (below the United Kingdom, but already above the United States). The euro area's trade relations with India have, admittedly, not developed to such an extent thus far, with India accounting for about 1% of euro area imports and exports of goods. Nevertheless, the euro area has been an active investor in the two emerging titans, accounting for around 7% of direct investment flows into China since the turn of the millennium, and 14% of such flows into India. In turn, China and India have gained in importance as a source of capital for the euro area, albeit starting from low levels (see Trichet, 2007). In this respect, direct investment received by the euro area from China and India averaged EUR 400 million per year since the introduction of the euro, or about 0.2% of all FDI inflows. In line with these magnitudes, direct exposure of the euro area banking system to China and India has thus far remained contained, as it is to emerging economies in general: claims of euro area reporting banks to the Bank for International Settlements to China and India accounted for less than 1% of their foreign claims (see ECB, 2007).

Chart 2 Exports of goods and services relative to GDP



Source: IMF World Economic Outlook, September 2007 and authors' calculations.

In this context, the present paper is primarily interested in gauging the possible effects of China's and India's (re-)emergence on the rest of the world. It also therefore aims to give evidence on India's global integration relative to China's. If India is indeed "a new China in the making" – as suggested by the fact that its exports as a share of GDP closely track those of China, 10 years after (see Chart 2 and Anderson, 2007) – the effects associated with China's integration in global trade and finance will essentially double once India has caught up (i.e., if the world is dominated by two – equally weighted – "titans").

By contrast, if India does not have the necessary assets to develop as much as China, then policy and research attention should probably focus more on China. Finally, if India grows into an economy very different from that of China, mature economies will need to learn to operate in an international environment dominated by two large – and possibly complementary –

2 Another frequently cited impact, stemming particularly from China, is the increased downward pressure on the global prices of manufactured goods. On the basis of a simple accounting method, the ECB's staff have estimated that the larger imports from low-cost countries had a dampening effect on overall euro area manufacturing import prices of around two percentage points per annum, on average, between the mid-1990s and mid-2000s (ECB, 2006). Moreover, it is not clear whether these relative price shocks lead to an impact on inflation (Ball, 2006).

economies, the so-called "Chindia" entity.[3] Mature economies will then compete, for instance, not only with goods manufactured in China, but also with services offered in India, although the mature economies would also benefit from this evolution – for example, in terms of cheaper goods and services and increasing product variety. While these questions are of key interest from an international perspective, they also represent important challenges for China and India, which depend significantly on the external sector for their economic development.

To this end, the paper uses estimates from a gravity model to gauge the overall degree of trade intensity and depth of bilateral relations of China and India, as well as measures of revealed comparative advantage and economic distance. In addition, the paper also examines the key characteristics of China and India that are relevant to their integration in the global economy and analyses their financial linkages with the rest of the world.

Four main findings stand out. The first relates to China's and India's patterns of integration into global trade, which differ in almost all areas. Based on a standard gravity model for trade in goods, the overall degree of China's trade intensity is indeed found to be higher – and its bilateral trade linkages stronger – than economic size, location and other relevant fundamentals would suggest. Conversely, the overall degree of India's trade intensity is found to be lower – and its bilateral trade linkages weaker – than fundamentals would suggest. These findings likely mirror differences in regional integration, including China's place in the "Asian production chain", as well as constraints often mentioned as weighing on India's capacity to produce competitive goods for foreign markets in the same way as China. A second finding is that China seems to be increasingly in a position to act as a direct competitor to mature economies in trade in goods in terms of comparative advantages and economic distance, while India does not. A third finding is that China's role in trade in services is somewhat complementary to its growing role in global trade, while India's role is growing rapidly but only in deregulated sectors such as IT and IT-enabled services. A fourth and last finding is that China's and India's roles in the global financial system are, thus far, more limited than in global trade, although they are rapidly gaining in importance. Financial flows, notably foreign direct investment, seem to mostly complement China's and India's trade specialisation patterns.

The remainder of the paper is set out as follows. Section 2 puts developments in context by reviewing the characteristics of China and India that are relevant to their integration into the global economy. Section 3 analyses the countries' roles in global trade. Section 4 complements this analysis by looking at their roles in global finance. Section 5 concludes.

3 The term "Chindia" is sometimes used (see Ramesh, 2005) to refer to China and India as if they were almost one country. The concept is sufficiently widespread to have an entry in Wikipedia, underlining that "The economic strengths of these two countries are widely considered complementary – China is perceived to be strong in manufacturing and infrastructure while India is perceived to be strong in services and information technology. China is stronger in hardware while India is stronger in software. China is stronger in physical markets while India is stronger in financial markets. The countries also share certain historical interactions – the spread of Buddhism from India to China and trade on the Silk route are famous examples."

2 CHARACTERISTICS OF RELEVANCE TO CHINA'S AND INDIA'S INTEGRATION INTO THE GLOBAL ECONOMY

The most obvious signs of China's and India's importance in the global economy are their large economic size, huge population and dynamic economic growth. Beyond these common traits, China and India also share common long-run challenges.

SIZE IN THE GLOBAL ECONOMY

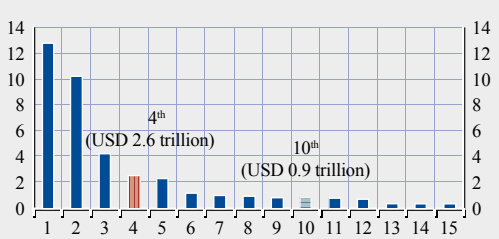
While China and India are both very large economies, China's economic size dwarfs that of India and is expected to continue to do so in the decades to come. At market prices, India's GDP is only one-third that of China (USD 850 billion against USD 2.5 trillion in 2006). China is the world's fourth largest economy, while India ranks only tenth behind other emerging economies such as Brazil, Russia and South Korea (see Chart 3).

However, after adjusting for the price of non-tradables, India is already as large as Japan (the world's fourth largest economy), with a share of world output above 6% and well ahead of all the remaining emerging market economies. With a share of world output around 15%, China is the world's second largest economy, behind the US and ahead of the euro area. Projections for long-term growth, based on demographic trends and models of capital accumulation and productivity, suggest that this hierarchy is unlikely to change in the decades to come, with China still accounting for a larger share of output than India (see Wilson and Purushothaman, 2003; Hawksworth, 2006; and Poncet, 2006).

Seen from a very long-run perspective, these prospective trends may almost signal a return to normality. On the eve of the industrial revolution, China and India were the world's first and third largest economies, accounting together for close to half of global output (see Chart 4). By the time of the first oil price shock, after two centuries of decline, their combined share in global output had fallen to a historical low. The gradual introduction of market-oriented reforms – starting in the late 1970s in China and a decade later in India – coincided with a reversal in these secular trends. Looking ahead, the direction seems to be rather clear: today's emerging titans are anticipated by many to become even weightier in the world economy.

Chart 3 Top 15 economies in 2006

(GDP at market prices, USD trillion)

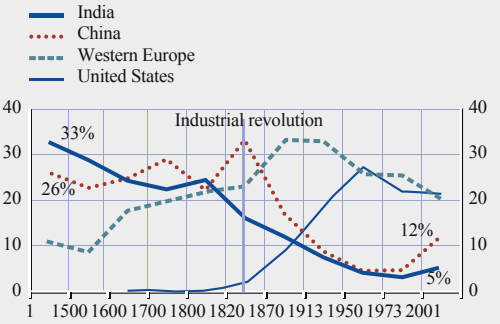


1. United States
2. Euro area
3. Japan
4. China
5. United Kingdom
6. Canada
7. Brazil
8. Russia
9. South Korea
10. India
11. Mexico
12. Australia
13. Turkey
14. Switzerland
15. Sweden

Source: IMF World Economic Outlook, September 2007.

Chart 4 Share in world output, 1-2001 AD

(percentages, with output data valued in 1990 international Geary-Khamis dollars)



Sources: Maddison (2003) and authors' calculations.

DEMOGRAPHIC TRENDS AND INTERNATIONAL IMPLICATIONS

The overwhelming size of China's and India's population is perhaps the most obvious similarity between the two economies, and the main reason why their economic development attracts so much attention. Taken together, China (with about 1.3 billion inhabitants) and India (roughly 1.1 billion) accounted for close to 40% of the world's population in 2006. However, this apparently undisputed similarity hides noticeable differences in terms of demographic structure and prospects. In particular, India's population is currently significantly younger and is growing at a faster pace than China's. As a result, long-term projections suggest that India's population will increase in the next few decades, while China's will decline from 2030 onwards, implying also that India could then overtake China as the world's most populated country (see Chart 5).

These demographic differences have important economic repercussions. The period of "demographic dividends" – characterised by faster labour force growth than population growth, a support to economic activity – is therefore expected to end in China but not in India (see Cooper, 2006)[4] In fact, some anticipate India's growth potential to increase relative to China's, supported by more favourable demographics (see Purushothaman, 2004), to the extent that structural reforms continue (see Ahya and Xie, 2004).[5] Moreover, there is a strong (but not undisputed) prospect that, all things being equal, China's sizeable current account surpluses may turn into deficits due to capital account liberalisation (see Lane and Schmukler, 2006), population ageing and lower savings. Conversely, India's saving rates will be supported by its favourable demographic trends (see Mishra, 2006). Altogether, this could profoundly affect global current account patterns, with implications for the roles of both economies in global trade and finance.

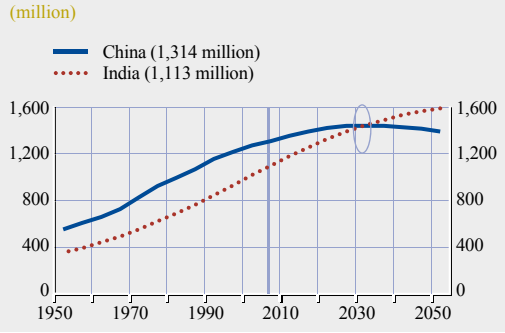
NEW "ASIAN MIRACLES"? SOURCES OF ECONOMIC GROWTH

Although China and India are currently growing vigorously, marked differences exist between the two economies on this account, with China's performance steadily exceeding that of India for more than two decades. Since the early 1980s, real GDP growth in China has averaged 9.9%, compared with 6.0% in India – a gap of close to four percentage points (see Chart 6). If both economies are key engines of world growth,

4 The share in the Chinese population of those aged 15-64 is projected to decline to 67% in 2030 (down 4 percentage points from 2005). Conversely, this share will rise to 68% (up 4 percentage points) in India. The fact that the dependency ratio is currently higher in India (36%) than in China (29%) is also consistent with observed patterns of international saving and investment, although other factors may explain why China has a large current account surplus and India a small deficit.

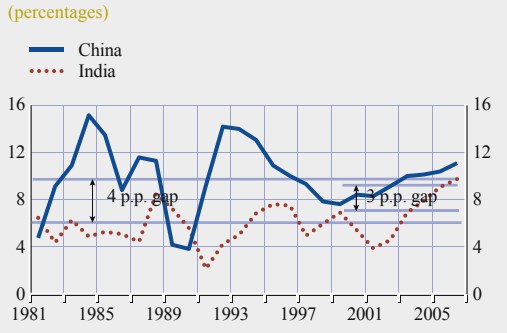
5 Arguably, participation rates also have to be taken into account. In this respect, participation rates in India are lower than in China, particularly among women (ibid).

Chart 5 Population



Sources: United Nations.

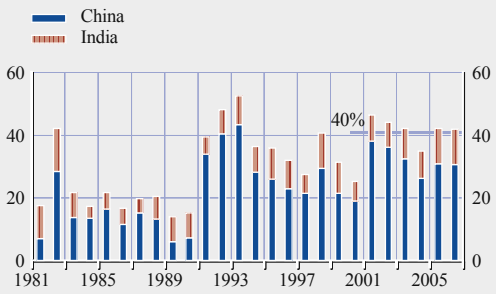
Chart 6 Real GDP growth



Sources: IMF World Economic Outlook, September 2007, and authors' calculations.

Chart 7 Contribution to world growth

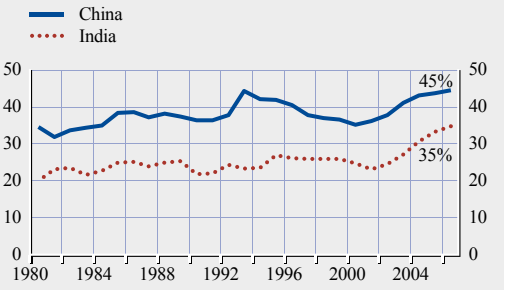
(percentages, purchasing power parity weights)



Sources: IMF World Economic Outlook, September 2007, and authors' calculations.

Chart 8 Share of gross capital formation in GDP

(percentages)



Sources: IMF World Economic Outlook, September 2007, and authors' calculations.

together accounting for about 40%, their contributions are far from balanced, with China alone responsible for about 30% (see Chart 7).[6] Still, there are signs that India is starting to close the gap. Since the turn of the millennium, the growth differential between China and India has narrowed to about three percentage points, with real GDP growth averaging 6.8% in India, compared with 9.6% in China. In 2006 the differential was even smaller, at below two percentage points, with real GDP growing by 9.7% in India and 11.1% in China.[7] In view of these developments, some observers have revised their estimates of India's potential growth upwards, arguing that the strong performance of recent years is more structural than cyclical (see Poddar and Yi, 2007).[8] In line with this, the remaining productivity gap between China and India also bodes well for India's future growth performance. The average level of productivity in India is currently only 9% of that in the United States and 75% of that in China (see OECD, 2007b). India should therefore be able to reap large productivity gains by enlarging and modernising its fixed capital stock, including infrastructure, by improving the skill level of the workforce and by shifting resources towards higher productivity sectors, particularly from agriculture to services (ibid.).[9]

The growth rates recorded by the Chinese and Indian economies are so impressive that they are sometimes considered "miraculous" (see Anderson, 2006, 2007). In fact, the determinants of China's and India's strong growth are somewhat comparable and perhaps less surprising than at first sight. Bosworth and Collins (2007a) examine real output per capita growth in China and India in the period 1993-2004.[10] Using standard growth accounting techniques, they estimate that the contribution of capital accumulation and efficiency gains (factor productivity) to growth was roughly equal (one-half each) in both economies.[11] Therefore, aside from faster productivity gains, China's higher investment rate – with gross capital formation accounting for 45% of GDP in 2006, 10 percentage points more than in India – explains its stronger growth performance

6 The estimate is obtained using purchasing power parity weights. Using market price weights, however, China and India's contributions are lower, at about 11% and 3% respectively.

7 The narrowing partly reflects attempts by Chinese authorities to slow domestic growth on concerns of overheating, as well as signs of higher potential growth in India.

8 Poddar and Yi (2007) estimate India's potential growth at around 8% per year. Recent estimates (Gerlach and Peng, 2006) suggest that China's potential growth is higher, at close to 9% per year.

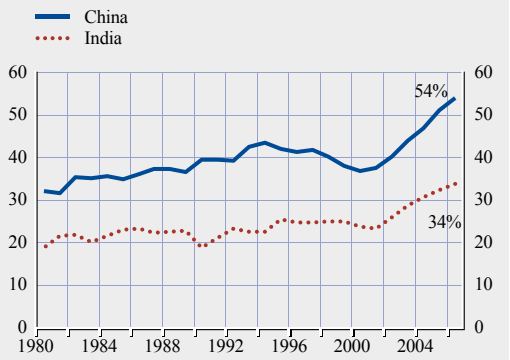
9 There is also evidence that growth performance has been further influenced by the nature of the economic reform process and the tenacity with which reforms were pursued in each country, as suggested by recent evidence in the manufacturing sector (see Lee et al., forthcoming). In this respect, some observers argue that India's approach to reforms has been more gradual than China's, perhaps due to its status as the "largest democracy in the world", although this has visibly helped increase macroeconomic stability (see Ahya and Xie, 2004).

10 Over this period, output per head grew significantly faster in China (8.5%) than in India (4.6%).

11 Kalish (2006) and IMF (2006) reach broadly similar conclusions. Likewise, OECD (2007b) shows that dynamic growth in India since the new millennium is due to strong investment and capital accumulation.

Chart 9 Share of gross national saving in GDP

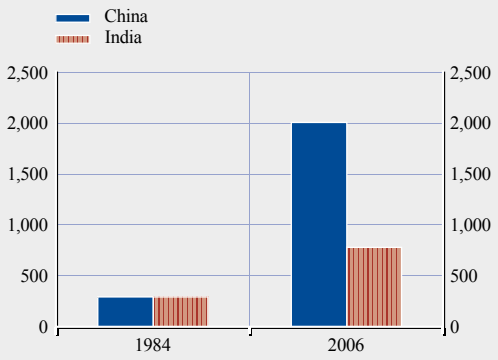
(percentages)



Sources:IMF World Economic Outlook, September 2007, and authors' calculations.

Chart 10 GDP per capita

(US dollars, market prices)



Source: IMF World Economic Outlook, September 2007.

(see Chart 8). Investment in China is further supported by a higher rate of personal and government saving. China saved more than one-half of its GDP in 2006, compared with one-third in India (see Chart 9). In part, India's lower saving rate is due to high public deficits, which absorbed a large share of private savings (see OECD, 2007b). All in all, the strong growth performance of China and India has been considered by some as almost unsurprising. Its reliance on strong capital accumulation, high rates of saving and (notably in China) dynamic exports, emulates the development patterns of other Asian economies in the past, such as Japan in the 1960s and the "Asian Tigers" in the 1970s and 1980s (see Anderson, 2006, 2007).

SECTORAL SPECIFICITIES

Arguably, the aforementioned trends also hide marked sectoral differences in the contribution of productivity to growth. China's productivity performance has been especially strong in industry, as has India's in services. According to estimates by Bosworth and Collins (2007a), China's growth rate of output per capita in industry was almost 10% a year in the period 1993-2004. Of this, no less than two-thirds (6.2 percentage points) was generated by efficiency gains. Over the same period, India's growth rate of output per capita was just 3.1% a year in the same sector, to which capital accumulation contributed one-third and productivity two-thirds. In services, India's growth rate of real output per capita was close to China's (5.4%, compared with 5.1% in China). However, Indian productivity growth surpassed China's; efficiency gains contributed 3.9 percentage points to Indian growth (a contribution of around 70%), compared with just 0.9 percentage points in the case of China.[12]

Clearly, such growth patterns have had a profound, but distinct, impact on relative standards of living. On average, the Chinese are now significantly richer than the Indians, although all remain poor by global standards (see Chart 10). GDP per capita was comparable in China and India in the mid-1980s (at around USD 300, at market prices), but it is now more than twice as high in China (at USD 2,000, compared with USD 800 in India).[13]

12 However, it is unclear whether India could follow a different path of development from China and bypass manufacturing development by switching directly from an economy dominated by the agricultural sector to a services-led economy. Those dynamic services in India – for instance the IT and IT-enabled services (see section 3) –perhaps remain too small (around 5% of GDP) to be, on their own, a potent engine of economic growth. In addition, some estimates suggest that rural migrations and the reallocation of labour from agriculture to the rest of the economy between 1993 and 2003 resulted in a productivity decline – not increase, as could be expected – with migrants taking up jobs in the informal, unproductive services sector (see OECD, 2007b).

13 The relative gap is similar in purchasing power parity terms: USD 8,000 in China, compared with USD 3,500 in India.

Some of the two future titans' citizens have reaped the fruits of such rapid development with higher standards of living, although challenges posed by income distribution remain among the highest priorities in both economies.[14] Moreover, due to the profound ongoing economic transformation, both countries are faced with large migrations from rural areas and rapid urbanisation. On an absolute scale, China's current pace of urbanisation is unparalleled in history. China's urban population has grown by 200 million over the last decade, the equivalent of two-thirds of the entire US population (see Bergsten et al, 2006).[15] China remains very rural, however, with only around 40% of its population living in cities in 2003 (15 percentage points more than in the late 1980s). India remains even more rural than China, with a rate of urbanisation of below 30% of total population (see Poddar and Yi, 2007).[16]

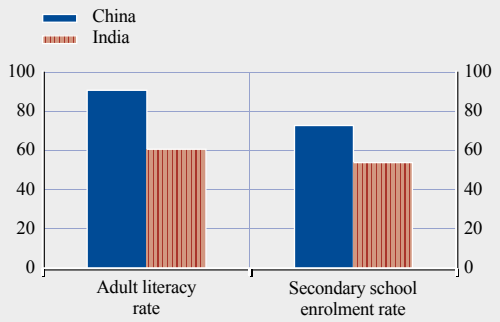
A KEY CONSTRAINT FOR FUTURE GLOBAL ECONOMIC INTEGRATION: HUMAN CAPITAL

Looking ahead, both economies are confronted with very similar challenges if they are to maintain their growth momentum. Arguably, a poorer stock of human capital could well impair India's catching-up process relative to China. This issue also bears a key importance for the variety of goods and services that China and India can trade. Basic educational attainment is better in China than in India. Illiteracy is notably lower, at around 10% of people aged 15 and above, compared with 40% in the case of India (see Chart 11). Secondary school enrolment is also higher in China (above 70%) than in India (50%). Traditionally, India has placed less emphasis than China on primary education, especially in rural areas, and more on university education (see Cooper, 2006).[17]

Nevertheless, a challenge common to both China and India is to increase the supply and quality of talent. In particular, the evidence suggests that only a fraction of graduates would currently meet international standards.[18] According to a recent study (see McKinsey Global Institute, 2005), in low-wage economies (including China and India) there are approximately 33 million young professionals, defined as university graduates with up to seven years of experience. By comparison, the number of young professionals in higher-wage economies stands at less than half that number, including 7 million in the

Chart 11 Human capital indicators

(percentages, in 2004)



Source: The World Bank's World Development Indicators.

14 The "middle class" is estimated to be already relatively large in both countries. Some estimates suggest that the Chinese "middle class", defined as those households with an annual income of between USD 4,300 and USD 8,700, numbers 25 million to 30 million (see Boston Consulting Group, 2006). In a similar vein, around 75 million households in India (out of an estimated 200 million) earned between USD 1,000 and USD 5,000 in 2005 (see KPMG, 2005). At the higher end of the wealth distribution, 320,000 Chinese held more than USD 1 million in financial assets, which is more than in Canada or Australia, in comparison with 83,000 Indians (see Merrill Lynch and Capgemini, 2006).

15 Of course, this has led to large increases in demand for urban housing, transportation, water and sewage systems and urban infrastructure, as well as, potentially, to social tensions (ibid).

16 India's potential for further migrations from rural areas to cities is considered to be large, however. The country hosts 10 of the 30 fastest-growing cities in the world; in 1991 it had 23 cities with one million or more inhabitants, compared with 35 one decade later (ibid.).

17 This said, the university system in India "does appear to suffer from a number of problems" (see OECDb, 2007). In particular, the number of research articles published in top-quality international journals is low (relative to total population) and has been stagnating (ibid.).

18 See, for instance, Ahya and Xie (2004). India alone has nearly as many young professional engineers as the United States, and China has more than twice as many. China has twenty times the number of doctors as the United Kingdom (see McKinsey, 2005). By 2005, India was producing 2.5 million new university-level graduates per year, including 10% in engineering. China produced 3.4 million graduates, including 151,000 with postgraduate degrees (see Cooper, 2006).

19 Including support staff, doctors and nurses of all tenure groups, the figures rise to 393 million potential workers in low-wage economies, compared with 181 million in higher-wage economies. In the study, higher-wage economies include Australia, Canada, Germany, Ireland, Japan, South Korea, the United Kingdom and the United States.

US.[19] However, according to this study, the potential talent supply in low-wage economies is lower than these figures suggest, reducing the possibility of offshoring or migration flows. For instance, only 10% of Chinese graduates in engineering and 25% of Indians with a similar degree would be suitable to work for multinational companies, due either to a lack of the necessary language skills or to the low quality of significant portions of the educational system. Suitability rates seem even lower for generalists (3% for Chinese graduates and 10% for Indian graduates). Altogether, according to the study, only an estimated 2.8-3.9 million (or between 8% and 12%) of the young professionals in low-wage countries would be available for hire by export-oriented service offshoring companies.

OTHER LONG-RUN CHALLENGES

Both countries' future growth could be constrained by similar environmental and social challenges. Those raised by environment protection, including access to water and efficient use of energy sources, have been singled out as among the most pressing (see Winters and Yusuf, 2007). A large share of the population in both China and India does not have access to sanitation facilities or improved water sources. Similarly, while CO2 emissions, electric power consumption and energy use are still lower than in mature economies, including in the United States (see Table 1), they are expected to grow markedly in the period ahead. Another possible constraint that may weigh on future growth is the prevalence of large inequalities, with the corresponding waste of talent and risks of political strains (ibid.). Almost 30% of the population in India (over 300 million) lives below the poverty line (on less than a dollar a day; see OECD, 2007b), compared with 10% in China (about 150 million). Moreover, both China and India score poorly in terms of prevalence of malnutrition, infant mortality rate and life expectancy.

Table 1 Environmental and social indicators

	CO^2 emissions (tons per capita)[1]	Electric power consumption (kWh per capita)[2]	Energy use (kg of oil equivalent per capita)[2]	Sanitation facilities (% of urban population with access)[3]	Improved water source (% of population with access)[3]
China	2.7	1,379	1,094	69	77
India	1.2	435	520	59	86
Pro memoria:					
United States	20.2	13,078	7,843	100	100
	Malnutrition prevalence (% of children under 5)[1]	Infant mortality rate (per 1,000 live births)[3]	Prevalence of HIV (% of population ages 15-49)[4]	Life expectancy at birth (years)[3]	Fertility rate (births per woman)[3]
China	7.8	26	0.08	71	1.9
India	…	62	0.92	63	2.9
Pro memoria:					
United States	1.6	7	0.60	77	2.0

Source: The World Bank's World Development Indicators.
Notes:
1) In 2002;
2) In 2003;
3) In 2004;
4) In 2005.

3 CHINA'S AND INDIA'S ROLES IN GLOBAL TRADE

OVERALL FEATURES

The most salient difference between China and India lies in the patterns of their integration into global trade, which differ in almost all areas, although their starting points were comparable. About a quarter of a century ago, both India and China accounted for a relatively small share of global trade in goods and services (see Chart 12).[20] Nevertheless, in subsequent years their respective experience has been drastically different. Since the early 1980s, China's share in global trade in goods and services has risen almost continuously, reaching 7% in 2006, while India's share has risen far more slowly, standing at close to 1% in 2006. Of course, these trends partly mirror differences in output growth. Yet, the discrepancy in terms of trade integration remains, even after accounting for these differences. China's relative share in world trade (about 7%) is now about 30% higher than its share in world output (about 5%), while the converse holds true for India (1.3% against 1.8%). China's share in global trade has surpassed its share in global output since the early 2000s. Interestingly, although India joined the World Trade Organization (WTO) six years earlier than China, its share in global trade has remained steadily below that in global output.[21]

To some extent, these differences also mirror dissimilarities in terms of trade openness. China has gradually opened up to world trade since the mid-1980s (see Chart 13), with authorities purposefully encouraging the export of manufactured goods as an engine for domestic development. By contrast, India has started to open up more than a decade later, with a significant acceleration in the last three years. In line with this, Indian import tariffs have been progressively reduced – from about 35% in 1999 to around 10% in 2005 – although they remain high and dispersed relative to other emerging economies (see OECD, 2007b).

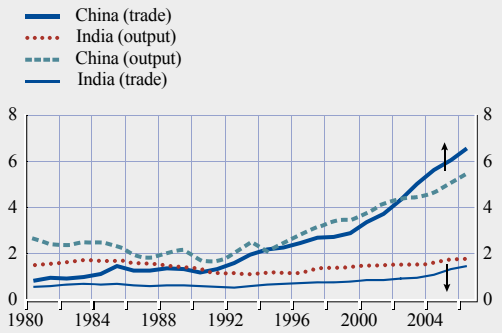
The breakdown of China's and India's current account balance also reveals very noticeable differences between the two countries, which seem to differ on all accounts (see Chart 14). While China has a very large current account surplus (9% of GDP in 2006), India has a small deficit (2% of GDP). Separating goods from services, China has a large surplus in trade in goods, which roughly equals India's large deficit (both at 8% of GDP in absolute values). A similar difference can be found for services, this

20 Both China and India's share was low. However, in relative terms, China's share in global trade in goods and services was already somewhat larger (slightly less than 1% of world trade in 1980, compared with 0.4% in the case of India).

21 For further information on China's WTO accession, see, in particular, Prasad (2004).

Chart 12 Shares in world trade and output

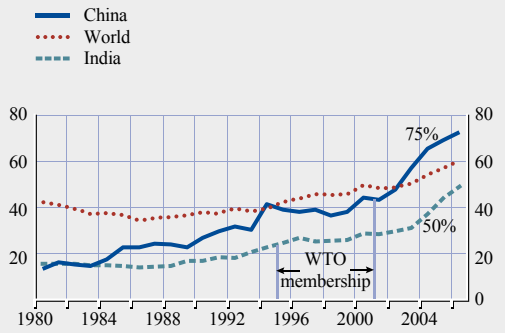
(percentages)



Sources: IMF World Economic Outlook, September 2007, and authors' calculations. Trade refers to goods and services.

Chart 13 Openness ratio

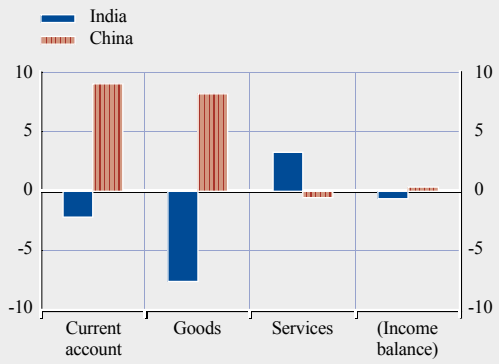
(Exports and imports of goods and services as a share of output, percentages)



Sources: IMF World Economic Outlook, September 2007, and authors' calculations.

Chart 14 Breakdown of the balance on current account

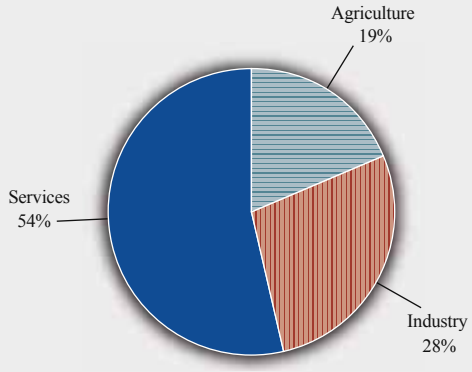
(as a percentage of GDP, in 2006)



Source: IMF World Economic Outlook, September 2007.

Chart 16 Sectoral composition of output in India

(percentages, in 2005)



Source: The World Bank's World Development Indicators.

time in the other direction, with India registering a small surplus and China a deficit.

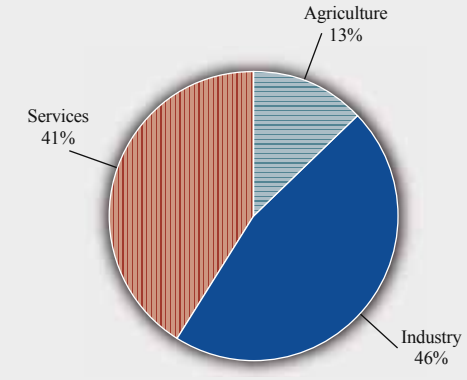
To some extent, these features reflect the domestic economic structure of China and India, as industry dominates in the former and services in the latter. More specifically, industry contributes almost half of China's GDP (see Chart 15), but less than one-third of India's, where services represent around half of GDP (see Chart 16). Given these very different specialisation patterns, it is necessary to analyse trade in goods and services separately.

TRADE IN GOODS: OVERALL INTENSITY AND DEPTH OF BILATERAL LINKAGES

China and India differ markedly in terms of the overall degree of their trade intensity and the depth of their bilateral trade linkages. China is remarkably integrated, both multilaterally and regionally, whereas India is not. On a bilateral basis, China imports predominantly from other emerging Asian economies and exports to mature economies, such as the United States and the euro area, while no such pattern can be observed for India (see Charts 17 to 20). China is also an important trade partner for India, whereas India is a minor trade

Chart 15 Sectoral composition of output in China

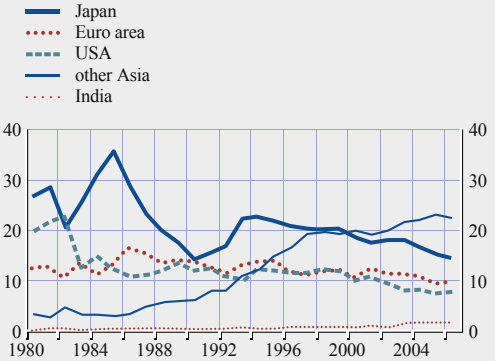
(percentages, in 2004)



Source: The World Bank's World Development Indicators.

Chart 17 Geographical breakdown of China's imports in goods

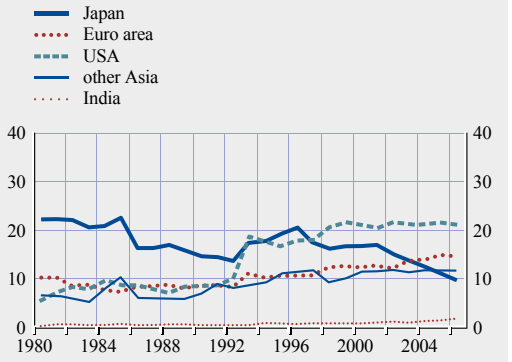
(percentage of total Chinese imports in goods in value terms, by trading partner)



Sources: IMF's Direction of Trade Statistics and authors' calculations.

Chart 18 Geographical breakdown of China's exports in goods

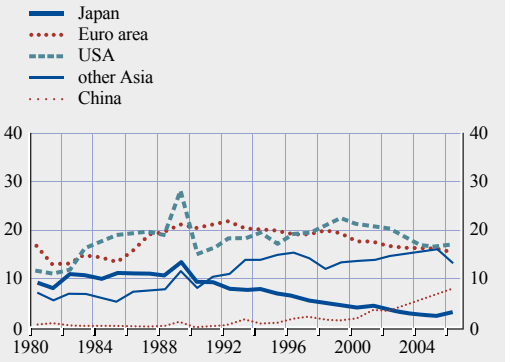
(percentage of total Chinese exports in goods in value terms, by trading partner)



Sources: IMF's Direction of Trade Statistics and authors' calculations.

Chart 20 Geographical breakdown of India's exports in goods

(percentage of total Indian exports in goods in value terms, by trading partner)



Sources: IMF's Direction of Trade Statistics and authors' calculaions.

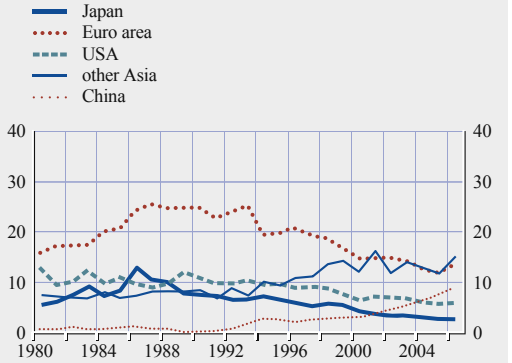
partner for China (in 2006 India's share in Chinese trade was 1.3% of imports and 1.6% of exports).

From the perspective of the mature economies, China accounts for a substantial share of foreign trade in goods vis-à-vis the euro area, Japan, the United Kingdom and the United States, particularly on the import side, whereas India accounts for a minor share of their trade flows (see Table 2).

More importantly, the overall degree of China's trade intensity is higher – and its bilateral trade linkages stronger – than economic size, location and other relevant fundamentals would suggest. Conversely, the overall degree of India's trade intensity is lower – and its bilateral trade linkages weaker – than fundamentals would suggest. To assess what the "natural" overall degree of trade intensity and strength of bilateral trade linkages of China and India are, we use a benchmark against which actual trade developments can be gauged. Such a benchmark is derived from a gravity model, drawing in particular on the methodology developed by Bussière and Schnatz (2006). Gravity models represent a relevant benchmark, given their high explanatory power and wide use in the empirical literature on trade. They relate trade flows between countries to a set of fundamentals, including GDP, distance and participation in a free trade area, as well as dummy variables

Chart 19 Geographical breakdown of India's imports in goods

(percentage of total Indian imports in goods in value terms, by trading partner)



Sources: IMF's Direction of Trade Statistics and authors' calculations.

Table 2 China's and India's share in imports and exports of goods vis-à-vis mature economies

(percentages, in 2006)

	Euro area	US	UK	Japan
India				
Exports	1.3	1	1.2	0.7
Imports	1.2	1.2	1.1	0.7
China				
Exports	3.8	5.3	1.4	14.3
Imports	10.2	15.9	5.2	20.4

Source: IMF's Direction of Trade Statistics and authors' calculations.

for countries sharing a common language, a common border or a common history. The results presented here are derived from the following equation (which is explained more at length in the technical appendix):

$$T_{ijt} = \alpha_{ij} + \theta_t + \beta_1 y_{ijt} + \beta_2 d_{ij} + \beta_3 q_{it} + \beta_4 q_{jt} + \sum_{k=1}^{k} \gamma_k Z_{ijkt} + \varepsilon_{ijt} \quad (1)$$

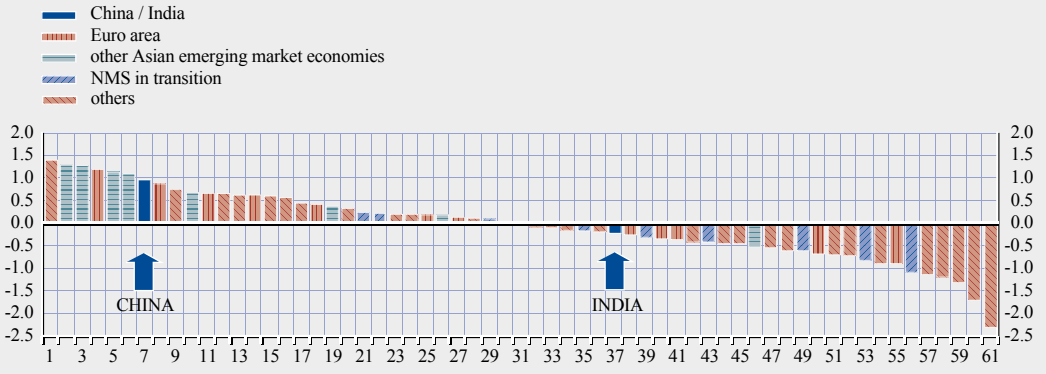
In equation (1), T_{ijt} represents the size of bilateral trade between country i and country j at time t, y_{ijt} real GDP in these two countries, and d_{ij} the distance variable. This equation also includes dummy variables, Z_{ijk}, for country-pairs that share a common language or a common border, have a common history, or are members of the same free trade area (see the technical appendix for further details on the remaining variables and on the methodology). The predicted values can be compared with actual trade developments and interpreted as trade potentials. If actual trade is below predicted trade, which is often the case for developing countries, it may suggest possible upward adjustments somewhere down the line.[22] It is important to underline that only trade in goods is considered in the IMF DOTS database. Recently, several papers have presented results from a gravity model for trade in services (see, for example, Kimura and Lee, 2006). As the data available on bilateral trade in services are from the OECD or Eurostat, they tend to be incomplete for China and India, which, at this stage, makes it difficult to estimate the same type of trade potential for services with long time series.

Considering first the overall degree of trade intensity, the estimation results suggest that China is already highly integrated relative to fundamentals (see Chart 21). This is also the case of other emerging Asian economies, whereas the transition economies of central and eastern Europe appear, overall, to be less well integrated.[23] At variance with China, India is poorly integrated in global trade relative to fundamentals, which

22 For policy purposes, these results also need to be combined with judgement in order to take into account specific factors not included in the model.

23 Only the transition economies are represented on the chart (Cyprus and Malta are therefore not included in this group).

Chart 21 Results from the gravity model - multilateral integration



1 USA	12 Switzerland	23 Norway	34 Argentina	45 Ecuador	56 Latvia
2 South Korea	13 Brazil	24 Canada	35 Bulgaria	46 Philippines	57 Belarus
3 Japan	14 Belgium	25 Finland	36 Mexico	47 Peru	58 Macedonia
4 Germany	15 Sweden	26 Indonesia	37 India	48 Colombia	59 Moldova
5 Hong Kong	16 UK	27 Spain	38 Slovenia	49 Estonia	60 Bosnia-Herzegovina
6 Singapore	17 Australia	28 New Zealand	39 Romania	50 Greece	61 Albania
7 China	18 France	29 Poland	40 Portugal	51 Malta	
8 Netherlands	19 Thailand	30 Turkey	41 Ireland	52 Croatia	
9 Russia	20 Chile	31 Austria	42 Cyprus	53 Lithuania	
10 Malaysia	21 Czech Republic	32 Ukraine	43 Slovakia	54 Uruguay	
11 Italy	22 Hungary	33 Denmark	44 Morocco	55 Luxembourg	

Source: Authors' estimates; NMS refers to New EU member states.

may point to a potential for catching-up in the period ahead.[24]

Note: The results of Charts 3.10-12 are based on estimates of eq. (1) & (1'). See Table A1 in the appendix.

Notwithstanding, a number of constraints may weigh on India's capacity to produce competitive goods for foreign markets in the same way as China, including:

- *Infrastructure*. China is better endowed with modern infrastructure and invests significantly more than India on developing it.[25] An exception, however, is the telecom infrastructure, which has improved significantly in India in recent years (see Ahya and Xie, 2004). China has greatly benefited from facilities offered by Hong Kong, as a distribution depot, a source of capital and a source of modern management and production techniques. India has no comparable resource.

- *Labour laws*. India's labour market is relatively more regulated than China's, where labour laws (for instance in terms of working hours) are sometimes circumvented.[26] China has taken advantage of this in conjunction with the end of trade barriers in, for example, the apparel and textile industries. At the same time, the Indian labour market is characterised by a high degree of informality. People with regular employment contracts account for only 15% of total employment and most of these are concentrated in urban areas (see OECD, 2007b).[27]

- *Foreign direct investment,* which is sizeably lower in India than in China, with a corresponding loss in expertise, productivity spillovers and benefits from competition. Emulating China, Indian authorities have created "Special Economic Zones", which offer tax benefits to and simplified procedures for export-oriented investments, in order to attract foreign direct investment (see Kim and Qiao, 2006).

- Indirect *taxes*, which in India are among the highest in Asia. Tax collection efficiency is low and high fiscal deficits limit the scope for tax rebates (see Ahya and Xie, 2004).

Considering now the strength of bilateral trade linkages, the estimation results suggest that those of China are stronger than fundamentals would suggest, while those of India are weaker. In particular, China is highly integrated with other emerging Asian economies relative to what economic size, location and other relevant fundamentals would warrant (see Chart 22). Arguably, this reflects its insertion into a regional production network for export activity (the "Asian production chain") with both domestic and foreign investors exploiting China's comparative advantage in low cost labour. Consequently, China has a central role as a processing and assembly location for inputs imported from other emerging Asian economies, which are then re-exported to mature economy markets with a new value about 20-30% higher than their original value.[28] China is also very well integrated with commodity exporters such as Canada, Peru and Australia. India, by contrast, is less integrated with other economies – particularly other Asian economies – than suggested by fundamentals (see Chart 23). In part,

24 The chart also represents the euro area countries. These countries display substantial heterogeneity, which we do not comment on here as it is not the main focus of the paper. For an analysis of the trade integration of central and eastern European countries, see also Bussière et al. (2004).

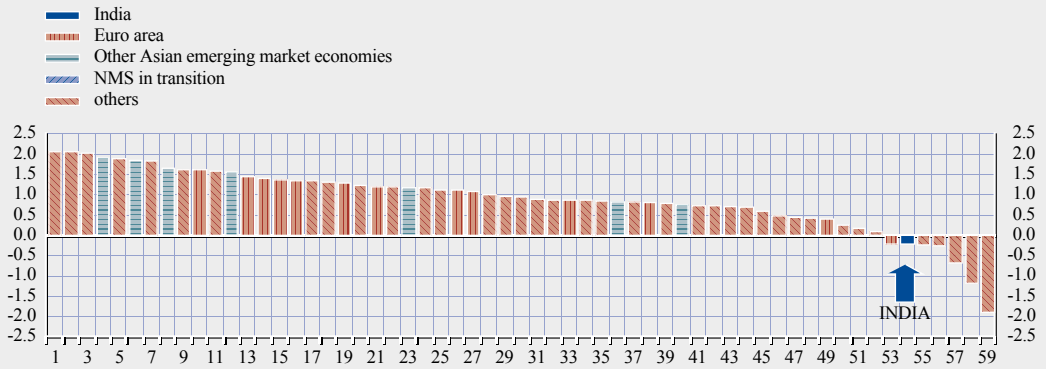
25 See Ahya and Xie (2004) and Kalish (2006). In 2002, for example, China spent seven times more on power and transport infrastructure than India (USD 128 billion compared with USD 18 billion). China's highway network is seven times larger than India's (1.4 million kilometres compared with 200,000 kilometres). Finally, owing to insufficient port capacity, the lead time for Indian exports to the United States is roughly three to four times longer than in the case of Chinese exports. Some progress is being made in certain areas in India, such as public utilities and telecommunications. However, high public deficits are a hurdle to the funding of necessary investments.

26 As noted in Panagaryia (2006), the addition of chapter 'V.B' to the Industrial Disputes Act 1947 effectively ruled out firing in firms with 100 or more workers under any circumstances.

27 Businesses in the unorganised (and often informal) sector with fewer than ten or 20 workers are subject to very few labour regulations and can employ casual or contract labour freely (as can most IT and BPO companies).

28 The findings also suggest that China is less integrated with India than suggested by fundamentals. This may mirrors the two economies' difficult common historical past, similarities in endowments and the high costs of trading (including, perhaps, physical barriers such as the Himalayan mountains).

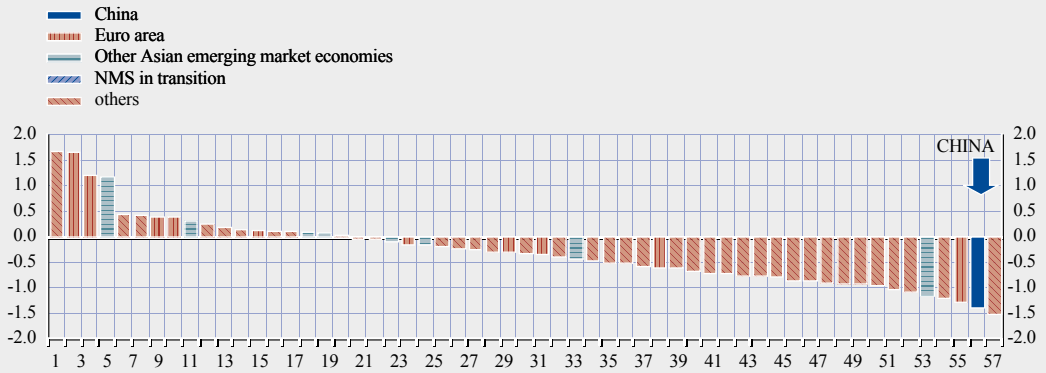
Chart 22 Results from the gravity model - China's bilateral integration



1 Canada	11 New Zealand	21 Italy	31 Romania	41 Norway	51 Croatia
2 Peru	12 Thailand	22 Denmark	32 Albania	42 Switzerland	52 Bulgaria
3 Australia	13 France	23 South Korea	33 Austria	43 Turkey	53 Slovenia
4 Indonesia	14 Netherlands	24 Mexico	34 Hungary	44 Czech Republic	54 India
5 Uruguay	15 Belgium	25 Morocco	35 Poland	45 Cyprus	55 Lithuania
6 Malaysia	16 Spain	26 Greece	36 Hong Kong	46 Estonia	56 Latvia
7 USA	17 Ukraine	27 Ireland	37 Belarus	47 Russia	57 Macedonia
8 Philippines	18 Japan	28 Malta	38 Luxembourg	48 Colombia	58 Moldova
9 Argentina	19 Finland	29 Brazil	39 Ecuador	49 Protugal	59 Bosnia-Herzegovina
10 Germany	20 United Kingdom	30 Sweden	40 Singapore	50 Slovak Republic	

Source: Authors' estimates.

Chart 23 Results from the gravity model - India's bilateral integration



1 Morocco	11 Netherlands	21 Japan	31 Finland	41 Latvia	52 Estonia
2 Belgium	12 Denmark	22 Protugal	32 Hong Kong	42 Norway	53 Hungary
3 Luxembourg	13 Italy	23 South Korea	33 Mexico	43 Uruguay	54 Philippines
4 Malaysia	14 Spain	24 Romania	34 Poland	44 Cyprus	55 Macedonia
5 Ukraine	15 Argentina	25 Sweden	35 Chile	45 USA	56 Ireland
6 Russia	16 Thailand	26 Slovak Republic	36 Turkey	46 Peru	57 China
7 Germany	17 Singapore	27 Australia	37 Slovenia	47 Moldova	58 Ecuador
8 France	18 Belarus	28 Austria	38 Croatia	48 Colombia	
9 Indonesia	19 Brazil	29 Czech Republic	39 Canada	49 New Zealand	
10 Switzerland	20 United Kingdom	30 Greece	40 Bulgaria	50 Lithuania	

Source: Authors' estimates.

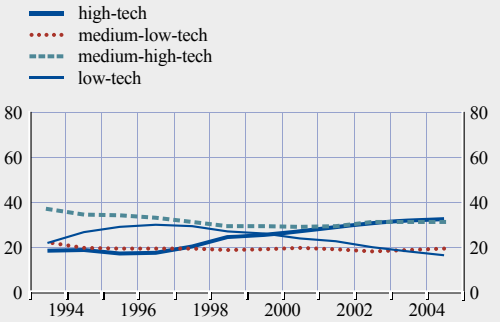
this reflects weaker trade links with other Asian economies.[29] This finding is, of course, also very much dependent on the fact that here we are considering trade in goods only.

COMPOSITION OF GOODS EXPORTS AND COMPARATIVE ADVANTAGES

A further key difference between the roles of China and India in global trade in goods is their uneven ability to climb the technological ladder. Since the early 1990s, China has increasingly specialised in high-tech goods, while India has continued to concentrate on low-tech exports. This is evident from a breakdown of total exports by sector, classified into four main categories according to their technological intensity (see Charts 24 and 26). The breakdown of exports by product is based on CEPII's classification (this breakdown is also used by Bauman and di Mauro, 2007).[30] As with other classifications, this one is also subject to important caveats. Two of them are especially relevant for the present analysis. The first relates to the fact that the classification relies on relatively broad sectors, which may be subject to noticeable heterogeneity at a more refined level. To take an example, in the category "clothing" there is no distinction between luxury brands and more ordinary labels. This has consequences not only for the degree of substitution between exports from different countries, but also for the implied level of research and development that is attached to exports.

Chart 25 Breakdown of China's imports by commodity

(as a percentage of total imports of goods)



Sources: CHELEM and authors' calculations.

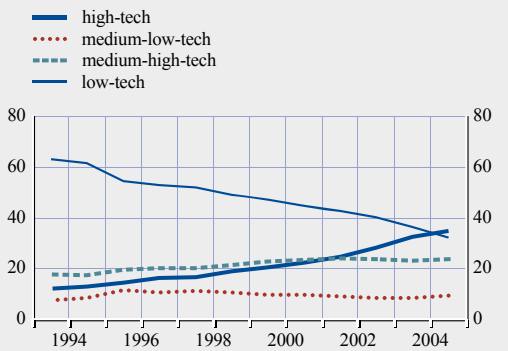
A second caveat is that when we consider exports from a given country (e.g. China), we do not distinguish between the goods that have been

29 There is little actual regional economic integration in South Asia. The 19-year-old South Asian Association for Regional Cooperation (SAARC) is of little substance, leading India to deepen links with ASEAN. A free trade agreement is expected to come into force by the end of 2011.

30 CEPII's breakdown is available on CEPII's website (http://www.cepii.fr/francgraph/bdd/chelem/cominter/4techno.htm) and uses the Chelem database in which trade flows are reported in value terms). The breakdown we are using is reported in more detail in Table A2a-b (see appendix). It differs slightly from CEPII's classification since we have excluded energy products, which are classified as "medium low-tech" according to CEPII. The main reason behind this choice concerns the heterogeneity of energy exports (for example, nuclear energy can be assumed to have a stronger technological content than coke) and their low substitutability relative to other types of exports.

Chart 24 Breakdown of China's exports by commodity

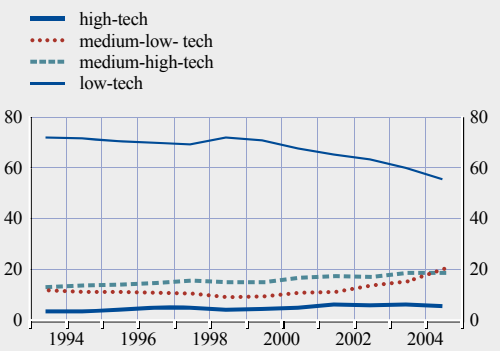
(as a percentage of total exports of goods)



Sources: CHELEM and authors' calculations.

Chart 26 Breakdown of India's exports by commodity

(as a percentage of total export of goods)



Sources: CHELEM and authors' calculations.

produced in their entirety in that country and those that have been just assembled there. This difference is especially relevant when it comes to assessing the potential relocation of production across countries: a country that mostly assembles products (performing low-tech tasks) is likely to attract different forms of foreign investment from a country that is able to perform a broader range of tasks. This issue is actually very important for China owing to the important role played by the processing trade in the economy, as illustrated in Table A2b, which reports the share in total imports of the same sectors as those reported in Table A2a for exports (see Appendix). For instance, while computers represented 16% of Chinese exports in 2004, computers also represented 7.4% of Chinese imports, in comparison with 11.5% for the category "electronic components". These electronic components correspond partly to components that are assembled in China and, at least in part, re-exported under the category "computer".

While these caveats need to be kept in mind, our conclusions are consistent with those of Rodrik (2006) and Schott (2007), who use alternative classifications based on different datasets. The first main conclusion is that – based on the above discussed classification – the share of China's high-tech goods in total exports has increased from 12% to nearly 35% and is now above the share of low-tech goods, which decreased from 63% to 32% over the reference period.[31] Notwithstanding these caveats, this evolution is very noteworthy as few countries in the world are characterised by such rapid changes across sectors. In fact, at variance with China, low-tech goods still account for more than half of India's exports (down from around 70% ten years earlier), while high-tech goods account for only 5%. Interestingly, Indian exports are strong in none of the high-tech categories, with the exception of pharmaceuticals, which rose from 2.2% to 3.3% of total goods exports (see Table A2a in the appendix).[32]

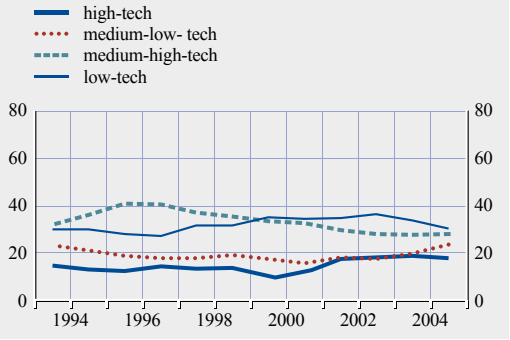
From a global perspective, the estimates also suggest that China is becoming a dominant player for both high-tech and low-tech goods. In 2004 China became one of the world's first exporters of high-tech goods, together with the euro area and the United States (see Chart 28). In addition, China has become the second largest exporter of low-tech goods in the world,

31 The fastest growing categories of high-tech goods included computer equipment (which increased from 2.3% to 16% between 1994 and 2004), electronic components (0.5% to 3%) and telecommunication equipment (2.5% to nearly 8%).

32 India's pharmaceutical sector is already one of the world's largest, ranking fourth in terms of volume and 13th in terms of value in the global pharmaceutical market (OECD, 2007a). Export revenues were estimated to stand at around USD 2.8 billion in 2005. The sector employs around 5 million and is responsible for a further 24 million indirect jobs.

Chart 27 Breakdown of India's imports by commodity

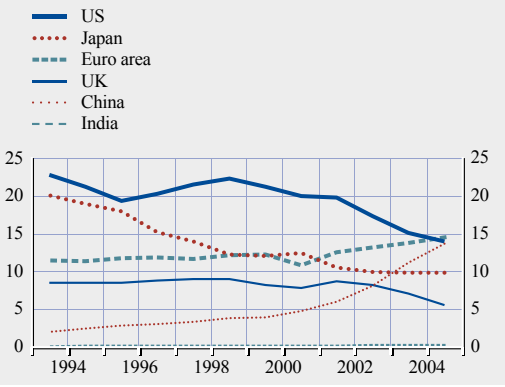
(as a percentage of total imports of goods)



Sources: CHELEM and authors' calculations.

Chart 28 Share of world trade - high-tech goods

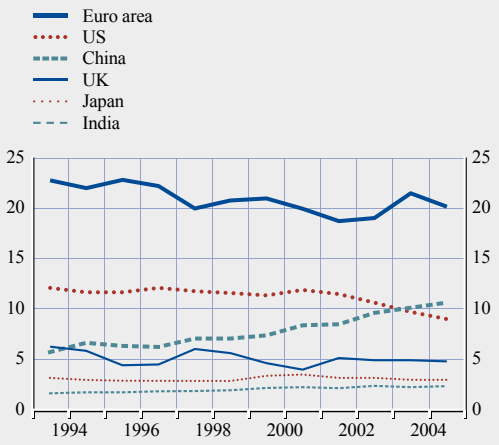
(percentages)



Sources: CHELEM and authors' calculations.

Chart 29 Share of world trade - low-tech goods

(percentages)



Sources: CHELEM and authors' calculations.

after the euro area, owing to the strong growth in its overall exports (see Chart 29).

Competitiveness measures further suggest that China increasingly acts as a direct competitor of mature economies, while India does not. To assess competitiveness, we use the standard Balassa index of revealed comparative advantage (Balassa, 1964). This index is a useful way to summarise specialisation patterns. It compares the share of good i in the exports of country j with the share of this good in world exports:

$$BS_j^i = \frac{X_j^i \ / \ X_j^{total}}{X_{total}^i \ / \ X_{total}^{total}} \qquad (2)$$

If the index is above 1 for good i, country j is considered to have a revealed comparative advantage in the i^{th} sector. As sector shares are constrained to add up to unity, no country can have a revealed comparative advantage in all sectors: a high share in a given sector needs to be compensated by a lower share in others. Based on this index, our estimates suggest that China's revealed comparative advantage is now clearly in the high-tech sector, with an index of 1.5 (see Table 3), although it still withholds a relatively strong comparative advantage in the low-tech sector, with an index of 1.2. This makes China's exports comparable with those of mature economies, which also have high indices in the high-tech sector. Rodrik (2006) and Schott (2007), using more refined breakdowns than the ones we are using here, also conclude that China's export basket has switched towards high-tech exports and that the share of high-tech goods China exports is now significantly higher than would be expected given its income level. However, Schott (2007) also notices that, within product markets, Chinese exports to the United States have lower prices than exports from OECD countries, suggesting that OECD exporters attempt to react to competition from Chinese products by producing goods with a higher

Table 3 China's and India's revealed comparative advantage and international comparisons

			Mature economies				Emerging Asian economies					Other emerging economies				
	India	China	Euro area[1]	US	UK	JP	IND	TH	TW	KR	SG	TK	RU	TN	BR	MX
high tech	0.2	1.5	0.7	1.2	1.1	1.1	0.7	1.4	1.7	1.6	3.1	0.3	0.1	0.1	0.3	1.1
memo, 1994	*0.2*	*0.7*	*0.5*	*1.4*	*1.3*	*1.5*	*0.4*	*1.4*	*1.4*	*1.4*	*3.6*	*0.1*	*0.1*	*0.1*	*0.1*	*1.1*
medium-high tech	0.6	0.7	1.2	1.1	1.1	1.5	0.5	0.7	0.9	1.0	0.5	0.9	0.5	0.9	0.8	1.3
memo, 1994	*0.4*	*0.5*	*1.2*	*1.1*	*1.0*	*1.5*	*0.2*	*0.4*	*0.9*	*0.8*	*0.5*	*0.4*	*0.5*	*0.6*	*0.7*	*1.4*
medium-low tech	1.3	0.6	1.1	0.7	0.7	0.9	1.0	0.7	1.0	1.4	0.4	1.4	2.5	0.4	1.6	0.5
memo, 1994	*0.8*	*0.6*	*1.2*	*0.7*	*0.8*	*0.9*	*0.8*	*0.4*	*0.8*	*1.4*	*0.3*	*1.5*	*2.6*	*0.4*	*1.9*	*0.6*
low tech	2.0	1.2	1.0	0.8	1.0	0.3	1.9	1.2	0.5	0.4	0.2	1.6	1.6	2.2	1.5	0.8
memo, 1994	*2.1*	*1.8*	*1.0*	*0.8*	*0.9*	*0.2*	*2.1*	*1.6*	*0.9*	*0.9*	*0.2*	*1.9*	*1.3*	*2.1*	*1.4*	*0.7*

Sources: Chelem and authors' calculations. Balassa index of revealed comparative advantage (Balassa, 1964) defined in equation (2). 2004 estimates, unless specified otherwise.
Notes: 1 Extra-euro area trade only. The acronyms refer to Japan (JP), Indonesia (IND), Thailand (TH), Taiwan (TW), Korea (KR), Singapore (SG), Turkey (TK), Russia (RU), Tunisia (TN), Brazil (BR) and Mexico (MX) respectively.

technological content. Chinese exports are also comparable with those of several other emerging Asian economies, probably echoing the complementarities between China and its neighbours within the "Asian production chain".[33]

By contrast, India has a revealed comparative advantage in the medium and especially low-tech sectors, with indices of 1.3 and 2.0 respectively. This makes India's exports closer to those of non-Asia emerging economies, such as Brazil, Russia, Tunisia and Turkey, at least based on this classification (as mentioned above, the heterogeneity of these broad categories calls for caution in deriving cross-country comparisons).

The different nature of China's and India's respective competitors in goods markets is further illustrated by a synthetic measure of economic distance between countries in terms of export composition. To this end, we calculate the following Euclidian economic distance, δ_{ij}, between two countries i and j on the basis of N categories of goods exports k (as available in Chelem):

$$\delta_{ij} = \sqrt{\sum_{k=1}^{N} \left(\sigma_i^k - \sigma_j^k\right)^2} \qquad (3)$$

where σ_i^k represents the share of sector k in country i's total exports. The lower this index is, the more similar the two economies are to each other and the more they may compete with each other, bearing in mind the aforementioned caveats. The results confirm that China is "close" to the markets of many emerging Asian economies, such as South Korea, Taiwan Thailand – Indonesia and Singapore being two exceptions (see Table 4). India, on the other hand, is found not to be particularly close to any economy, whether emerging or mature, its Euclidian distance always being higher than (or equal to) that of China. This is because India's export structure has thus far been highly concentrated on one category of goods ("jewellery, works of art"), which accounts for 20% of total Indian exports but only 1.4% of world trade. A final remark on the indices presented in Table 4 is that they may actually underestimate the impact of China's trade integration on small economies that rely heavily on specific goods. This is the case, for example, of Tunisia and Turkey, where exports of "clothing" and "knitwear" account for a large share of the total (see Table A2a): even though these categories represent a small share of total exports for China, the expiration of the Multifibre Arrangement (MFA) on 1 January 2005 had important consequences for manufacturing exports of these countries.

Finally, before turning to trade in services, it should be noted that the composition of Chinese and Indian imports also matters when it comes to evaluating the impact of their development on the rest of the world. Table A2b reports the share of selected goods as a percentage of non-oil imports for China and India. As noted above, Chinese imports are, first, particularly rich in electronic components (partly on account of processing trade activities). Second, China also heavily imports manufactured goods that are essential to its economic development, such as "specialized

33 Singapore has a comparative advantage in high-tech goods that is even higher than China's (with a Balassa index of 3.1 – more than twice as high as China's) and Indonesia is more specialised in low-tech goods.

Table 4 Index of economic distance - breakdown of exports of goods by sector

				Mature economies			Emerging Asian economies					Other emerging economies				
	World	India	China	JP	US	EA	IND	TH	TW	KR	SG	TK	RU	TN	BR	MX
China	0.16	0.29	…	0.23	0.21	0.20	0.25	0.13	0.12	0.19	0.27	0.27	0.40	0.39	0.26	0.20
India	0.23	…	0.287	0.30	0.26	0.24	0.26	0.24	0.29	0.27	0.47	0.27	0.38	0.4	0.25	0.29

Sources: Chelem and authors' calculations.
Mature economies Emerging Asian economies Other emerging economies
Notes: The table shows the index δ_{ij} of Euclidian distance defined in equation (3). The lower the number indicates, the more similar is the sectoral composition of exports. The acronyms refer to Japan (JP), Indonesia (IND), Thailand (TH), Taiwan (TW), South Korea (KR), Singapore (SG), Turkey (TK), Russia (RU), Tunisia (TN), Brazil (BR) and Mexico (MX) respectively.

machines" or "electrical apparatus". This could have beneficial effects on Japanese exports, in particular, which are strong in these two categories (see Table A2a). Finally, China imports significant quantities of commodities such as iron, steel, non-ferrous metals and ores, and plastics. Accordingly, strong demand from China is often seen as a key driver of the rise in world commodity prices (see, for example, Pain et al., 2006; Bernanke, 2007; and Trichet, 2007). By contrast, India does not import many electronic and investment goods.[34] Neither does the Indian economy import many primary products, except non-monetary gold (7.6% of the total, far above the world total, which stands at only 0.5%), presumably owing to its production of jewellery and works of art. With regard to oil imports (not reported in Table A2b), India imports proportionally more crude oil than China: this category accounts for 27% of goods imports, compared with 6.3% in the case of China. Even taking into account the fact that goods imports represent a lower share of GDP in India than China, the difference remains large: in absolute value and in 2004, Chinese imports of crude oil were only 10% higher than Indian imports, a somewhat low ratio compared with the size of the two economies. This may point to higher domestic production of energy or higher energy efficiency in China.

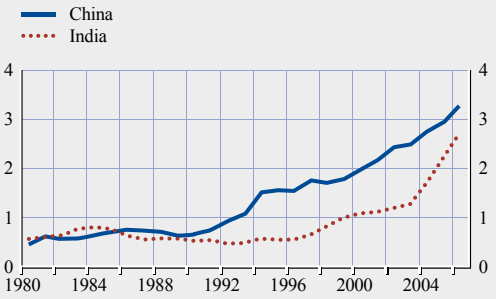
TRADE IN SERVICES

China's role in trade in services also remains more important than that of India, although the latter is growing rapidly but only in deregulated sectors such as IT and IT-enabled services – India's flagship of integration into global trade. In 2006 China still accounted for a larger share of global trade in services than India – 3.1% compared with 2.7% (see Chart 30).

Nevertheless, India's share has been rising very markedly since the turn of the millennium. Over the last four years it has more than doubled in the wake of the liberalisation of the telecom and IT sectors by Indian authorities (see OECD, 2007b). In line with this, both India and China already rank among the top ten exporters of services in the world (see Table 5). Furthermore,

Chart 30 Share of exports in world trade in services

(trade in value terms, percentages)



Source: IMF World Economic Outlook, September 2007, and authors' calculations.

India is already the most specialised economy among the world's main exporters of services (see Chart 31). Exports of services account for about 38% of India's total exports, compared with 32% in the case of the United Kingdom and 29% in that of the United States, the world's leading exporters of services. In China, by contrast, services represent only 9% of total exports, given the even larger magnitude of manufacturing exports. Ten years ago, China's and India's shares were roughly equal (at 20% and 16%), which suggests that India's specialisation in services is actually rising sharply over time.

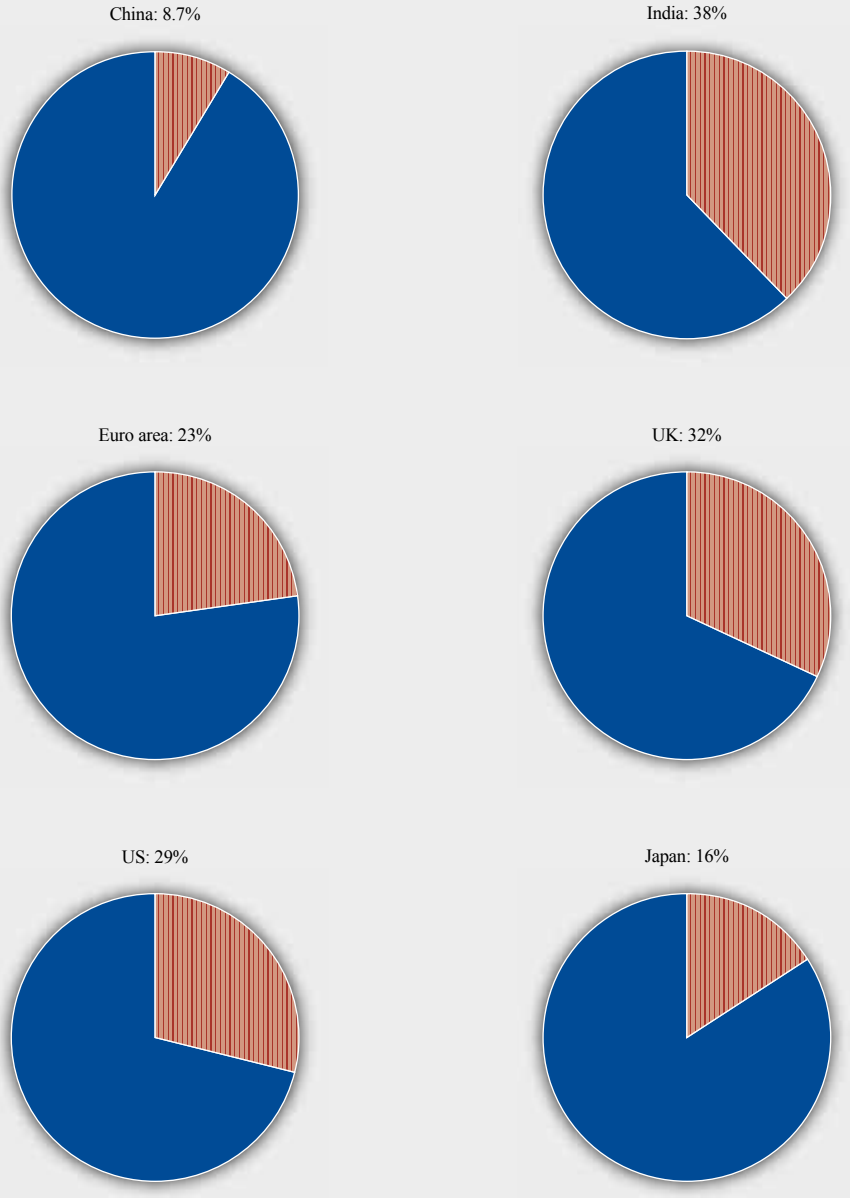
34 It should be noted, however, that these observations are only valid prior to 2004, since the situation may have changed over the past two years with the acceleration of investment in India.

Table 5 Main exporters of services in 2006

Rank	Country	Exports (USD billion)
1	United States	423
2	United Kingdom	230
3	Germany	178
4	Japan	117
5	France	115
6	Spain	106
7	Italy	101
8	*China*	92
9	Netherlands	85
10	*India*	76

Source: World Economic Outlook, September 2007.

Chart 31 Share of services in total exports in selected economies

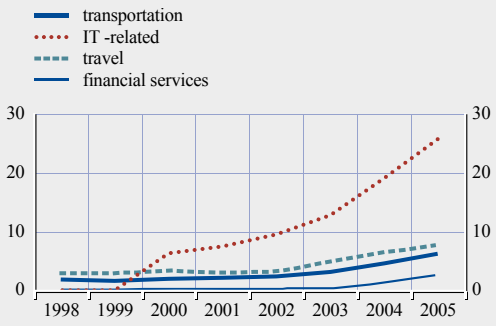


Sources: IMF World Economic Outlook, September 2007, and authors' calculations.

The take-off in India's services exports is mostly dependent on deregulated sectors, chiefly IT and IT-enabled services. By contrast, China's exports of services are more broad-based and somewhat complementary to its manufacturing exports, thereby reflecting its importance in global trade in goods. IT-related exports have increased sharply in India since the late 1990s (see Charts 32 and 33). The sector has been among the fastest-growing in the economy at close to 30% per year since the late 1990s (see NASSCOM, 2006), with its contribution to output doubling from close to 2% to 5%. At the same time, direct employment has grown

Chart 32 Breakdown of India's services exports by sector

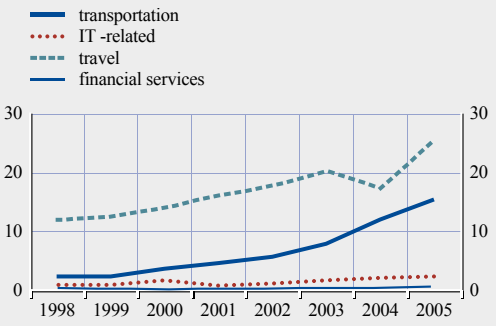
(USD billion)



Source: CEIC and authors' calculations.

Chart 33 Breakdown of China's services exports by sector

(USD billion)



Source: CEIC and authors' calculations.

by over one million (from about 280,000 to 1,300,000), although this is barely 1% of the labour force. In 2006 the sector was expected to generate over USD 36 billion in revenues, of which one-quarter from business process outsourcing activities. Exports accounted for two-thirds of all revenues, with the main destinations being the Americas (70%) and Europe (8%, including the United Kingdom). Notwithstanding, India's export performance in the other types of services has stalled. To a great extent, this reflects the fact that a large share of India's services is still in the informal sector, is often not open to competition (both in terms of market entry and labour regulation) and, thereby, scarcely productive (see OECD, 2007b).

In China, by contrast, a larger variety of services exports has experienced strong growth in the last decade. China is notably strong in IT services exports and emerges already as a potential rival to India, although this issue attracts much less attention than Indian exports of services. Importantly, China is strong in (maritime) transportation, which is seemingly linked to its increasingly large role as a manufacturing hub in Asia. Reflecting these complementarities, it is interesting to note that services exports in China have grown hand-in-hand with goods exports, as their ratio has remained broadly stable over time. On the other hand, in India the ratio of IT services exports to IT goods exports has sharply risen over time, underscoring its increasing specialisation in – and dependence on – this particular service activity.

4 CHINA'S AND INDIA'S ROLES IN GLOBAL FINANCE

OVERALL FEATURES

While China's and India's roles in global trade are already prominent, their roles in the global financial system are far more limited. Importantly, in certain areas they mirror the differences in China's and India's integration into global trade.

As an overall measure, China's and India's international investment position – which captures the two countries' total external assets and liabilities – suggests that both economies are still relatively small players in global finance. In 2005 China's creditor position vis-à-vis foreigners stood at below USD 300 billion, around 13% of its GDP (see Table 6). As observed in Lane and Schmukler (2006), this represented less than 19% of the net foreign assets of Japan, which is the world's largest creditor economy.[35] Unlike China, India is a debtor vis-à-vis the rest of the world, although – here again – the amount is relatively small. In 2005 India's debtor position reached about USD 50 billion (6% of GDP). This represented less than 2% of the net foreign liabilities of the United States, the world's largest debtor economy.

EXTERNAL ASSETS

One area where China's and India's roles in the global financial system is evident, however, is their large and growing reserve holdings, which dominate on the asset side of both economies' international investment position. In 2005 China's reserve holdings accounted for about 37% of GDP, compared with 20% of GDP in the case of India (see Table 6). In this respect, China's reserve holdings surpassed the USD 1 trillion mark in October 2006 to reach about USD 1.1 trillion in December 2006. Despite attracting little attention, India has recently also been one of the fastest reserve accumulators. Since the turn of the millennium, India's reserve assets have quintupled to reach nearly USD 170 billion. India's holdings are larger than those of Singapore or Hong Kong, making

35 It is important on a flow basis, however. China's current account surplus in 2006 (some USD 240 billion) accounted for close to 30% of the US current account deficit (USD 860 billion).

Table 6 International investment positions

	China		India	
(2005)	(USD billion)	(% of GDP)	(USD billion)	(% of GDP)
Balance	**287**	**12.9**	**-46**	**-6**
direct Investment	-546	-24.4	-38	-4.9
equity	-64	-2.8	-54	-7.0
debt securities	104	4.6	-8	-1.1
other Investment	-33	-1.5	-97	-12.6
reserve Assets	826	37.0	152	19.6
financial Derivatives	0	0.0	0	0.0
Total external assets	**1,218**	**54.5**	**183**	**23.7**
direct investment abroad	64	2.9	12	1.6
equity securities assets	0.0	0.0	1	0.1
debt securities assets	117	5.2	1	0.1
other investment assets	211	9.5	18	2.4
reserve assets	826	37.0	152	19.6
financial derivatives assets	0	0.0	0	0.0
Total external liabilities	**931**	**41.7**	**229**	**29.7**
direct investment in reporting economy	610	27.3	50	6.5
equity securities liabilities	64	2.8	54	7.0
debt securities liabilities	13	0.6	9	1.2
other investment liabilities	244	10.9	116	15.0
financial derivatives liabilities	0	0.0	0	0.0

Source: IMF (International financial statistics) and authors' calculations.

Chart 34 Top 15 holders of reserve assets*

Source: International Financial Statistics.
(*) Data as at December 2006.

it the seventh largest holder of reserves in the world (see Chart 34).

A major difference between the two economies, however, lies in the origin of the reserves accumulated. Since 2000 about two-thirds of China's reserves have originated from current account surpluses, while the remaining third has stemmed from private capital inflows, essentially foreign direct investment. Conversely, the bulk of India's reserve accumulation has originated from hefty private capital inflows – mostly portfolio flows and bank lending – while current account surpluses have turned into deficits since 2005.

Their large reserve holdings aside, both China and India hold little other foreign assets. This stems partly from capital account restrictions. For instance, Indian banks are not allowed to acquire foreign assets; rather they are encouraged to hold government bonds in order to lower the cost of financing public deficits (see Lane and Schmukler, 2006). Accordingly, China and India hold relatively small amounts of foreign equities (both securities and foreign direct investment) and foreign debt securities (in the order of 8% of GDP in the case of China and 2% of GDP in that of India). Foreign bank loans outstanding (included in the category 'other investment assets') are of a similarly small magnitude.

EXTERNAL LIABILITIES

While their foreign assets are rather similar, China's and India's foreign liabilities are markedly different, which translates into uneven risk exposures. Foreign direct investments are China's dominant source of foreign liabilities, accounting for around 27% of GDP. Given that foreign direct investment is of a rather long-term nature, China's exposure to volatility in international capital flows is relatively contained (see Ferguson et al. 2007). Reflecting this, the activity of foreign portfolio investors in China is limited by capital controls, although since late 2002 restrictions have been gradually lifted, in particular in the equity market.[36] Debt markets also remain highly regulated, since debt flows are considered by authorities as potentially volatile (see Lane and Schmukler, 2006).[37] Unlike China's, the composition of India's foreign liabilities is more diverse, ranging from foreign direct investment and equity securities (each accounting for around 7% of GDP) to bank lending (about 15% of GDP). In particular, registered foreign institutional investors are allowed portfolio investments through stock exchanges and debentures, albeit subject to ceilings (see Tarapore, 2006).[38] Restrictions on purchases by foreigners in the government and corporate bond markets are much stricter, but authorities are considering further liberalising the financial account in the period ahead (ibid.).[39]All in all, the higher share of portfolio equity in India's foreign liabilities suggests that

36 Since December 2002, foreign investors can trade in the market for A-shares (denominated in renminbi) if they are granted the status of "qualified foreign institutional investors". Other foreign investors can trade only in assets denominated in US dollars (B-shares) and assets denominated in Hong Kong dollars (H-shares). Qualified foreign institutional investors cannot invest in B or H-shares (Prasad and Wei, 2005).

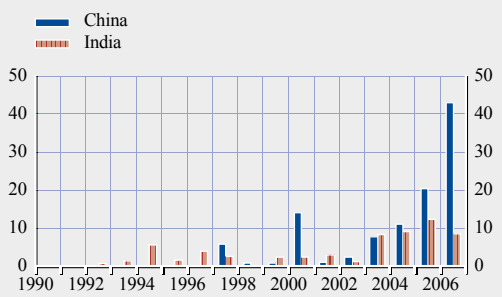
37 Foreigners are not allowed to trade on the money market or the derivatives market, while residents are generally not allowed to issue external debt, with the exception of financial institutions, albeit with administrative approval.

38 Foreign institutional investors (FIIs) can move capital in and out of India and use derivative instruments. By default, ownership of a firm by FIIs is capped below 24%, but this ceiling can be raised to 98%; no single FII can own more than 10% of a quoted firm, but it is possible for a group of FIIs to own almost the entire firm (Lane and Schmukler, 2006).

39 In the government bond market, the limit to ownership is USD 1.5 billion by all FIIs, compared with USD 500 million in the corporate bond market (Lane and Schmukler, 2006).

Chart 35 Gross portfolio equity inflows

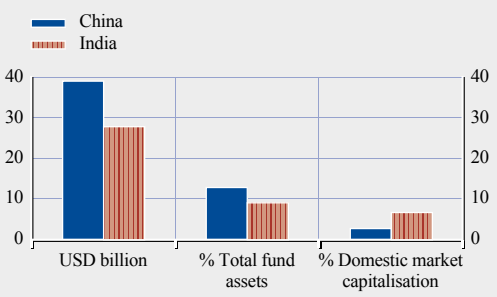
(USD billions)



Source: IMF World Economic Outlook, September 2007.

Chart 36 Cross-border holdings of foreign mutual funds dedicated to emerging economy equities*

(USD, percentages)



Source: Emerging Portfolio.
Note: Market capitalisation of A and B-shares listed on the Shanghai and Shenzhen exchanges in the case of China and on the Mumbai stock exchange in the case of India.
(*) Data for November 2006.

it is, perhaps, more exposed than China to volatility in international capital flows (see Ferguson et al, 2007).

In line with China's and India's relatively modest roles in the global financial system, Chinese and Indian securities account for a relatively minor share of global portfolios, although their importance is growing. In particular, gross purchases of Chinese equities by foreigners have risen sixfold since the mid-1990s, reaching about USD 30 billion in 2006 (see Chart 35).

At the same time, equity inflows into India have doubled to reach about USD 10 billion. Taken together, China and India account for about 20% of cross-border holdings of foreign mutual funds dedicated to emerging economy equities, as tracked by EmergingPortfolio, a commercial data provider (see Chart 36).

Reflecting the prevalence of capital controls, equity markets in both countries are still largely dominated by domestic investors. Foreign mutual fund holdings of Chinese equities reached USD 39 billion in late 2006.[40] This represented only about 3% of the combined capitalisation of the Shanghai and Shenzhen stock markets. Likewise, foreign mutual funds held USD 28 billion in Indian equities (about 7% of the capitalisation of the Mumbai stock market). Taken together, these amounts are, however, still small by global standards.[41] Owing to the aforementioned capital controls, bond inflows remain small, averaging below USD 1 billion to China in recent years, while those to India have been negligible.

FOREIGN DIRECT INVESTMENT AND COMPLEMENTARITIES WITH ROLE IN GLOBAL TRADE

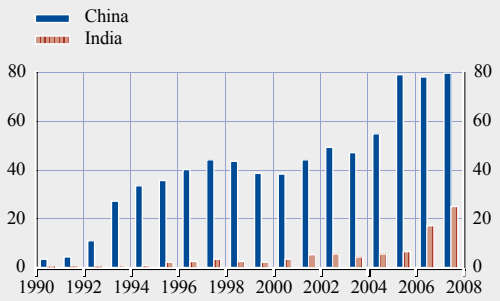
One of the most distinctive features between China's and India's roles in the global financial system is foreign direct investment. China has attracted much more foreign direct investment than India to date, which has been central to the development of its export-oriented manufacturing sector and, thereby, growth performance. Promoting inward foreign direct investment was one of the early steps made by the Chinese authorities towards financial liberalisation in the 1980s and 1990s, on account of its contribution to technology transfer and export promotion, and its putative stability effect (see Lane and Schmukler, 2006). There are now no major restrictions on inward foreign direct investments to China, which has helped the economy become the world's third

40 This amount includes holdings of foreign mutual funds *dedicated* to emerging economies. It excludes the holdings of foreign mutual funds with more general strategies.

41 For instance, these combined holdings (USD 67 billion) represented less than 0.5% of the market capitalisation of US companies trading on the New York Stock Exchange in 2006.

Chart 37 Direct investment in reporting economy

(USD billions)



Source: IMF World Economic Outlook, September 2007.

largest recipient of such investments with USD 70 billion in 2006 (see Chart 37).

Foreign direct investment to India, amounting to USD 12 billion, is only 18% of that of China. One reason for India being less attractive is that foreign direct investment remains subject to a range of restrictions. In certain strategic sectors (including atomic energy) it is prohibited, whereas in a wide range of other sectors it is subject to ceilings (see Panagaryia, 2006).

A common trait of foreign direct investment in both China and India is its concentration in terms of investor countries. Since the turn of the millennium, about one-third of the investment flows received by China and India have originated in Hong-Kong and Mauritius respectively (see Table 7). This underscores the importance of these offshore centres as entry points for investment into China and India, as well as the existence of "round-tripping" activities (see Lane and Schmulker, 2006).[42] According to some observers, another third of

42 "Round-tripping" refers to activities of domestic residents who route investment through offshore entities in order to benefit from tax incentives and other advantages that are provided to foreign investors.

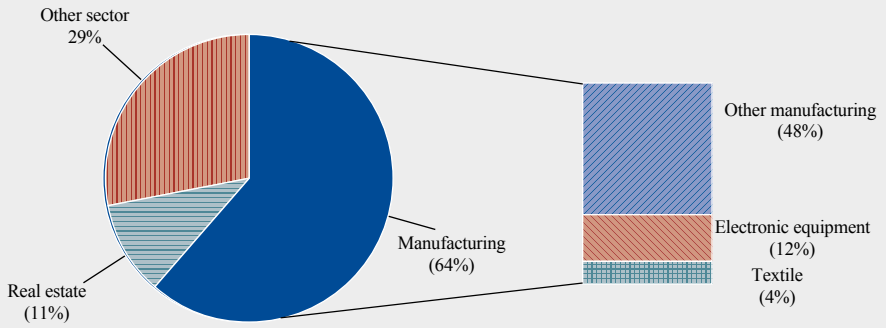
Table 7 Foreign direct investment (breakdown by country)

	Total	(%)	of which: from/to							
			China	(%)	India	(%)				
Euro area *(Net flows in EUR millions, averaged over 1999-2005)*										
Direct investment received from the rest of the world	191,448	*100.0*	254	*0.1*	151	*0.1*				
Direct investment abroad	271,276	*100.0*	2,178	*1.0*	617	*0.3*				
	Total	*(%)*	**of which: from/to**							
			Euro area	*(%)*	**Japan**	*(%)*	**US**	*(%)*	**Hong Kong**	*(%)*
China *(Flows in USD millions, averaged over 1999-2006)*										
Direct investment received from the rest of the world	51,018	*100.0*	3,297	*6.5*	4,508	*8.7*	4,065	*8.2*	17,665	*35.0*
Direct investment abroad[1)]	6,872	*100.0*	135[2)]	*0.9*	16	*0.2*	139	*2.0*	…	....
	Total	*(%)*	**of which: from/to**							
			Euro area	*(%)*	**Japan**	*(%)*	**US**	*(%)*	**Mauritius**	*(%)*
India *(Flows in USD millions, averaged over 2000-2006)*										
Direct investment received from the rest of the world	4,304	*100.0*	586	*14.0*	190	*5.2*	475	*11.8*	1,797	*37.0*
Direct investment abroad	…		…		…		….			....

Sources: Eurostat (euro area), CEIC and national sources (China and India) and authors' calculations.
Note: Owing to statistical differences and the availability of data, amounts may differ across sources.
1) 2004-05 averages (owing to the availability of data)
2) France and Germany

Chart 38 Flow of foreign direct investment to China by sector

(Average for the period 1999-2006)



Source: CEIC and Author' calculations.

investment flows to China comes from the Chinese diaspora and therefore would unlikely be invested elsewhere (see Cooper, 2006). The rest is related to vertical integration and China's role as a processing and assembly location for inputs imported from other emerging Asian economies. Interestingly, mature economies are more modest investors.[43] The sectoral allocation of foreign direct investment follows rather different patterns and perhaps mirrors China's and India's roles in global trade. Foreign direct investment in China is concentrated in the manufacturing sector, which received about two-thirds of investment flows between 1999 and 2006. Interestingly, electronic equipment and the textile industries together received one-fifth of such investment, mirroring China's ability to exploit its comparative advantage in labour-intensive products (see Chart 38). By contrast, investment flows to India are relatively more diverse. As many as four sectors received one-half of all foreign direct investment flows in the period 2000-06, namely electrical equipment, the transportation industries and, in particular, services and telecommunications (see Chart 39). The importance of the latter two sectors echoes India's strong performance in services exports.

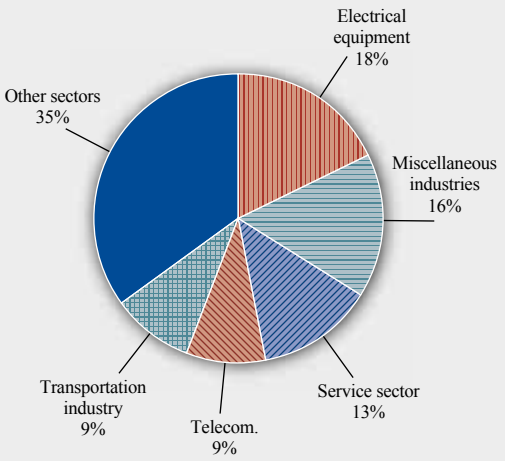
From the perspective of the two emerging titans, China increasingly invests abroad, a further sign of its growing role in the global economy, while India lags somewhat behind. Again, investment patterns seem to echo China's and India's roles in global trade, at least in part. Since 2001 the Chinese authorities have started to liberalise outward investment relating to projects of

43 The euro area accounts for around 7% of direct investment flows to China (compared with 8% in the case of Japan and the United States) and 14% of such flows to India (5% in the case of Japan and 12% the United States). From a euro area perspective, direct investment flows to China and India averaged EUR 2 billion and EUR 600 million per year over the period 1999-2005 respectively, less than 1.5% of the euro area's investment abroad.

44 The regulation currently in place is, however, still complex and includes an examination of the source of foreign exchange funds, the approval of the type of business concerned and the completion of offshore investment foreign exchange registration.

Chart 39 Flow of foreign direct investment to India by sector

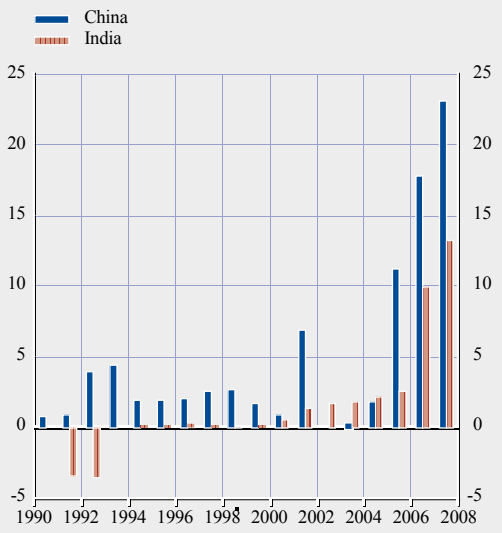
(average for the period 2000-2006)



Source: CEIC and authors' calculations.

Chart 40 Direct investment abroad

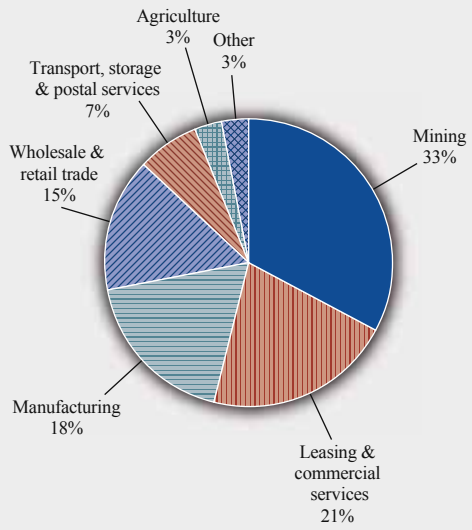
(USD billions)



Source: IMF World Economic Outlook, September 2007.

Chart 41 China's flows of foreign direct investment abroad: breakdown by sector

(average for the period 2003-2005)



Source: CEIC and authors' calculations.

national strategic importance.[44] China's direct investments abroad, typically in the order of USD 3 billion per year from the mid-1980s to 2004, rose to USD 16 billion last year (see Chart 40).

India's direct investments abroad were more modest, amounting to about USD 4 billion last year. A large share of these investments was destined to other emerging economies, while mature economies received a much smaller share. According to Chinese national sources, China's investments in the euro area, Japan and the United States together accounted for about only 3% of the country's foreign direct investment (see Table 7).[45] Noticeably, a large share (one-third) of China's investment abroad involved strategic resources (mining), probably with a view to catering for the growing energy

45 From a euro area perspective, direct investment flows from China and India averaged EUR 400 million per year in the period 1999-2005, i.e. less than 0.2% of all FDI inflows. It should be noted that due to the unavailability of data, there is no equivalent breakdown for India's direct investments abroad.

Table 8 Breakdown of the merger & acquisitions originated by Chinese and Indian companies from 2003 to 2006

	China		India			China		India	
Target country	USD millions	%	USD millions	%	Target sector	USD millions	%	USD millions	%
Other emerging economies	6,824	78	1,232	42	Oil, gas, chemicals, basic resources	5,712	65	590	20
(of which Hong Kong)	(1,410)	(16)	(0)	(0)	Industrials	15	0	483	17
Euro area	1,606	18	802	28	Consumer goods and health care	1,007	11	748	26
Other EU economies	5	0	453	16	Financials	1,251	14	0	0
Other industrial economies	296	3	222	8	Telecommunications, technology				
United States	49	1	207	7	and consumer services	796	9	1,094	38
Total	8,780	100	2,915	100		8,780	100	2,915	100
(No of deals)	*(38)*		*(56)*			*(38)*		*(56)*	

Sources: Zephyr and authors' calculations.
Note: Figures reported include the completed deals for which an estimated value is available.

needs generated by the economy's rapid development and its orientation towards exports of manufactured goods (see Chart 41). Other sectors were involved, however, including leasing and commercial services, as well as manufacturing (each with a share of one-fifth). More detailed data on recent mergers and acquisitions initiated by Chinese and Indian companies confirm these broad trends. The bulk of mergers and acquisitions initiated by Chinese and Indian companies in the last three years targeted other emerging economy companies (78% and 42% respectively; see Table 8). Euro area companies were more frequently targeted by Indian companies than by Chinese companies and accounted for 28% of the targets of the former, compared with 18% in the case of the latter. However, the market value of the mergers and acquisitions targeting euro area companies and initiated by Chinese companies was double that of those initiated by Indian companies (USD 1.6 billion compared with USD 800 million). In terms of sector choice, a large share (two-thirds) of China's mergers and acquisitions abroad targeted strategic resources (including oil, gas, chemicals and basic resources). The sector targets of Indian companies were more diverse, with telecommunications, technology and consumer services accounting for the largest share (almost 40%), the smaller share of strategic resources in India likely reflecting, once again, the stronger orientation of the economy towards services.

5 CONCLUSIONS

This paper has compared some of the most relevant aspects of China's and India's roles in global trade and finance using, in particular, estimates from a gravity model to gauge the overall degree of their trade intensity and the depth of their bilateral relations, as well as measures of revealed comparative advantages and economic distance.

In its review of the countries' main inroads into the global economy, the paper has found that they are clearly two future economic titans, but that China's economic size dwarfs that of India and is expected to continue to do so in the decades to come. While a second obvious piece of evidence of the importance of China and India is their status as population giants, their different demographic prospects may have profound implications for their future roles in global trade and finance. And if China's and India's third inroad into the global economy has been their vigorous growth (although China's performance has steadily exceeded that of India), both emerging titans are found to be facing very similar challenges – in terms of education, environment and society – if they are to maintain their growth momentum.

The paper's main finding, however, is that the most salient difference between China and India lies in the patterns of their integration into global trade, which differ in almost all areas. In trade in goods, the overall degree of China's trade intensity is found to be higher – and its bilateral trade linkages stronger – than economic size, location and other relevant fundamentals would suggest. Conversely, the overall degree of India's trade intensity is found to be lower – and its bilateral trade linkages weaker – than fundamentals would suggest. These findings likely mirror differences in regional integration patterns. China is an integral part of a regional production network for export activity, sometimes labelled the "Asian production chain". India, by contrast, is less regionally integrated, partly reflecting weaker trade links with other Asian economies. In addition, the findings also reflect a range of constraints that may weigh on India's capacity to produce competitive goods for foreign markets in the same way as China.

Competitiveness measures further suggest that China increasingly acts as a direct competitor to mature economies in trade in goods, while India does not. Our estimates indicate that China's revealed comparative advantage is now clearly in the high-tech sector, like a mature economy, although it also has a relatively strong comparative advantage in the low-tech sector. By contrast, India's comparative advantage remains in the low-tech sector. Synthetic measures of distance between countries in terms of export composition further confirm that China is "close" to many emerging Asian economies markets, with which it has complementary links in the context of the "Asian production chain", while India is found not to be particularly close to any economy. The findings relating to trade in services indicate that China's role in this field is somewhat complementary to its role in global trade. China's role is found to be more important than that of India, although India's is growing rapidly but only in deregulated sectors such as IT and IT-enabled services – the economy's flagship of integration into global trade. China, by contrast, is characterised by a larger variety of services exports that have experienced vibrant growth in the last decade. More importantly, China is strong in (maritime) transportation, which is most likely linked to its increasingly important role as a manufacturing hub in Asia.

While China and India already play prominent roles in global trade, the paper finds that their roles in the global financial system are much more limited, with the obvious exception of both economies' large and growing reserve holdings. Importantly, China's and India's roles in global finance mirrors, in certain respects, the countries' integration into global trade. The paper finds this to be most evident in the area of foreign direct investment, where the bulk of flows to China are directed towards the manufacturing sector – consistent with

the country's role as a manufacturing hub – and India's services and telecommunications industries receive a large, albeit not dominant, share of the country's investment inflows. In line with this, while China's and India's investments abroad have grown rapidly in recent years, the sectoral allocation of these investments also echoes both economies' roles in global trade.

The aim of this paper has not been to speculate on the future, but rather to analyse the current situation. Looking ahead, however, the evidence presented suggests that if China and India are to become titans in the near future, they will likely be more distant cousins than evolve into genuine twins. In this respect, a number of issues remain open. For instance, a key question is whether India can bypass manufacturing and rely predominantly on services for its development.

TECHNICAL APPENDIX: ESTIMATING A GRAVITY MODEL TO BE APPLIED TO CHINA AND INDIA

Since their first appearance in the literature, courtesy of Linder (1961) and Linnemann (1966), gravity models have become one of the most widely used modelling tools in empirical work on international trade flows. The standard model relates bilateral trade flows to the size of the two partner countries – commonly measured as the GDP of the countries involved – and to the distance between them –measured between the capital cities or, as in the present application, using a weighted average of the largest cities in the country. The standard model used here is enriched with four other variables to account for (i) common language, (ii) common border, (iii) countries that used to be part of the same territory, and (iv) participation in a free trade agreement.

The dataset includes bilateral trade flows across 61 countries. As is usually the case in gravity models, we refer to overall trade in goods (i.e. imports and exports together). The data are annual and span the period 1980-2003. This amounts to more than 3,500 bilateral trade relationships and almost 53,000 observations in the standard fixed-effects regression.

The gravity equation relates bilateral trade between country i and country j at time t in real US dollar, T_{ijt}, to the following variables:

$$T_{ijt} = \alpha_{ij} + \theta_t + \beta_1 y_{ijt} + \beta_2 d_{ij} + \beta_3 q_{it} + \beta_4 q_{jt} + \sum_{k=1}^{k} \gamma_k Z_{ijkt} + \varepsilon_{ijt} \qquad (1)$$

where y_{ijt} represents real GDP in countries i and j at time t and d_{ij} distance between these two countries. In equation (1) all variables are defined in logarithms. Z_{ijk} are dummy variables that take value 1 when two countries share a common language or a common border, have a common history, or are members of the same free trade area. These dummy variables may vary over time (this is the case when two countries join a free trade agreement during the sample period). ε_{ij} is the error term. Real GDP per capita, which is often introduced in gravity models to control for the stage of economic development, was not included owing to collinearity problems between the fixed effects and population (see also Micco et al., 2003). Accordingly, β_1 should be positive, β_2 negative and all γ_k are expected to have a positive sign. Given that the trade data in equation (1) are expressed in US dollar terms, the real exchange rate q of each country against the US dollar was included to control for valuation effects. Finally, equation (1) includes two types of fixed effects. First, it includes individual country-pair dummies, α_{ij}, covering all unobservable factors affecting bilateral trade (ignoring country heterogeneity can indeed lead to highly distorted estimates, see Egger and Pfaffermayr, 2003). Furthermore, Micco et al. (2003) suggest that the inclusion of fixed effects may mitigate endogeneity problems. For instance, unusually high trade flows may lead to the establishment of a free trade arrangement rather than *vice versa*. Fixed country-pair effects take into account whether two countries have traditionally traded a lot. Second, equation (1) also include time-specific effects, θ_t, accounting for any variables affecting bilateral trade that vary over time such as global changes in transport and communication costs and other common shocks.

Equation (1) can of course not be estimated in one stage: the coefficients of d_{ij} and Z_k (except the dummies for the free trade areas) cannot be estimated if the equation also includes the fixed country-pair effects α_{ij}. As a result, an additional regression of the estimated country-pair effects on the time-invariant variables is run, following in particular Cheng and Wall, 2005:

$$\hat{\alpha}_{ij} = \beta_1 + \beta_2 d_{ij} + \sum_{k=1}^{k} \gamma_k Z_k + \mu_{ij} \qquad (1')$$

In this second equation we are interested in retrieving the error term μ_{ij}. This term has indeed an expected value of zero for the entire sample; however, for individual countries, it may, on average, be positive or negative (for a given country i, μ_{ij} is not constrained to be

Table A1 Estimation Results

	FE	DOLS	HT	FE OECD
	(1)	(2)	(3)	(4)
GDP/size	0.56**	0.55**	0.57**	0.59**
Distance	-0.67**	-0.70**	-0.84**	-0.58**
Border	1.22**	1.25**	0.62**	0.91**
Language	1.26**	1.19**	0.59**	0.26**
Territory	-0.05**	-0.13**	--	--
EU	-0.00**	-0.04**	0.02**	0.22**
ASEAN	0.46**	0.42**	0.47**	--
Mercosur	0.25**	0.21**	0.25**	--
NAFTA	0.46**	0.45**	0.49**	0.21**
CEFTA	0.22**	0.19**	--	--
First stage:				
R^2	0.64	0.65		0.67
N	52,724	43,651	36,714	10,509
Second stage:				
R^2	0.33	0.32		0.63
N	3,413	3,413		459

** = Significant at the 1% level, * = Significant at the 5% level. FE = fixed effects, HT = Hausman-Taylor random effects estimator, DOLS = dynamic OLS.

equal to zero for all countries j). Accordingly, it can be interpreted as a measure of "trade intensity"/openness, net of the impact of the other explanatory variables.

Finally, the results obtained with the standard fixed-effects approach are cross-checked with a dynamic OLS estimator and with the instrumental variables estimation technique proposed by Hausman and Taylor (1981), which allows consistent estimates of the coefficients of the time-invariant variable. In both cases, these alternative specifications yield very similar results. As another robustness check, the model was estimated with a sample restricted to the OECD countries.

The results are presented in Table A1. The first column of the table presents the results of the two-step fixed-effects formulation advocated by Cheng and Wall (2005). The explanatory variables generally have the expected sign and are statistically significant. The model indicates that economic size has a highly significant, albeit less than proportional, impact on bilatera1 trade. The dummies for free trade arrangements enter significantly and with the right sign.[46] The distance term is strongly negative and implies that trade between two countries is almost 70% higher if the country is half as distant as another otherwise identical market. Similarly, sharing a common border and language implies that trade between two countries is three times higher than otherwise. The sensitivity analysis confirms the robustness of the estimates.[47]

46 However, the EU dummy is only positive and significant in the instrumented specification and in the fixed-effects regression with the sample restricted to OECD countries, see Bussiere and Schnatz (2006) for a discussion.

47 The results are not reported here in order to save space, but are available upon request.

Table A2a Breakdown by sector of exports of goods (excl. energy) in selected countries (%)

	China		India		World		Japan		US		EA		IND	TH	TW	KR	SG	TK	RU	TN	BR	MX
	94	04	94	04	94	04	94	04	94	04	94	04	04	04	04	04	04	04	04	04	04	04
High tech																						
Precision instruments	0.4	0.8	0.2	0.7	1.8	2.1	2.3	3.2	3.9	5.2	1.6	1.8	0.1	0.5	0.6	0.5	1.3	0.1	0.3	0.3	0.4	3.1
Clockmaking	1.6	0.4	0.1	0.1	0.5	0.3	0.6	0.2	0.1	0.0	0.1	0.1	0.1	0.8	0.5	0.3	0.3	0.0	0.1	0.4	0.0	0.1
Optics	0.8	1.8	0.0	0.1	0.6	1.0	1.7	2.9	0.5	0.7	0.3	0.4	0.7	0.7	1.2	0.6	0.2	0.0	0.1	0.2	0.1	0.3
Electronic comp.	0.5	3.0	0.1	0.3	3.6	4.4	7.7	7.2	4.5	5.4	0.9	1.3	0.6	5.3	6.3	12.2	16.3	0.0	0.1	0.0	0.2	1.6
Consumer electronics	3.2	4.3	0.1	0.1	1.6	1.6	2.7	3.1	0.4	0.3	0.9	0.8	3.6	2.9	1.6	4.6	6.8	0.8	0.1	0.1	0.2	6.7
Telecomm. eqpt.	2.5	7.8	0.1	0.2	2.5	3.6	4.8	3.1	2.7	2.2	1.0	1.8	1.7	3.3	3.5	3.8	7.5	0.3	0.2	0.9	0.1	4.1
Computer equipment	2.3	16.0	0.5	0.5	5.1	5.9	8.7	4.9	6.4	4.0	2.9	3.7	1.2	12.0	13.8	4.5	36.7	0.1	0.1	0.1	0.4	4.2
Aeronautics	0.1	0.1	0.0	0.1	2.2	1.7	0.2	0.4	7.4	7.5	0.9	1.1	0.2	1.4	0.0	0.5	0.2	0.4	0.8	0.3	0.3	0.1
Pharmaceuticals	1.0	0.6	2.2	3.3	1.4	2.9	0.4	0.7	1.3	3.6	1.7	5.5	0.1	0.2	0.1	0.2	0.6	0.4	0.3	0.4	0.4	0.4
Medium-high tech																						
Misc. hardware	3.4	4.2	2.3	3.4	3.1	3.2	3.6	3.5	2.7	3.0	4.2	4.0	0.9	1.7	6.9	2.5	1.7	1.7	1.1	1.0	2.1	3.1
Engines	0.5	1.6	0.9	1.5	3.3	3.4	6.1	5.2	5.1	5.4	3.4	3.6	0.3	1.7	1.3	1.3	1.4	1.1	1.8	0.5	4.1	6.2
Agr. eqpt.	0.1	0.1	0.1	0.2	0.4	0.3	0.3	0.3	0.6	0.6	0.5	0.6	0.0	0.0	0.1	0.0	0.0	0.1	0.3	0.0	0.5	0.1
Machine tools	0.3	0.3	0.2	0.3	0.8	0.7	1.8	2.2	0.9	1.0	0.8	0.6	0.0	0.2	1.8	0.4	0.3	0.2	0.3	0.0	0.3	0.0
Constr. eqpt.	0.3	0.6	0.1	0.3	1.2	1.2	2.1	2.3	1.9	1.9	1.1	1.3	0.1	0.2	0.3	1.2	0.3	0.2	0.4	0.2	1.4	0.6
Specialized machines	0.6	0.9	0.8	0.9	2.2	1.8	4.0	4.4	2.5	2.4	2.1	1.7	0.1	0.3	3.0	1.4	0.6	0.6	0.3	0.2	1.1	0.3
Arms	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.8	0.4	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.2	0.0
Dom. electr. appl.	1.4	2.1	0.1	0.1	0.7	0.8	0.4	0.2	0.5	0.4	1.2	0.9	0.1	1.3	0.9	1.7	0.7	0.9	0.1	0.2	0.3	1.4
Electrical equipment	1.6	2.0	0.2	0.6	1.0	1.0	1.4	1.0	1.0	0.9	0.7	0.7	0.3	1.4	1.7	0.8	1.8	0.5	0.3	0.9	0.7	2.8
Electrical apparatus	3.7	5.6	0.8	1.2	3.8	4.1	6.1	6.3	4.0	3.9	3.4	3.2	1.5	3.4	6.0	4.4	5.8	1.9	0.8	5.2	1.3	12.3
Vehicles components	0.2	0.7	0.8	0.9	2.6	2.8	4.6	4.3	4.4	4.0	2.9	3.8	0.1	0.4	1.2	0.6	0.1	0.8	0.3	0.4	3.1	5.3
Cars and cycles	0.6	0.9	1.5	1.6	5.7	6.0	13.2	14.7	3.7	3.3	8.1	9.2	0.8	0.7	3.0	5.6	0.4	0.4	1.4	0.1	1.3	9.5
Commercial vehicles	0.7	1.2	0.5	0.4	1.8	1.8	2.8	1.9	1.5	2.0	2.2	2.4	0.0	0.2	0.3	1.3	0.1	1.0	1.1	0.2	2.5	2.0
Basic inorganic chem.	1.3	0.9	0.3	0.4	0.7	0.6	0.4	0.4	0.9	0.9	0.6	0.6	0.2	0.1	0.3	0.2	0.2	0.8	3.3	5.3	0.6	0.7
Fertilizers	0.2	0.3	0.3	0.5	0.5	0.5	0.1	0.1	0.8	0.6	0.5	0.4	0.4	0.0	0.1	0.2	0.0	0.3	2.5	4.6	0.3	0.2
Basic organic chem.	1.5	1.3	2.3	4.6	2.3	2.8	2.1	2.9	2.9	3.9	2.7	3.4	1.5	1.0	1.0	2.1	2.0	0.7	2.3	0.1	2.4	1.5
Paints	0.7	0.5	1.6	1.1	0.9	0.9	0.7	1.1	1.2	1.5	1.2	1.2	0.4	0.2	0.8	0.5	1.2	0.2	0.3	0.1	0.5	0.4
Toiletries	0.3	0.4	0.8	0.7	1.2	1.3	0.6	0.9	1.3	1.7	1.9	2.1	1.1	0.4	0.6	0.3	0.9	1.2	0.2	0.6	0.7	0.4
Medium-low tech																						
Metallic structures	0.3	0.4	0.3	0.3	0.4	0.4	0.1	0.1	0.2	0.2	0.7	0.5	0.3	0.3	0.1	0.7	0.2	0.3	0.1	0.1	0.3	0.1
Ships	0.5	0.5	0.0	0.4	0.9	0.9	2.8	2.0	0.2	0.2	0.1	0.2	0.1	0.0	0.5	5.1	0.6	0.3	0.5	0.0	1.1	0.0
Plastics	0.0	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.2	0.3	0.3	0.8	0.9	0.0	0.5	0.9	0.0	0.2	0.5
Plastic articles	2.1	2.1	1.4	2.6	3.1	3.5	1.9	2.6	3.2	4.3	5.1	5.3	0.8	1.7	5.8	3.7	2.4	1.3	0.8	0.8	1.9	1.4
Rubber articles	0.3	0.6	1.1	0.8	0.9	0.9	1.1	1.2	0.7	0.7	1.3	1.1	0.5	0.8	0.7	1.5	0.2	1.3	0.6	0.6	1.3	0.3
Iron ores	0.0	0.0	1.7	5.0	0.4	0.7	0.0	0.3	0.3	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.1	0.1	1.3	0.0	5.9	0.0
Non ferrous ores	0.1	0.1	0.6	1.1	0.7	0.8	0.0	0.2	0.5	0.6	0.3	0.4	4.2	0.1	0.1	0.0	0.2	0.4	1.6	0.4	0.7	0.6
Unproc. minerals n.e.s.	0.6	0.2	1.0	0.9	0.3	0.3	0.0	0.1	0.3	0.2	0.3	0.3	0.4	0.5	0.0	0.1	0.0	1.2	0.6	1.3	0.7	0.6
Cement	0.4	0.3	0.9	0.7	0.2	0.2	0.2	0.1	0.0	0.0	0.3	0.2	0.3	0.3	0.1	0.4	0.0	1.1	0.1	1.2	0.1	0.2
Ceramics	1.0	0.7	0.2	0.2	0.6	0.5	0.5	0.4	0.3	0.3	1.1	0.7	0.3	0.6	0.4	0.2	0.0	0.7	0.2	0.5	0.6	0.5
Glass	0.3	0.5	0.2	0.3	0.5	0.5	0.5	0.6	0.4	0.5	0.9	0.7	0.5	0.3	0.5	0.1	0.2	1.0	0.1	0.2	0.2	0.8
Iron Steel	1.2	1.8	2.5	5.2	2.6	3.0	2.9	3.4	0.4	0.7	3.3	3.6	0.9	0.1	1.2	4.2	0.1	11.1	13.2	0.4	9.0	1.2
Tubes	0.3	0.5	0.4	1.1	0.6	0.6	0.9	0.7	0.3	0.4	0.7	0.7	0.1	0.5	0.3	0.8	0.1	0.8	0.6	0.3	0.6	0.5
Non ferrous metals	1.2	1.6	0.8	1.6	2.1	2.3	0.8	1.0	1.1	1.1	2.0	1.8	2.0	0.2	1.1	0.8	0.1	1.0	14.7	0.2	4.0	1.5
Non-monetary gold	0.0	0.0	0.0	0.0	0.5	0.5	0.1	0.2	1.2	0.6	0.1	0.1	0.5	0.1	0.0	0.6	0.2	0.0	1.0	0.0	0.2	0.1
Low tech																						
Cereals	1.3	0.1	1.7	2.5	1.0	0.7	0.0	0.0	2.2	1.9	0.7	0.5	0.2	4.1	0.0	0.0	0.0	0.8	0.2	0.1	0.0	0.0
Other edible agr. prod	3.0	0.8	5.3	3.1	2.5	1.8	0.0	0.0	2.5	2.2	2.7	2.1	5.5	2.7	0.3	0.2	0.0	11.8	0.5	2.4	11.5	4.9
Non-edible agr. prod.	2.2	0.5	1.2	1.0	2.2	1.4	0.1	0.1	2.2	1.6	1.7	1.1	6.9	3.6	0.6	0.5	0.1	1.1	4.7	0.3	1.7	0.6
Cereal products	0.1	0.1	0.0	0.1	0.3	0.3	0.0	0.0	0.2	0.3	0.6	0.6	0.1	0.2	0.0	0.1	0.1	1.2	0.1	0.5	0.1	0.2
Fats	0.4	0.0	0.5	0.5	1.1	1.0	0.0	0.0	0.5	0.4	2.3	1.8	3.4	0.1	0.0	0.0	0.3	1.1	0.3	7.4	1.8	0.1
Meat	2.0	0.8	4.8	2.1	2.0	1.5	0.1	0.2	1.6	1.1	2.0	1.4	4.5	6.6	2.5	1.2	0.2	0.5	3.5	1.8	2.5	0.7
Preserved meat/fish	0.8	0.6	0.0	0.1	0.5	0.4	0.1	0.0	0.2	0.2	0.4	0.4	0.6	3.4	0.4	0.4	0.1	0.2	0.3	0.0	0.9	0.1
Preserved fruits	1.2	0.7	0.9	0.5	0.8	0.7	0.1	0.1	0.8	0.8	1.4	1.1	0.7	1.8	0.3	0.3	0.4	3.5	0.1	0.3	1.0	0.6
Sugar	0.4	0.1	0.1	0.1	0.6	0.5	0.0	0.0	0.2	0.2	0.8	0.7	0.5	2.0	0.0	0.2	0.3	2.0	0.2	0.1	3.3	0.3
Animal food	0.4	0.1	2.2	0.9	0.5	0.4	0.0	0.0	0.8	0.5	0.6	0.4	0.5	0.4	0.1	0.0	0.1	0.0	0.1	0.1	4.1	0.0
Beverages	0.3	0.2	0.1	0.1	0.7	0.6	0.0	0.0	0.4	0.4	1.2	1.1	0.1	0.4	0.1	0.1	0.2	0.5	0.2	0.6	2.9	1.0
Manuf. tobaccos	0.4	0.0	0.1	0.1	0.4	0.2	0.1	0.1	1.0	0.3	0.5	0.6	0.2	0.0	0.0	0.0	0.2	0.1	0.1	0.5	0.2	0.0
Jewellery, works of art	1.3	0.6	17.8	20	1.5	1.4	0.1	0.1	0.4	0.7	0.4	0.2	2.5	4.8	0.3	0.4	0.4	0.3	1.8	0.1	0.5	0.3
Yarns fabrics	7.6	3.8	9.7	5.7	2.8	1.9	1.6	1.2	1.0	1.3	3.0	1.7	7.6	3.0	10.0	10.8	0.3	8.3	0.8	3.1	1.4	0.7
Clothing	12.3	4.7	9.6	4.9	2.1	1.7	0.1	0.0	0.6	0.2	1.5	1.1	7.0	4.9	1.6	2.4	0.6	9.2	0.4	36.1	0.4	2.1
Knitwear	5.4	4.1	3.1	3.2	1.4	1.5	0.0	0.1	0.5	0.4	1.5	1.1	3.6	3.2	1.9	2.6	0.8	14.4	0.0	10.1	0.5	1.3
Carpets	2.8	1.8	4.7	3.6	0.7	0.6	0.1	0.1	0.3	0.3	0.7	0.5	0.9	0.7	1.1	0.9	0.0	3.5	0.1	1.2	0.6	0.7
Leather	9.4	4.8	6.6	3.5	1.8	1.3	0.1	0.1	0.4	0.3	1.7	1.3	8.1	5.4	3.3	4.9	0.2	3.8	0.5	5.0	5.5	0.9
Wood articles	0.6	0.8	0.2	0.1	0.7	0.6	0.0	0.0	0.3	0.2	0.7	0.6	13.2	0.5	0.6	0.1	0.2	0.1	0.5	0.1	1.3	0.2
Furniture	1.3	2.2	0.0	0.3	1.0	1.1	0.1	0.1	0.7	0.5	1.4	1.2	2.7	1.7	2.1	0.2	0.3	0.4	0.1	0.2	0.7	2.4
Paper	0.5	0.4	0.2	0.4	2.3	1.9	0.5	0.5	2.2	2.0	3.2	2.8	1.8	0.3	0.7	0.9	0.7	0.6	1.8	0.6	3.5	0.4
Printing	0.1	0.2	0.1	0.2	0.5	0.4	0.1	0.1	0.8	0.7	0.8	0.6	0.0	0.1	0.1	0.1	0.7	0.1	0.2	0.1	0.1	0.2
Misc. manuf. articles	7.3	4.6	1.0	1.0	2.4	2.1	2.8	2.4	3.1	2.5	2.1	2.1	1.6	2.8	5.3	2.8	1.5	0.6	0.1	0.7	0.9	2.4
N.e.s. products	0.2	0.4	1.7	1.4	4.3	3.8	1.9	4.2	3.2	3.4	3.4	2.3	0.3	1.4	0.1	0.0	0.0	0.0	27.9	0.4	2.2	3.9

Source: CHELEM. The data for "World" excludes intra-euro area trade.
Notes: The acronyms refer to the euro area (EA), Indonesia (IND), Thailand (TH), Taiwan (TW), South Korea (KR), Singapore (SG), Turkey (TK), Russia (RU), Tunisia (TN), Brazil (BR) and Mexico (MX) respectively. For the euro area, only extra-euro area trade is considered in this table.

Table A2b Breakdown by sector of imports of goods (excl. energy) in selected countries (%)

	China		India		World		Japan		US		EA		IND	TH	TW	KR	SG	TK	RU	TN	BR	MX
	94	04	94	04	94	04	94	04	94	04	94	04	04	04	04	04	04	04	04	04	04	04
High tech																						
Precision instruments	1.5	2.0	2.6	2.6	1.8	2.1	2.2	3.0	1.8	2.7	1.7	2.3	1.3	1.6	2.1	3.6	1.5	2.4	2.1	1.7	2.6	2.7
Clockmaking	0.9	0.2	0.1	0.1	0.5	0.3	0.7	0.5	0.4	0.2	0.4	0.3	0.2	0.7	0.5	0.3	0.9	0.3	0.1	0.2	0.4	0.2
Optics	0.6	4.1	0.3	0.3	0.6	1.0	0.6	1.6	0.8	0.7	0.5	1.0	0.5	0.4	1.4	1.2	1.1	0.4	0.2	0.2	0.4	0.4
Electronic comp.	1.6	11.5	1.3	1.5	3.6	4.4	3.4	6.3	4.4	2.2	3.5	4.8	1.3	6.5	13.3	8.5	16.0	1.2	0.1	0.6	1.8	3.7
Consumer electronics	1.8	0.3	0.1	0.4	1.6	1.6	1.1	1.9	2.5	2.6	1.3	1.4	0.4	0.9	0.7	0.4	2.7	0.2	1.5	0.3	1.2	1.4
Telecomm. eqpt.	6.6	5.2	1.7	6.3	2.5	3.6	2.0	3.0	2.7	3.9	2.5	3.7	3.6	3.9	1.5	2.6	4.5	2.8	1.9	1.7	3.7	4.3
Computer equipment	2.4	7.4	1.7	4.0	5.1	5.9	4.5	8.0	8.2	7.2	4.3	5.4	0.7	4.8	2.9	3.2	9.4	1.8	2.0	1.1	4.5	3.5
Aeronautics	3.0	1.4	4.0	1.4	2.2	1.7	2.4	2.0	2.3	2.2	2.1	1.8	2.3	2.8	2.1	3.4	3.1	5.8	0.9	2.9	2.1	1.2
Pharmaceuticals	0.4	0.4	1.1	1.3	1.4	2.9	1.9	2.0	0.8	2.9	1.2	2.4	0.5	0.7	0.7	0.6	0.4	1.7	1.9	2.7	2.3	0.8
Medium-high tech																						
Misc. hardware	2.1	2.1	2.5	2.4	3.1	3.2	1.4	2.2	3.4	3.6	2.7	3.1	3.7	3.9	2.2	3.0	3.3	3.3	1.6	3.3	2.5	4.7
Engines	5.2	3.2	5.0	3.6	3.3	3.4	1.4	2.0	3.3	3.4	3.2	3.5	7.2	5.1	3.3	4.9	3.5	3.9	2.2	4.7	4.0	4.8
Agr. eqpt.	0.1	0.1	0.1	0.1	0.4	0.3	0.1	0.1	0.4	0.4	0.4	0.4	0.2	0.2	0.1	0.2	0.1	0.2	0.6	0.6	0.2	0.4
Machine tools	2.5	2.0	2.0	1.3	0.8	0.7	0.3	0.5	0.9	0.7	0.9	0.9	2.3	2.0	1.7	2.2	0.8	1.8	1.2	0.6	1.6	1.0
Constr. eqpt.	1.5	1.1	1.1	1.0	1.2	1.2	0.3	0.3	1.1	1.2	1.2	1.2	2.8	2.5	1.1	1.3	1.8	1.3	1.5	2.3	1.4	1.5
Specialized machines	6.8	4.8	6.7	3.5	2.2	1.8	1.3	1.4	2.1	1.6	2.6	2.4	7.6	4.9	3.7	6.4	2.5	7.3	2.8	4.1	6.1	3.6
Arms	0.0	0.0	0.1	0.0	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.4	0.2	0.1	0.9	0.0	0.2	0.0	0.1
Dom. electr. appl.	0.4	0.3	0.1	0.2	0.7	0.8	0.4	0.9	0.6	0.9	0.6	0.8	0.3	0.4	0.6	0.3	0.5	0.6	0.7	0.4	0.4	0.9
Electrical equipment	1.8	1.7	1.8	1.1	1.0	1.0	0.9	1.2	1.0	1.1	0.9	1.1	1.6	1.8	1.3	1.3	2.5	1.0	0.4	0.9	0.6	2.0
Electrical apparatus	3.5	6.2	2.5	2.7	3.8	4.1	2.0	3.9	4.2	4.3	3.4	4.2	4.6	5.0	4.4	3.7	7.5	3.5	1.5	4.3	2.8	7.9
Vehicles components	0.7	1.7	0.8	1.4	2.6	2.8	0.6	1.1	3.6	3.5	2.3	2.5	3.7	3.4	1.9	1.3	0.8	2.3	0.5	1.7	3.7	8.4
Cars and cycles	2.5	0.9	0.2	0.3	5.7	6.0	3.6	2.7	11.3	11.0	5.0	5.6	1.9	3.6	3.9	0.2	1.4	1.6	1.7	2.6	7.0	1.4
Commercial vehicles	1.7	0.2	0.3	0.2	1.8	1.8	0.2	0.1	2.3	2.1	1.6	1.7	0.9	1.6	0.5	0.3	0.5	1.7	2.5	1.6	1.3	0.8
Basic inorganic chem.	0.2	0.3	2.9	2.2	0.7	0.6	1.2	1.1	0.7	0.6	0.7	0.7	1.3	0.6	0.9	1.1	0.2	1.1	0.3	1.0	1.0	0.5
Fertilizers	2.0	0.4	2.5	1.0	0.5	0.5	0.2	0.1	0.3	0.2	0.5	0.5	0.4	1.0	0.2	0.1	0.0	0.8	0.3	0.3	2.4	0.5
Basic organic chem.	2.1	4.8	5.1	4.9	2.3	2.8	2.7	3.0	1.9	2.8	2.0	2.7	4.9	3.1	5.5	4.2	0.9	3.6	0.6	0.6	6.4	2.4
Paints	0.7	0.8	0.9	1.1	0.9	0.9	0.8	0.8	0.5	0.5	0.8	0.9	1.9	1.3	1.5	1.5	1.8	2.4	0.7	1.1	1.4	0.8
Toiletries	0.7	0.9	1.5	1.2	1.2	1.3	0.9	1.1	0.5	0.8	1.0	1.3	1.9	1.0	1.6	1.4	1.1	1.5	1.4	1.1	1.2	1.0
Medium-low tech																						
Metallic structures	0.4	0.1	1.2	0.2	0.4	0.4	0.2	0.3	0.1	0.3	0.3	0.3	0.7	0.3	0.2	0.2	0.3	0.3	0.6	0.4	0.3	0.4
Ships	1.2	0.2	1.8	1.4	0.9	0.9	0.1	0.1	0.2	0.2	0.9	0.8	1.4	0.3	0.4	1.4	1.2	1.2	0.3	0.8	0.2	0.4
Plastics	1.3	0.7	0.9	0.5	0.3	0.3	0.1	0.1	0.2	0.1	0.3	0.2	1.4	0.4	0.4	0.4	0.1	0.9	0.1	0.2	0.6	0.2
Plastic articles	5.2	5.5	3.2	2.4	3.1	3.5	1.3	2.0	1.7	2.2	2.4	3.3	3.9	2.8	2.8	2.1	2.2	3.5	1.1	3.0	2.8	4.6
Rubber articles	0.2	0.3	0.3	0.3	0.9	0.9	0.4	0.4	0.8	0.9	0.7	0.7	0.5	0.5	0.5	0.3	0.4	0.6	0.6	0.6	0.8	1.0
Iron ores	1.0	2.5	1.4	1.3	0.4	0.7	1.0	0.9	0.1	0.1	0.3	0.6	0.8	0.3	0.3	1.3	0.0	3.6	0.2	0.0	0.1	0.1
Non ferrous ores	0.5	1.8	1.1	2.4	0.7	0.8	2.0	2.3	0.3	0.2	0.6	0.8	0.1	0.1	0.4	1.1	0.1	0.1	1.7	0.0	1.7	0.1
Unproc. minerals n.e.s.	0.1	0.3	1.4	0.8	0.3	0.3	0.7	0.4	0.2	0.1	0.3	0.2	0.6	0.3	0.7	0.5	0.2	0.4	0.3	1.5	0.4	0.2
Cement	0.1	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.0	0.4	0.2	0.4	0.1	0.1	0.1	0.1	0.0
Ceramics	0.2	0.2	0.3	0.3	0.6	0.5	0.2	0.3	0.6	0.5	0.5	0.5	0.7	0.5	0.6	0.4	0.5	0.5	0.5	0.3	0.3	0.4
Glass	0.3	0.3	0.4	0.3	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.5	0.2	0.4	0.4	0.6	0.5	0.2	0.2	0.4	0.4	0.5
Iron Steel	6.9	4.3	4.5	3.0	2.6	3.0	1.6	1.4	2.1	1.7	2.2	2.6	4.1	6.4	5.8	4.5	1.9	5.3	1.9	2.4	0.5	2.2
Tubes	1.1	0.5	1.3	0.7	0.6	0.6	0.2	0.2	0.4	0.5	0.5	0.6	1.0	0.9	0.4	0.5	0.6	0.6	1.9	1.1	0.3	0.4
Non ferrous metals	1.3	2.8	3.0	2.4	2.1	2.3	3.6	3.4	1.8	1.9	1.7	2.0	2.0	2.3	4.0	3.4	1.7	2.0	0.4	1.2	1.6	1.4
Non-monetary gold	0.0	0.1	0.2	7.6	0.5	0.5	0.7	0.2	0.3	0.3	0.6	0.6	0.0	0.6	1.1	0.8	2.1	0.0	0.0	0.0	0.0	0.3
Low tech																						
Cereals	0.8	0.3	0.0	0.0	1.0	0.7	2.4	1.3	0.2	0.1	0.9	0.7	2.1	0.2	1.3	1.7	0.2	0.7	1.0	3.3	3.5	1.6
Other edible agr. prod.	0.2	1.6	1.9	1.7	2.5	1.8	3.5	2.3	1.6	1.2	1.6	1.5	2.2	0.5	1.3	1.0	1.2	1.2	2.7	1.6	2.8	2.1
Non-edible agr. prod.	3.0	2.4	2.5	2.1	2.2	1.4	6.2	2.6	1.7	1.3	1.7	1.3	2.6	3.1	2.9	4.4	0.5	3.7	0.6	2.5	2.5	1.3
Cereal products	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.0	0.9	0.1	2.0	0.3
Fats	1.7	0.9	0.9	3.4	1.1	1.0	0.5	0.5	0.3	0.3	0.8	0.8	0.8	0.5	0.6	0.4	0.5	2.1	1.6	2.2	2.0	1.3
Meat	0.5	0.6	0.0	0.0	2.0	1.5	8.8	4.8	1.2	1.1	1.4	1.2	0.2	1.2	0.8	1.4	0.7	0.2	2.5	0.3	0.9	1.1
Preserved meat/fish	0.0	0.0	0.0	0.0	0.5	0.4	1.2	1.2	0.3	0.3	0.4	0.3	0.0	0.0	0.1	0.1	0.2	0.0	1.3	0.0	0.5	0.2
Preserved fruits	0.1	0.2	0.2	0.1	0.8	0.7	1.1	1.0	0.4	0.5	0.6	0.7	0.3	0.4	0.6	0.4	0.5	0.2	1.8	0.3	0.6	0.5
Sugar	0.3	0.1	2.9	0.4	0.6	0.5	0.4	0.3	0.3	0.3	0.6	0.4	0.2	0.1	0.2	0.5	0.3	0.2	3.6	1.2	0.2	0.3
Animal food	0.2	0.1	0.2	0.1	0.5	0.4	0.6	0.5	0.1	0.1	0.3	0.3	1.0	0.8	0.4	0.3	0.0	0.3	0.3	0.7	0.1	0.5
Beverages	0.1	0.1	0.1	0.1	0.7	0.6	0.9	0.7	0.9	1.0	0.7	0.7	0.1	0.3	0.6	0.3	0.3	0.2	3.2	0.1	0.5	0.4
Manuf. tobaccos	0.1	0.0	0.0	0.0	0.4	0.2	0.9	0.5	0.0	0.0	0.3	0.2	0.1	0.1	0.3	0.3	0.4	0.4	0.8	0.4	0.0	0.1
Jewellery, works of art	0.2	0.4	12.4	13.9	1.5	1.4	2.1	1.0	2.2	2.3	1.6	1.7	0.1	2.5	0.4	0.3	2.2	0.2	0.1	0.2	0.2	0.2
Yarns fabrics	8.2	3.2	1.6	2.2	2.8	1.9	1.6	0.9	1.1	0.8	2.4	2.0	4.6	2.4	2.1	3.8	1.7	5.9	0.9	18.3	2.3	1.9
Clothing	0.5	0.4	0.0	0.0	2.1	1.7	3.6	3.2	2.8	2.3	1.6	1.5	0.1	0.1	0.5	0.5	1.0	0.2	1.1	2.7	0.2	1.2
Knitwear	0.3	0.2	0.0	0.0	1.4	1.5	2.9	2.8	1.8	2.2	1.1	1.4	0.0	0.0	0.5	0.3	0.6	0.1	0.7	2.6	0.1	0.9
Carpets	0.4	0.2	0.1	0.2	0.7	0.6	0.9	0.8	0.6	0.9	0.5	0.6	0.3	0.1	0.2	0.2	0.4	0.2	0.9	0.8	0.2	0.5
Leather	1.6	0.8	0.5	0.4	1.8	1.3	2.8	2.4	2.7	1.7	1.6	1.5	2.0	0.7	1.0	1.4	0.8	1.2	2.4	2.2	0.9	0.8
Wood articles	0.9	0.2	0.1	0.1	0.7	0.6	1.4	1.2	0.6	1.1	0.5	0.6	0.1	0.1	1.0	0.9	0.3	0.2	0.3	0.3	0.1	0.4
Furniture	0.1	0.2	0.1	0.2	1.0	1.1	1.2	1.4	1.2	1.9	0.8	1.2	0.2	0.1	0.3	0.2	0.5	0.2	1.4	0.2	0.2	1.2
Paper	1.9	1.7	1.7	1.7	2.3	1.9	1.3	1.0	2.0	1.6	1.7	1.7	2.4	1.4	1.9	1.5	1.1	1.7	0.7	1.5	1.7	2.9
Printing	0.3	0.1	0.4	0.4	0.5	0.4	0.3	0.2	0.3	0.3	0.4	0.4	0.2	0.2	0.2	0.1	0.3	0.4	0.4	0.5	0.4	0.8
Misc. manuf. articles	1.7	0.9	1.3	1.7	2.4	2.1	3.2	2.9	2.7	2.4	2.1	2.1	1.1	1.9	1.9	2.1	2.8	1.2	1.5	1.9	2.1	2.3
N.e.s. products	3.4	2.0	3.1	1.8	4.3	3.8	2.0	2.4	3.2	3.0	16.7	6.5	3.8	2.9	2.7	2.6	2.2	4.9	28.5	1.3	2.6	4.2

Source: CHELEM. The data for "World" excludes intra-euro area trade.
Notes: The acronyms refer to the euro area (EA), Indonesia (IND), Thailand (TH), Taiwan (TW), South Korea (KR), Singapore (SG), Turkey (TK), Russia (RU), Tunisia (TN), Brazil (BR) and Mexico (MX) respectively. For the euro area, only extra-euro area trade is considered in this table.

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