CEPII

CENTRE
D'ÉTUDES PROSPECTIVES
ET D'INFORMATIONS
INTERNATIONALES

No 2003 – 09
August

India in the World Economy: Traditional Specialisations and Technology Niches

Sophie Chauvin
Françoise Lemoine

India in the World Economy: Traditional Specialisations and Technology Niches

Sophie Chauvin
Françoise Lemoine

No 2003 – 09
August

TABLE OF CONTENTS

INDIA IN THE WORLD ECONOMY: TRADITIONAL SPECIALISATIONS AND TECHNOLOGY NICHES

SUMMARY

During the seventies and the eighties, as several Asian developing economies entered a catch up process and began to play an increasing part in international trade and capital flows, India was considered as an almost stagnant economy, crippled by regulations and controls, and asphyxiated by a policy of self-sufficiency which cut off domestic firms from the international environment.

In the mid-1980s, partial deregulation and an expansionary fiscal policy stimulated growth but resulted in increased domestic and foreign debt. Against this background, several shocks hit the economy in 1991 and result in a balance of payments crisis that led the Indian government to embark on a new economic strategy. A stabilisation programme and structural reforms supported by the IMF were implemented to liberalise and open up the economy. External reforms encompassed reduction of tariff and non tariff protection, the introduction of the rupee convertibility for current transactions (1994), the partial liberalisation of capital operations (1997), and finally incentives for foreign direct investments.

The pace of reforms has remained cautious. In the second half of the nineties, as the effects of reforms seemed to be exhausted and economic growth slowed down, the Indian government seemed to be more sensitive to the costs of adjustment than to the benefits of a new round of liberalisation. While the existing structures tend to hold back changes, thanks to its large domestic market the Indian economy have proved resilient to the external shocks which hit other Asian economies since the mid-1990s. Since 1996 India has been the fastest growing economy in Asia, after China. India's economic growth together with its breakthrough in the international trade of information technology services, have drawn a renewed interest for the future development of this economy.

This paper highlights the role of India in world trade over the last twenty years. It shows that the economic reforms carried out since 1991, especially liberalisation measures on foreign trade and investment have led to a slow opening up of the Indian economy. Also, the structural analysis of Indian foreign trade provides evidence that India's position in international trade is still based on its specialisation in labour-intensive traditional industries, characterised by a slow growing international demand and protected markets. It points out that the large differences in trade specialisation between India and other Asian countries (among which China) stem from the fact that India's manufacturing industry has remained on the sidelines of the globalisation process, but that India has built up strengths in service sector exports. The analysis provides evidence that geography matters: due to its location, India is apart from successful regional integration processes and its regional economic environment has not stimulated the internationalisation of India's economy.

ABSTRACT

Despite reforms undertaken since the beginning of the 90's, India remains one the most closed of Asian countries and characterised by a shallow integration in the world economy. This can be attributed to several factors. The belated opening up policy explains partially why India's foreign trade lags behind. Up to now, barriers to trade have remained high and structural factors have dampened the rise of competitive industries and the attractiveness of India for FDI. Moreover, India's narrow manufacturing industry, as well as its geographic location which holds it apart from dynamic regional integration processes, have not help its specialisation. Exports are still highly dominated by labour intensive products characterised by a slow growing international demand and protected markets. Nevertheless, the development of new sectors, with high human capital intensity, is less restrained by domestic constraints and allows India to make a breakthrough on dynamic niches.

JEL Classification: O53, F13, F14, F21
Key Words: India, Trade policy, Specialisation, Foreign Direct Investment

L'INDE DANS L'ÉCONOMIE MONDIALE : SPÉCIALISATIONS TRADITIONNELLES ET NICHES TECHNOLOGIQUES

RÉSUMÉ

Durant les années soixante-dix et quatre-vingt, alors que plusieurs économies asiatiques entraient dans un processus de rattrapage et voyaient leur place dans les échanges commerciaux et de capitaux augmenter, l'Inde était encore considérée comme une économie presque stagnante, paralysée par d'importants contrôles et régulations, et asphyxiée par une politique d'autosuffisance qui coupe les entreprises de l'environnement international.

Au milieu des années quatre vingt, des mesures partielles de dérégulation et une politique fiscale expansionniste stimulent la croissance mais provoquent une montée de l'endettement interne et externe. Sur ce fond de déséquilibres structurels, plusieurs chocs déclenchent en 1991 une crise des paiements extérieurs qui conduit le gouvernement indien à amorcer un tournant dans sa stratégie économique. Un programme de stabilisation et de réformes structurelles appuyé par le FMI vise alors à libéraliser et ouvrir l'économie. Le volet externe des réformes comporte une réduction de la protection tarifaire et non tarifaire, l'introduction de la convertibilité de la roupie pour les opérations courantes (1994) et une libéralisation partielle des opérations de capital (1997), enfin des dispositions autorisant et facilitant les investissements directs étrangers.

La mise en place des réformes s'est faite de manière prudente. Dans la deuxième moitié des années quatre-vingt-dix, alors que les effets des réformes commençaient à s'essouffler et la croissance économique à se ralentir, les autorités indiennes ont semblé plus sensibles aux coûts d'ajustement qu'aux bénéfices pouvant être tirés de nouvelles vagues de libéralisation. Alors que les structure existantes tendent à retarder les changements, l'économie indienne a résisté aux chocs externes qui ont frappé les autres économies asiatiques depuis la moitié des années quatre-vingt-dix, et cela notamment grâce à son grand marché domestique. Depuis 1996, l'Inde a été l'économie asiatique à croître le plus rapidement, après la Chine. La croissance économique indienne et sa percé dans le commerce internationale au niveau des services des technologies de l'information ont ravivé l'intérêt porté au développement futur de cette économie.

Cette étude analyse le rôle de l'Inde dans le commerce international au cours des vingt dernières années. Elle montre que les réformes économiques menées depuis 1991, et notamment les mesures de libéralisation commerciale et de l'investissement, ont permis une ouverture lente de l'économie indienne. Par ailleurs, l'analyse structurelle du commerce extérieur indien indique que la position de l'Inde dans le commerce mondial est encore basée sur une spécialisation dans les industries traditionnelles intensives en travail, sur des marchés protégés où la demande reste peu porteuse. Les grandes différences dans les spécialisations commerciales entre l'Inde et les autres économies asiatiques (parmi lesquelles la Chine) résultent du fait que l'industrie manufacturière indienne est demeurée à

l'écart du processus de globalisation, même si l'Inde s'est construit des atouts dans les exportations de services.

Notre analyse met en exergue que le facteur géographique joue : de par sa localisation, l'Inde reste à l'écart des processus d'intégration régionale qui ont réussi et son environnement économique régional ne lui a pas permis de stimuler son internationalisation.

RÉSUMÉ COURT

En dépit des réformes engagées au début des années quatre vingt dix, l'Inde reste l'une des économies les plus fermées d'Asie et peu intégrée au niveau mondial. Ce phénomène peut être attribué à plusieurs facteurs. La mise en place tardive de politiques d'ouverture explique en partie pourquoi l'Inde reste en marge du commerce international. Jusqu'à présent les barrières commerciales sont demeurées élevées et au niveau national, les obstacles institutionnels et les facteurs structurels ont freiné la compétitivité des industries et l'attrait de l'Inde pour les investissements directs étrangers. En outre, son secteur manufacturier étroit, comme sa position géographique qui la tient à l'écart des processus dynamiques d'intégration régionale, n'ont guère favorisé l'évolution de ses spécialisations. Les exportations sont encore dominées par des produits intensifs en travail sur des marchés protégés et où la demande reste peu porteuse. Néanmoins, le développement de secteurs nouveaux, à forte intensité en capital humain, est moins bridé par des contraintes internes et permet à l'Inde de prendre place sur des créneaux dynamiques de la demande mondiale.

Classification *JEL* : O53, F13, F14, F21
Mots-clefs : Inde, politique commerciale, spécialisation, investissement direct étranger

INDIA IN THE WORLD ECONOMY: TRADITIONAL SPECIALISATIONS AND TECHNOLOGY NICHES

Sophie CHAUVIN, Françoise LEMOINE[1]

INTRODUCTION

In the early 1950s, a newly independent India adopted a development strategy aimed at self-sufficiency and economic autonomy. Domestic economic activity was tightly regulated and an import substitution policy led to a fall in India's international trade. The share of India's exports in world trade dropped from 1.9% to 0.6% from 1950 to 1973 *(Maddison, 2001)*. During the seventies and the eighties, as several Asian developing economies entered a catch up process and began to play an increasing part in international trade and capital flows, India was considered as an almost stagnant economy, crippled by regulations and controls, and asphyxiated by a policy of self-sufficiency which cut off domestic firms from the international environment.

In the mid-1980s, partial deregulation and an expansionary fiscal policy stimulated growth but resulted in increased domestic and foreign debt. Against this background, several shocks hit the economy in 1991: the Gulf War led to a rise in oil prices and reduced remittances by emigrant workers; the slowdown in the world economy and the collapse of the Soviet market worsened India's trade deficit, while domestic political instability undermined the financing conditions of foreign debt. Subsequently a balance of payments crisis broke out and led the Indian government to embark on a new economic strategy in 1991. A stabilisation programme and structural reforms supported by the IMF were implemented to liberalise and open up the economy **(See appendix 1 and section 3)**.

India was thus a latecomer when it adopted a policy of economic and trade liberalisation in 1991. The pace of reforms has remained cautious. In the second half of the nineties, as the effects of reforms seemed to be exhausted and economic growth slowed down, the Indian government seemed to be more sensitive to the costs of adjustment than to the benefits of a new round of liberalisation. While the existing structures tend to hold back changes, thanks to its large domestic market the Indian economy have proved resilient to the external shocks which hit other Asian economies since the mid-1990s. Since 1996 India has been the fastest growing economy in Asia, after China. India's economic growth together with its breakthrough in the international trade of information technology services, have drawn a renewed interest for the future development of this economy.

The aim of this paper is to highlight the role of India in world trade over the last twenty years. Drawing from recent economic literature, the paper first sketches out Indian economic performance in the long run and the impact of economic reforms carried out since 1991 **(Section 1)**. The paper then focuses on foreign trade and investment liberalisation measures and shows that they have led to a slow opening up of the Indian economy **(Section 2)**. The structural analysis of Indian foreign trade provides evidence that

[1] Sophie Chauvin is economist at CEPII (chauvin@cepii.fr), Françoise Lemoine is senior economist at CEPII (f.lemoine@cepii.fr).

India's position in international trade is still based on its specialisation in labour-intensive traditional industries, with the noticeable exception of chemical products **(section 3)**. It points out that the large differences in trade specialisation between India and other Asian countries (among which China) stem from the fact that India's manufacturing industry has remained on the sidelines of the globalisation process, but that India has built up strengths in service sector exports **(Section 4)**. The analysis provides evidence that geography matters: due to its location, India is apart from successful regional integration processes and its regional economic environment has not stimulated the internationalisation of India's economy **(section 5)**.

1. INDIA'S ECONOMIC PERFORMANCE IN THE LONG RUN

The reforms of the 1990s enabled India to sustain a relatively high pace of economic growth, though they did not accelerate it durably. Growth slowed as of 1997 and between 1991 and 2002, annual GDP growth stood at 6%, only slightly faster than in the 1980s. However, in the late nineties, India proved to be resilient to the turbulence of its economic environment (the Asian crisis in 1997-1998 and the world economic slowdown in 2000) and it was the fastest growing Asian economy, after China.

Several recent papers have assessed Indian economic performance in the long run and the impact of the 1991 reforms. They seek to answer two questions: how India's economic growth compares to that of other countries? Have reforms marked a turning point? *(Delong, 2001; Hulten and Srinivasan, 1999; Acharya, 2001; S. Sivasubramonian, 2002)*.

1.1. Have Reforms Marked a Turning Point?

Many of them argue that the country long term economic performance looks good in an international perspective. According to Delong (2001), from the 1950s to the 1980s India's economy recorded a "normal" growth rate by international standards as it stands in the middle of the scatter of world growth rates. India was not an Asian tiger, but it did not lag behind as most African countries did. This does not support the criticism generally addressed to the economic policy during this period, and according to which Indian growth before the reforms of early 1990s had been stuck at a drastically low level due to illiberal and autarkic policies.

In the same way, Hulten and Srinivasan argue that from 1973 to 1992 the performance of the modern segment of Indian manufacturing industry (the so-called "registered sector", or "factory sector" which excludes small firms) was close to that of some Asian tigers. If Indian manufacturing was isolated from the rest of the economy, it could be part of the Asian miracle. According to their computations based on data from the Indian annual surveys of industry, growth of the value-added in manufacturing was around 7.1% during these 20 years. Economic growth in India, like in other Asian countries, was supported by a high level of accumulation and the Indian case can thus be viewed in the light of

Krugman's analysis which argued that the Asian miracle was not sustainable, as growth was driven rather by accumulation than by productivity gains[2].

Acharya (2001) emphasises that in the last two decades of the 20th century India ranked sixth in the world growth league (after China, Korea, Thailand, Singapore and Vietnam). In fact, the Indian miracle dated back to the mid-eighties, when the government took the first and still modest deregulation measures in industry. This initial liberalisation increased the potential growth rate of Indian economy and was followed by an economic boom which ended with the financial crisis in 1990. The second wave of reforms since 1991 helped sustain the economic growth rate in the nineties. This second wave seems to have had a smaller effect on the long-run steady-state growth path than the first wave and, as its effect is now exhausted, a third wave of reforms is necessary for India to attain a rapid economic growth in the future. His analysis reckons that although the Indian economy before 1991 was far from the conventional image of a shackled giant, the reforms have speeded-up economic growth compared to the eighties. He distinguishes two sub-periods since 1991. In the post reform quinquennium (1992-1997), all sectors (agriculture, industry and services) recorded higher growth than in the previous decade. However in recent years (1997-2001) growth decelerated in industry and agriculture, leading to a slowing down of GDP growth, despite the buoyancy of the service sector. On the whole, in the post-reform period, the acceleration of growth is thus mostly attributable to the service sector.

The reforms have led to a transition to competitive markets *(Srinivasan, 2001)*. Since 1991, a shift has been recorded in the structure of industrial employment and industrial output in favour of the "registered sector" and away from the small-scale (unregistered) industry which is characterised by lower productivity and lower wages. Whereas in the 1980s the factory (registered) segment recorded a "jobless growth", since 1991 it recorded an increase of employment by 2.9% a year. All the components of reforms have contributed to a more efficient allocation of resources.

However, the development of the modern sector is slow and its share in industrial employment remained small, 11.1% in 1999/2000, against 9% in 1972/1973. The overwhelming share of industrial labour force is still confined in the low-productivity unorganised segment. The registered sector accounts for almost two-third of the value-added of manufacturing industry in 2001, but the "small-scale and cottage industry" still affects the overall industrial growth.

[2] This study did not find any acceleration of total factor productivity (TFP) over the period. However, this conclusion is not shared by other analysis. The IMF Report (2000) estimates that TFP stagnated in the 1950s and 1970s, and has increased since 1974 and reached 2.5% in the 1990s. The Reserve Bank of India report *(RBI DRG, 2000)* finds a positive growth of TFP especially in the post 1985 period. A recent IMF study *(Unel, 2003)*, reckons that there is a distinct upward trend in TFP since 1979, which has accelerated after the 1991 reforms. However in India, as in other countries, it proves very difficult to measure the evolution of total factor productivity (TFP) and the results are highly sensitive to the methods and data used, so that no definite conclusions can be drawn from these analysis *(Srinivasan, 2001)*.

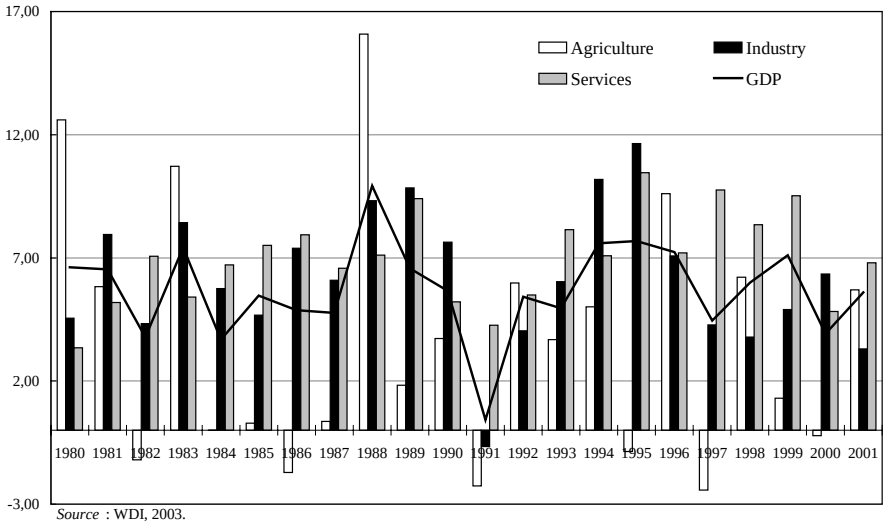
Table 1 presents the trends of Indian economic growth by economic sector over the last four decades, and **Figure 1** shows the fluctuations of economic growth before and after the 1991 reforms.

Table 1 – Growth Rates of Value-Added by Sectors (Yearly Average)

	1961-1971	1972-1981	1982-1991	1992-2000
GDP	3.7	3.5	5.2	6.0
Industry	5.2	4.5	6.2	7.3
Manufacturing industry	5.0	4.5	6.4	8.0
Agriculture	2.0	2.2	2.6	3.5
Services	3.8	4.7	6.7	8.9

Source: WDI, 2002.

Figure 1 – India: Growth Rates by Economic Sectors, 1981-2002
(Annual Growth Rates in Percent)



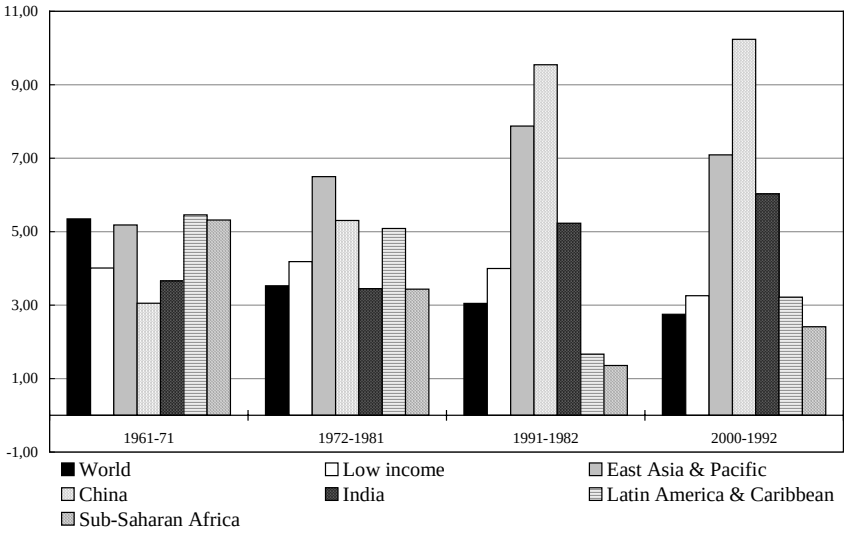
Source : WDI, 2003.

1.2. Indian Economic Growth in an international Perspective: a Slow Catch-Up

The **Figure 2** below shows the annual growth rate of India's GDP compared to that of other developing countries or regions from 1961 to 2001. While in the fifties, Indian economic growth had reached almost 4% a year, this growth rate stagnated around 3.5% a year in the sixties and seventies; it accelerated to 5% in the eighties and to 6% in the nineties. Indian economic performance has regularly improved compared to world average. In the sixties, it was significantly below world level, but in the seventies, it kept pace with world average as the latter slowed down. In the eighties and nineties Indian economic growth stood well

above world average, and especially well above growth rates recorded in Latin America and in Sub-Saharian countries. However Indian performance fell short of what was achieved by East Asian economies, especially by China.

Figure 2 – Growth Rates by Economic Sectors, 1981-2002
(Annual Growth Rates in Percent)



Source: WDI, 2003.

In the second half of the nineties, although Indian economic growth decelerated, it has been higher than the growth recorded by the other Asian countries, excepted China **(Table 2)**. India and China, resisted better than their neighbours to the Asian financial crisis in 1997-1998. This can be attributed to their large domestic market which makes them less vulnerable to their economic environment and to their cautious approach to capital liberalisation, as their currency convertibility is restricted to current account operations

Table 2 – GDP Growth of Asian Countries, 1991-2002

	2002/1996	1996/1990	2002/1990
China	7.6	11.6	9.6
India	5.5	5.4	5.5
Singapore	4.2	8.9	6.5
Korea	4.2	7.3	5.8
Taiwan	3.9	6.5	5.2
Philippines	3.1	2.8	3.0
Pakistan	3.1	4.7	3.9
Malaysia	3.0	9.6	6.2
Hong Kong	2.6	5.2	3.9
Indonesia	0.4	7.8	4.0
Thailand	0.1	8.1	4.0

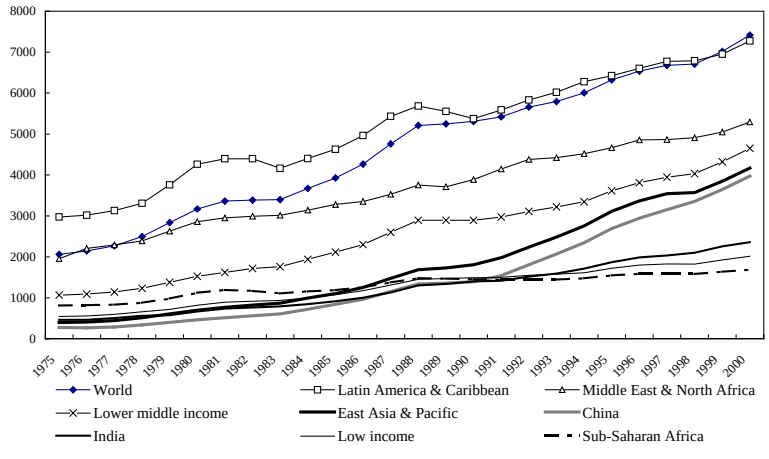
Countries are ranked according to growth rate over 1996-2002 period, descending order.
Source: CEPII CHELEM Database, ADB.

(Acharya, 2001). Moreover, Indian economy was characterised by good macro economic fundamentals: a modest level of short-term external debt; a manageable current balance of payments deficit, currency reserves, and a relatively modest exposure to external financial instability thanks to controls on capital flows.

Indian economy was also less affected than other Asian countries by the slowdown of the world economy in 2001, as it is much less dependent of external markets. In 2001, GDP growth (+5.6%) was supported by the good performance of the agricultural sector (+5.7%) which compensated the poor performance of industry (+3.4%). By contrast in 2002, economic growth (+4.4%) was affected by a strong fall in agricultural output (-3.1%), while industrial production rebound (+6.1%), and benefited from strong export expansion (+10%).

At the beginning of the 21th century, India is still in the group of low-income countries, as defined by the World Bank[3], sharing most of its characteristics: a low level of literacy, high infant mortality, malnutrition affecting a large share of the population. However its relative situation has improved within this group. India's GDP per capita at purchasing power parity (PPP) was lower than the average for low-income countries up to 1990, but it exceeds the average by nearly 20% since 2000 (with a per capita income in PPP of $2300 in 2000). India's per capita income is still far from the world average but it is slowly converging. In 1980 the GDP per capita was in India one fifth of the world average, it stood at one fourth in 1990 and at 32% in 2000 **(Figure 3)**.

Figure 3 – Trends in GDP per Capita in Dollars PPP, 1961-2000



Source: WDI, 2002.

[3] This classification distinguishes four groups of countries according to their level of income: low income countries, with a per capita gross national income (GNI) below $755 in 2000 (at current exchange rates); lower middle income countries (per capita GNI between $755 and 2995); upper middle income countries with a per capita GNI between $2996 and $9265; high income countries, with per capita GNI over $9266 income.

2. THE SLOW OPENING UP OF THE INDIAN ECONOMY

The will of autonomy and skepticism towards export oriented growth determined Indian economic policy during more than three decades. The emphasis was laid on import substitution policy, strong protection of the domestic market, the development of heavy industries and a strict regulation of the domestic industries. While a step toward liberalisation took place during the 1980s, the economy remained highly protected. Following the balance of payment crisis in 1991, a new policy has progressively liberalised foreign trade and investment.

2.1. Foreign Trade and Investment Liberalisation Since 1991

Before the reforms, the Indian trade and investment regimes were characterised by pervasive quantitative restrictions (licensing), high imports duties, a complex system of exports subsidies, an overvalued exchange rate and severe restrictions on FDI.

2.1.1. The Phasing out of Quantitative Restrictions

Before 1991, quantitative restrictions were the dominant means for control of imports. Imports of consumer goods were virtually prohibited through quantitative restrictions. Imports of intermediary goods and primary goods were submitted to very restrictive licensing. Goods were divided into banned, restricted, limited permissible and subject to open general licensing (OGL). The OGL category was more liberal but it covered only 30% of imports. Moreover certain conditions had still to be fulfilled before the permission to import was granted under the OGL system.

Since 1991, import licensing has been abolished except for a negative list consisting mainly of agricultural goods and consumer goods. In 1992, liberalisation has started for some consumer goods when special imports licensing has been granted to big exporters (allowing them to import consumer goods classified in the positive list).

The process of dismantling quantitative restrictions was accelerated after the dispute settlement body of the WTO ruled in favour of a 1997 complaint by the US that India's quantitative restrictions were not justified by balance of payments problems. Hence, India removed half of the remaining quantitative restrictions by April 1, 2000 and subsequently all quantitative restrictions by April 1, 2001 *(IMF, 2001)*.

However a number of non-tariff barriers have been retained and in some cases enhanced. The 2001/2002 export-import (Exim) policy statement imposed several new NTB on several products. In addition, the authorities established an 'early warning system' for monitoring imports, particularly of 300 sensitive items, on a monthly basis. The Exim policy includes safeguards to prevent import surges that seriously threaten domestic industry including the imposition of safeguard duties, of temporary quantitative restrictions, and of anti-dumping and countervailing duties *(IMF, 2002)*.

2.1.2. Lowering Customs Tariffs

The level of tariff barriers was very high and customs duties constituted a major source of revenue for the government: in 1990/1991 revenue from tariffs accounted for 3.6% of GDP and for 38% of total tax revenue. Tariff regime was complex with high and dispersed tariffs. On the eve of the reforms in 1990/1991, the unweighted average tariff applied rate stood at 79%; the import weighted average was lower (49%) but it underestimates the level of protection since higher tariffs discourage trade and reduce the weights applied to these tariffs *(World Bank, 2002)* **(Table 3)**. The top rate was 400% and as much as 60% of tariff lines were subject to rates ranging from 110 to 150% and only 4% of the tariff rates were below 60%.

Table 3 – Tariff Barriers in India, in 1990 and 1999 (in %)

	All Products					Primary products		Manufactured products	
Year	Simple mean tariff	Standard deviation of tariff rates	Weighted mean tariff	Share of lines with internatio nal peaks	Share of lines with specific tariffs	Simple mean tariff	Weighted mean tariff	Simple mean tariff	Weighted mean tariff
1990	79.1	43.8	49.8	97.0	0.9	69.9	26.0	80.3	69.9
1999	32.2	12.4	29.5	93.5	0.6	30.5	24.9	32.4	32.3

International peak: duties exceeding 15%.
Specific tariffs: tariffs set on a per unit basis or that combined ad valorem and per unit basis.
Source: World Bank, 2002.

The reform of tariff was aimed at dismantling a costly industrial framework which protected national production and at allowing national industries to compete at an international level. Tariff structure has been rationalised, tariffs have been reduced and the dispersion of tariff has decreased.

As seen in **Table 3**, the mean tariff rate (unweighted) came down to 32.2% in 1999, the weighted average to 29%. The standard deviation index which is a measure of the dispersion of tariff rates fell from 43.8% to 12.4%.

According to the IMF (2002), the statutory peak rate was lowered from 400% in 1990 to 110 % in 1993 and further to 35% in 2000/1, although higher duties were applied to a number of items (less than 1% of tariff lines).

Tariffs on consumer goods imports were reduced from 142% in 1990 to 42.9%; tariffs on equipment goods were reduced from 109% to 35% and tariffs on intermediate products from 133% to 41.2% **(Table 4)**.

At the same time, several measures have contradicted the trend toward import liberalisation. A special import surcharge of 2% was introduced in the 1996/1997 budget and subsequently increased to 5% in September 1997, and then to 10% in the 1999/2000 budget. In part because of this surcharge, the import weighted average tariffs which had decreased to 24.6% in 1996/97 rose to 30.2% in 1999/2000. The surcharge was abolished

in the budget for 2001/2002. The government also committed itself to lowering the statutory maximum tariff rate from 35% to 20% by 2004/2005.

Table 4 – India Applied Tariff Structure, 1990-2000, in %

	1990/91	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00
Agricultural Products									
Mean	106	59	39	31	25	25.6	24.6	29.6	29.2
Weighted average	70	30	25	17	14.9	14.7	14.	16.1	17.7
Mining									
Mean	n.a.	n.a.	71	48	30	24.8	24.4	29.4	26.6
Weighted average	n.a.	n.a.	33	31	27.6	22	21.9	19.5	17.7
Consumer Goods									
Mean	142	92	76	59	45.4	45.4	39.8	45.9	42.9
Weighted average	164	144	33	48	43.1	39	33.8	39.3	32.1
Intermediate Goods									
Mean	133	104	77	59	43.7	38.8	34.7	40.7	41.2
Weighted average	117	55	40	31	25	21.9	26.1	31.5	31.9
Capital Goods									
Mean	109	86	58	42	33.1	33.8	29.7	35.3	35.3
Weighted average	97	76	50	38	28.7	28.8	24.7	30.1	32.2

Source: In Srinivasan T.N. (2001), "India's Reform of External Sector Policies and Future Multilateral Trade Negotiations", *Center Discussion Paper n°830*, Economic Growth Center, Yale University, June.

Moreover, in the 2000/01 budget in response to the withdrawal of quantitative restrictions, customs duties had been increased for a number of products, to rates well above the statutory maximum tariff rate.

India retains the option to increase applied tariff rates at any time provided that these rates do not exceed WTO bound rates. Bound tariff rates are much higher than those being applied and this has made it possible for the government to raise tariffs since 1996-1997 *(Srinivasan, 2001)*. The government has also the possibility to restricts or prohibit imports for the protection of public morals, for the conservation of exhaustible natural resources, or based on health, sanitary, phyto sanitary or national security reasons *(IMF, 2001)*.

Finally, the reduction of tariff and non-tariff barriers during the 90s has been accompanied by an increased in the use of anti dumping measures. India is considered to be one of the most active users of these measures with 250 anti dumping measures engaged since 1995 *(OMC, 2002a)*. During 2000, imports from China were most frequently targeted with 10 initiations, followed by the EU (6) and Taiwan (4) *(IMF, 2001)*.

2.1.3. Exports Subsidies

Before1991, the high level of protection resulting from import duties and licensing regime was not favorable to exporting industries. The inefficiency of industries with high import content could be offset by higher domestic price without fearing competition from imported goods. This has nevertheless increased the general level of industry's costs (exports

suffering from a negative effective protection). The authorities have striven to avoid the negative effects of this policy on exports and have used different devices to stimulate exports: exporting firms were given exemptions or discounted rates on custom duties paid on the imports of goods used for production (*OECD, 1996).* In such a system, the more the good was requiring imports to be produced, the more important was the subsidy.

Firms specialized in exports activities had special treatments. Several exports processing zones were set up where exporting firms could import raw material, intermediary products and equipment free of import licensing and customs duties.

The reforms have partially broken up the regime of exports subsidies. An important support to exporting firms remained the refunding of duties (or the exemptions of duties) paid on imported production goods, which is a widespread practice in countries aiming at promoting export oriented industries *(OECD, 1996).*

2.1.4. Exchange Rate Policy

In the 1980's, an overvalued exchange rate had led to trade deficits. In July 1991, the Rupee was devalued by 24%. This adjustment was followed in March 1992 by the introduction of the Liberalized Exchange Rate Management System (LERMS). Hence, a dual exchange rate regime was set up, under which 40% of foreign earnings were redeemed to the Reserve Bank of India at the official exchange rate while the remaining 60% could be exchanged on the free market. The spread between the official exchange rate and the free exchange rate remained around 20% over the period 1992 to 1993. In march 1993, the LERMS was replaced by a unified exchange rate system and the system of market determined exchange rate was adopted. However, the Reserve Bank of India has kept the right to intervene in the market to enable orderly control. In august 1994, full convertibility has been established for current account transactions.

For most of the past decade, the nominal value of the rupee has declined smoothly against the dollar, by about 5% a year. In real terms, the value of the rupee has been staying fairly steady. Nevertheless, since June 2002, it has appreciated in real terms and in nominal terms. The recent appreciation of the rupee results from several factors such as: three consecutive quarters of current surplus, which have increased the foreign exchange reserves. Moreover, Indian companies are borrowing more in dollars without hedging forward repayment in rupees. The pressure on the exchange rate has suggested for further liberalization of the foreign exchange control. Hence, several controls have been eased in 2002. For example, it is easier for individuals to open foreign-currency bank accounts; non-resident Indians have been allowed to take out money acquired through inheritance, or from rents and dividends.

2.1.5. Opening up to Foreign Investment

Although since mid 1980's, the Indian government has allowed FDI in industrial sectors considered as important for the national economy, India has remained cautious regarding the inflows of foreign capital, particularly towards FDI.

Prior to 1991, FDI were allowed only into specified priority areas. Other restrictions included an upper limit of 40% on equity participation, requirement of government approval on technology transfer, export obligations as well as phased increases in domestic content of production.

India has gradually streamlined and liberalised FDI regime *(WTO, 1998; OMC, 2002a)*. However, the reforms had not significantly liberalised FDI up to recently *(Srinivasan, 2001)*. A discretionary mechanism of approval through the Foreign Investment Promotion Board (FPIB) and an automatic approval mechanism (mainly for investment in infrastructure) through the Reserve Bank of India were created, yet much of the FDI came through the discretionary mechanism. Only in February 2000, foreign investment in all sectors except for a small negative list, were place under automatic mechanism *(RBI, 2000)*.

The limits on FDI participation in equity capital have been only progressively raised. In May 2001, the government decided to allow 100% foreign investment in several industrial sectors. In sectors such as pharmaceutical industry, tourism and hotels, FDI up to 100% of equity capital is automatically allowed. In some other manufacturing sectors, foreign investment up to 74% of equity capital is automatically permitted. In car industry, foreign capital is automatically allowed up to 51% of capital and may reach 100% if it gets the approval of public authorities *(OMC, 2002b)*. In banking, the limits on FDI were raised from 20% to 49%, in telecommunication services, the limits to foreign participation in capital vary from 49% to 100% depending on the service *(OMC, 2002a)*. The limits of investment by Foreign institutional investors in equity shares of Indian companies was recently raised from 30 to 40%.

Eventually, some sectors were recently opened to FDI. In 1999 foreign equity participation in domestic private insurance companies was permitted, up to 26% *(RBI, 2000)*. Even the defence sector, hitherto excluded even to domestic investors was opened to private investors (domestic and foreign) *(Srinivasan, 2001)*.

2.1.6. Regional Integration: the SAARC

The South Asian Association for Regional Co-operation (SAARC) was set up in 1985 and encompasses Bhutan, Bangladesh, India, Maldives, Nepal, Pakistan and Sri Lanka.

At the beginning, issues related to trade and investment were not covered by the agreement and only in 1991, the SAARC Preferential Trading Arrangement was established, aiming at promoting greater regional economic co-operation. Since then, several rounds of South Asian Preferential Trading Arrangements (SAPTA) have been concluded. The member countries have considered the formation of a South Asian Free Trading Arrangement (SAFTA). Though it was initially expected that SAFTA would come into being by 2005, at the Male Summit in 1997, the deadline was advanced to 2001. For now, the deadline has not been met as yet but its realisation remains a priority to SAARC.

SAARC has adopted a commodity by commodity approach to regional trade liberalization *(Taneja, 1999)*. In 1999, tariff concessions have been made on 2,097 commodities (out of

35,000 existing commodities). The biggest shortcoming of this approach is that it has not ensured adequate trade coverage *(Taneja, 1999)*. In the case of India, the share of India's imports concerned by tariff concessions from SAARC countries represents only 11.2% of its total imports from SAARC.

South Asia cooperation has suffered from several factors: the political tensions between India and Pakistan, the fear of the smaller countries that trade polarization effect would happen in favour of large countries. Nevertheless India has gone ahead with lowering tariffs on a bilateral basis with other SAARC members such as Bhutan and Nepal.

The lack of dynamism in regional integration suggests that India should be in favour of multilateral trade liberalisation. It may fear that unless the new round of multilateral negotiations proceeds, negotiations at the regional levels might become a serious alternative and lead to a risk of regional divergence *(Srinivasan, 2001)*.

2.2. An Economy Still Relatively Closed to International Trade

To sum up, the reform process of the 90s has brought about significant changes in the exchange rate and trade policy framework. At the end of the 90s, by Indian standards, the trade regime is more outward looking, with new foreign equipment and technologies becoming more available through imports as well as FDI. Nevertheless, by international standards, the Indian economy is still relatively closed.

2.2.1. The Evolution of Foreign Trade in the Nineties

Over the last decade (1990-2001), Indian trade performance clearly reflected two distinct periods: from 1990 to 1995 both exports and imports accelerated, with imports excluding fuels recording a rate of growth of 11% a year, and exports of industrial manufactured products increasing at a rate of almost 13% a year. Since 1995, foreign trade strongly has slowed down and the corresponding figures for the period 1995-2001 were respectively 0.8% and 6.1% **(Table 5)**.

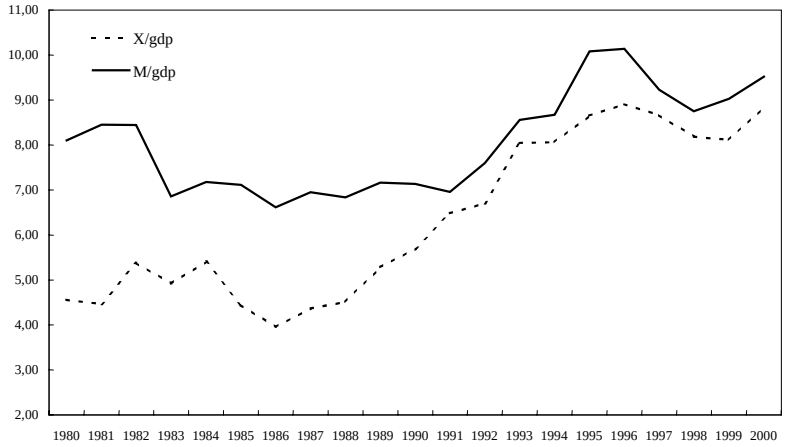
Table 5 – Annual Average Growth Rates of India's Exports and Imports

Percent per year	1980-1990	1990-2001	1990-1995	1995-2001
Total imports	**4.5**	**7.1**	**9.7**	**5.0**
Imports excluding energy	7.2	5.3	10.9	0.8
Total exports	8.3	8.3	11.3	5.8
Exports, excluding fuels and agricultural-food products	9.6	9.1	12.8	6.1

Source: CEPII CHELEM Database. Authors calculations.

The degree of openness of the Indian economy has significantly risen since the mid 1980s **(Figure 4)**. The share of imports in GDP has started to increase in 1991, showing clearly the effect of import liberalisation. It rose from 7% in 1991 to 9.5% 2000, with a peak to 10% in 1995-1996. The ratio of exports to GDP has begun rising steadily since the mid 1980s, from a low 4% to 9% in 2000. The impact of trade liberalisation on exports has been less marked than on imports.

Figure 4 – The Opening up of the Indian Economy, 1980-2000 (in %)



Source: CEPII, CHELEM database; authors calculations.

2.2.2. India Still Among the Least Opened Asian Economies

However, Indian liberalization is still anemic compared to the standards of Asia. Amongst other Asian economies, India is by far the one in which foreign trade plays the smallest part. The share of exports and imports in GDP is more than twice lower than it is in China and well below the share of Pakistan **(Table 6)**.

Table 6 – Foreign Trade on GDP (in % for Selected Countries, in 2001)

	Foreign Trade on GDP*, in %
Malaysia	86.6
Singapore	86.2
Asian NIE 2	62.2
Philippines	50.8
Thailand	50.5
Asian NIE 1	37.0
Taiwan	34.7
South Korea	32.6
Indonesia	32.4
Hong Kong	26.8
China, People's Rep.	21.6
Pakistan	16.4
India	9.8

Countries are ranked according to the share of foreign trade in GDP, descending order.
Source: CEPII CHELEM Database. * [(X+M)/2]/GDP*100.

According to the IMF (2002), India has continued to "under trade" during the 1990s. The statistical model of trade (gravity model) shows that India "under trades" when compared to the trade performance of other (benchmarks) countries. Over the period 1995/1998, India's

trade was estimated to be about 70-80% less than what would have been expected given its income and geographic location. Furthermore, the degree to which India under trade seems to have risen in the 90s, despite the trade liberalisation measures.

Given that India's leaders have looked belatedly to a strategy of openness, this lag may turn out to be a simple matter of time. After all, China, which launched its economic reforms in 1979, was not more open at the end of the 1980s than India is today: at the time China's trade in goods and services represented 13% of GDP compared to 14% of GDP for India presently. Tariff barriers in China were higher than they currently are for India. However, while economic liberalisation was strongly accelerated by China during the second decade of reforms, Indian leaders do not appear to be committed to deepening reforms, as they seem to be more sensitive to the costs of adjustment than to the expected benefits of further liberalisation.

As a result, the Indian trade regime remains one of the most restrictive among developing economies. India ranked just after Cameroon and Pakistan, at the top of the list of countries with high tariff barriers **(Table 7)**.

Besides political choices, there are also structural factors which contribute to explain the relatively limited role of foreign trade in the economy. The Indian economy is characterised by a narrow industrial sector compared to other large economies of similar level of development. Industry accounts for 27% of Indian GDP, compared to more than 45% in the case of China and Indonesia **(Table 8)**. Services and agriculture, which are traditionally less open to trade than industry account for an overwhelming share of India's GDP.

As other developing countries, India is also facing a number of problems related to access to markets or trade barriers in industrial countries that hinder the full exploitation of their comparative advantage (agricultural products, textile products). In contrast with the Asian emerging economies which have diversified their manufactured exports, Indian exports have remained heavily dependant on these traditional sectors (see **section 4**).

Table 7 – Tariff Barriers in Selected Countries, in %

		All products		Manufactured products	
	Year	Simple mean tariff	Imports Weighted Mean tariff	Simple mean tariff	Imports Weighted Mean tariff
Cameroon	1995	59.3	61.4	58.8	59.8
Pakistan	1998	46.5	41.7	46.9	44.4
India	**1999**	**32.2**	**29.5**	**32.4**	**32.3**
Tunisia	1998	30.1	28.9	30.2	30.2
Algeria	1998	25.0	17.4	25.4	18.7
Zimbabwe	1998	22.2	17.5	21.7	16.7
Morocco	1997	22.1	21.1	21.3	19.6
Bangladesh	1999	22.0	22.0	22.0	24.3
Nigeria	1995	21.8	20.0	20.2	19.9
Thailand	1995	21.6	15.0	21.2	15.7
Tanzania	1998	21.0	19.5	20.4	19.6
Gabon	1998	20.6	16.2	19.7	14.7
Egypt, Arab Rep.	1998	20.5	13.7	20.2	17.5
Sri Lanka	1997	20.1	22.5	19.7	21.4
Côte d'Ivoire	1996	19.2	14.2	18.8	14.1
Mauritius	1998	19.0	15.7	19.5	16.9
Trinidad and Tobago	1999	18.4	17.0	17.8	16.7
Jamaica	1999	17.9	18.1	16.8	18.8
Nepal	1999	17.7	18.0	18.9	19.7
Mozambique	1997	16.9	17.5	16.2	15.6
China	1998	16.8	15.7	16.9	14.7
Chad	1997	15.8	16.3	15.5	13.5
Malawi	1998	15.7	10.0	15.7	11.8
Vietnam	1999	15.1	17.3	14.4	14.9
Zambia	1997	14.6	13.0	14.4	12.9
Russian Federation	1997	13.9	11.3	14.8	11.8

Source: World Bank, 2002.

The rates used in calculating the indicators are the applied most favored nation duties.

Table 8 – Sectoral Breakdown of GDP, 2000 (in %)

	Agriculture	Industry	Service
India	27	27	46
China	16	49	34
Indonesia	17	47	36

Source: World Bank, 2002.

2.3. ... And to Foreign Investment

2.3.1. The Rise of Private Capital Inflows In The Nineties

During the nineties there was a spurt in capital flows into India as into other emerging economies in Asia and America. However the magnitude of capital inflows in India (which peaked at 3.5% of GDP in 1994-95) remained much smaller than in most other countries.

The composition of capital flows into India changed significantly in the nineties compared to the eighties **(Table 9)**. The contribution of aid declined steadily and a sharp increase in private capital flows took place, as it is also observed in other emerging economies. Its economic and trade liberalisation allowed India to take part in the global trend of capital flows and to attract both FDI and portfolio investment.

Table 9 – Composition of Net Capital Flows in India

	Percent of total net capital flows					bn US $
	Foreign Investment	External aid	Commercial borrowings	NRI deposits	Others	Capital flows
1985	0	30.3	21.1	16.3	32.3	1.37
1989	0	26.5	25.4	34.4	13.7	1.86
1990	1.38	30.7	31.3	21.4	15.22	7.19
1991	3.5	77.7	40.0	10.6	-31.8	3.78
1992	14.2	48.4	-9.2	51.3	-4.7	2.94
1993	43.6	19.6	6.3	12.4	18.1	9.7
1994	53.7	16.7	11.3	1.9	16.4	9.16
1995	104.3	21.5	29.2	24.5	-79.5	4.69
1996	53.6	9.9	24.7	29.4	-17.6	11.41
1997	54.8	9.2	40.6	11.4	-16.0	9.844
1998	28.6	9.7	51.7	11.4	-1.4	8.43
1999	49.7	8.6	3.0	14.7	24.0	10.44
2000	56.5	4.7	44.5	25.7	-31.4	9.02

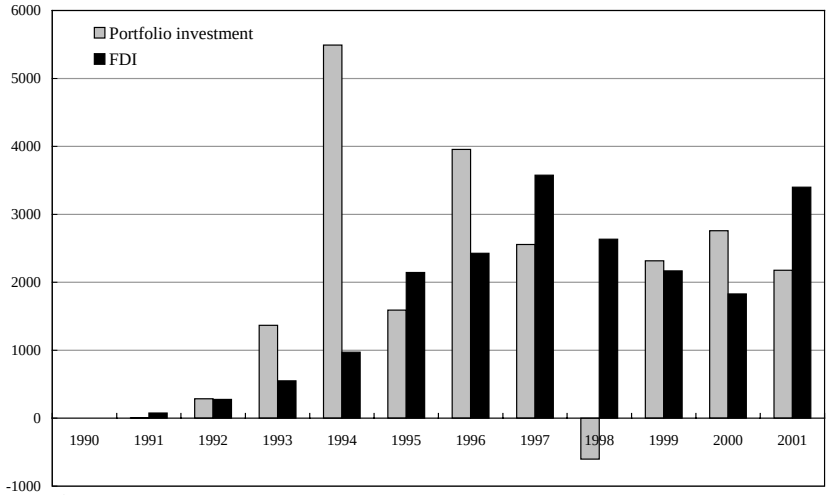
Sources: Kohli, 2001; RBI, 2001.

2.3.2. FDI and Portfolio Investment

In contrast with most other emerging economies, in India portfolio investment have been more important than FDI at the beginning of liberalisation. This can be explained by the process of liberalisation in India, which made portfolio investment in financial markets faster and simpler than FDI **(Figure 5)**.

FDI inflows reached a peak in 1997 ($3.5bn) and decreased from 1998 to 2000 (to less than $2bn per year) as a consequence of the Asian crisis. FDI strongly rebounded in 2001 ($3.3bn) and 2002 ($4.3bn). From 1991 to 2002, India received a cumulated amount of $24 bn. The amount of portfolio was almost equivalent (bn 23 US $), but the inflows were more volatile over the period, and were seriously affected by the Asian financial crisis in 1998.

Figure 5 – FDI and Portfolio Investment in India, 1990-1999



Source: WDI; IIF.

The total amount of foreign investment in India ($47 bn) was almost ten times smaller than the amount of FDI actually in China ($420 bn). Comparisons with other Asian countries show that FDI plays a limited part in the Indian economy. The importance of FDI in the domestic economy topped in 1997, when inflows represented almost 1% of GDP and 3.7% of gross capital formation. These shares have declined since to respectively 0.4% and 2%. The share of FDI stocks in GDP (3.6%) is lower only in Bangladesh (1.5%) in 1999 **(Table 10)**. The Indian economy thus appear relatively closed to foreign capital as it is to international trade.

Table 10 – FDI in India and in Other Asian Economies in 2000

in %	FDI stocksGDP	FDI flows/GFCF
Malaysia	58.8	16.5
Indonesia	39.6	-12.2
China	32.3	10.5
Thailand	20.	10.4
Pakistan	11.2	3.9
Philippines	16.6	9.2
Taiwan	9.0	6.8
South Korea	13.7	7.1
India	**4.1**	**2.3**
Bangladesh	2.1	2.7
South, East and South-East Asia	36.4	14.0
Developing countries	30.9	13.4

Countries are ranked according to the share of FDI stocks in GDP, descending order. *Source*: WIR, 2001.

The reasons for such a situation can be found not only in the specific legal restrictions but also in structural problems. A recent survey on the competitiveness of Indian manufacturing industry *(CII and World Bank, 2002)* indicates that the gap between India and other Asian economies in attracting FDI cannot be attributed to the low labour productivity in India since it is compensated by low wages which result in a level of value-added per unit labour cost which is comparable between India and the other countries. The limitations to FDI are found in the regulatory environment, in the lack of adequate infrastructures, the poor power supply, the high level of indirect taxes.

2.3.3. The Low Level of FDI from OECD Countries

Due to differences in the methods of recording FDI flows, there are large inconsistencies in the statistical data on international investment. There is evidence that Indian statistics tend to understate FDI (as they do not include reinvested earnings), while China statistics overestimate FDI. For sake of international comparisons, it is useful to rely on a set of data which is based on an homogenous methodology. The following comparison on FDI in India and in other Asian countries is based on the statistics of OECD countries on FDI outflows (see box at the end of the section).

OECD data confirm the low level of FDI in India. From 1991 to 2000, the cumulated amount of FDI from OECD countries in India amounted to $8.32bn; this represents a little less than one fifth of the amount that was directed to China during the same period ($45 bn).

India is still a marginal destination for OECD FDI. From 1991 to 2000 it received 3.5% of OECD FDI to Asian countries. It is thus not only far behind China but also far behind the small East Asian countries (Philippines, Malaysia and Thailand) **(Table 11)**.

Table 11: OECD FDI in Asian countries, 1991-2000 (%)
Cumulated flows

	1991	2000
Singapore	5.3	19.8
China	5	18.8
Other Asia	4.7	17.6
Indonesia	3.2	12.1
Thailand	2.5	9.4
Malaysia	1.9	7.1
Philippines	1.8	6.6
Taiwan	1.4	5
India	**0.9**	**3.5**
Asia (non OECD)	26.9	100
Total non OECD	100	

Source: OECD, International Direct Investment Statistics.

2.3.4. Impact on the Economy

Since 1997, more than half of FDI has been directed to manufacturing industry *(RBI, 2001)*. Electrical and electronic equipment has become the most important sector for FDI, ahead of engineering and chemicals **(Table 12)**. The impact of FDI on Indian industry has remained small, due to the limited size of foreign capital. FDI in industry has not had a significant impact on export performance *(Sharma, 2000)*. Analysing the export performance of a sample of listed firms from 1996 to 2000, Aggarwal (2001) found that the evidence of a better performance of multinational affiliates was not strong enough to suggest that India had attracted efficiency seeking, outward oriented FDI. Foreign affiliates perform better than domestic firms in low-tech industry but not in high-tech exports. This suggests that up to now, India has attracted foreign investment aimed at its large domestic market but has not been considered as a good outsourcing base by foreign investors.

Table 12 – FDI by Sectors (in %)

	1997/98	1998/99	1999/00	2000/01	1997/01
Chemicals & pharmaceuticals	9.8	20.2	11.0	10.4	12.6
Engineering	19.6	21.4	20.6	14.3	19.0
Electric & electronic equipment	25.6	16.7	17.1	27.2	22.3
Food	10.9	1.0	7.7	3.9	6.3
Finance	5.0	9.3	1.3	2.1	4.7
Services	10.9	18.4	7.3	11.8	12.2
Others	24.4	13.1	35.0	30.3	25.0
Total	100	100	100	100	100

Source: RBI, 2001.

Box 1 – Discrepancies in the Statistical Recording of FDI

The problem of inconsistency in the statistical data on FDI flows is widespread and not specific to FDI in India. The data on FDI outflows recorded by the investing country to the host country are different from the corresponding data on FDI inflows recorded by the host country.

In the case of India, there are large discrepancies between the Indian data (RBI) on inward FDI in India by country of origin, and the data provided OECD statistics on the outflows of direct investment in India by the different OECD countries.

Indian data (RBI) indicate that the first foreign investor in India is Mauritius, followed by the US, Japan and Germany. OECD country statistics on FDI in India indicate that the first OECD investor over this period is the UK, followed by Germany, and the US.

OECD and Indian Data of FDI in India (million US $)

	OECD data*		RBI data**
All OECD	10 096	World	14 700
UK	1 566	Mauritius	4 187
Japan	1 513	USA	2 252
Germany	1 228	Japan	855
US	897	Germany	675
Netherlands	553	Netherlands	544
South-Korea	455	South Korea	480
Italy	409	Italy	351
Switzerland	385	Others	2 579
France	352		
Sweden	200		
Others	2 739		
p.m. EU	4 541		

* Major investing countries, cumulated FDI, 1995-2000.
** Major investing countries, cumulated FDI, 1995-2001.
Sources: OECD International Direct Investment Statistics; Reserve Bank of India.

3. THE STABILITY OF INDIAN COMPARATIVE ADVANTAGE IN LOW-COST LABOUR MANUFACTURING

3.1. The Structural Weaknesses of Indian Foreign Trade

Several studies have put forwards that economic and trade liberalisation has not succeeded in bringing far-reaching changes in the commodity structure of Indian foreign trade, which strongly reflects the pre-reforms strategy.

The inward-oriented and heavy industrialisation strategy followed by India for quite a long time has resulted in a large and diverse industrial sector. Over time this sector has accumulated impressive technological capabilities, but these were accompanied by widespread technical lags and inefficiencies due to inadequate access to new technologies and capital goods, restricted inward investment, controls on the growth of large private domestic firms *(Lall, 1999; Tendulkar, 2000).* Changes occurred after 1992 with the free up of trade. Trade liberalisation had a stimulating effect mainly in the immediate post-reform period. Manufactured exports accelerated and the share of traditional exports like textile tended to decline whereas new sectors emerged, such as chemical and pharmaceutical products, engineering products (linked to outsourcing strategy of firms from industrial countries). However, the export structure is not diversified and is still dominated by simple and undifferentiated products with low levels of skill and simple technologies, and for which India's competitive advantage lies in cheap labour. Due to this specialisation, India exports mainly products for which international demand is growing slowly *(Srinivisan, 2001).*

Indian exports are thus concentrated in low technology products and in slow growing markets. Its incentive regime continues to favour the domestic market, protect inefficient activities and deter export oriented FDI, while its infrastructure constraints industrial activity *(Lall, 1999)*.

The following analysis broadly confirms the conclusions of the above mentioned Indian economists. It underscores the stability of India's comparative advantage at product level over the last twenty years, and its strong specialisation in labour intensive industries, but it also points out a slow upgrading of the technology level of India's foreign trade.

3.2. The Stability of Indian Comparative Advantages

3.2.1. Sectoral Breakdown of Exports and Imports

On the export side, four categories of products have kept a dominant share and amount to 75% of India exports in 2001 as in 1980 and 1990 **(Table 13)**: textiles, which remained the most important product category with a share of exports around 30%; food & agriculture with share dropping from 34.2% in 1980 to 15.8% in 2001; chemicals with a share rising from 6.2% in 1980 to 14.7% in 2001; the category "non elsewhere classified products" (NES), which encompasses mainly jewellery (precious stones metals), also almost doubled its share to 14.4% in 2001. By contrast, exports of machinery, electrical machinery and electronics have remained marginal (around 10% of exports in 2001).

On the import side, the main structural change was driven by the falling share of energy from 42.4% in 1980 to 26% in 1990 **(Table 14)**. Chemicals rank second in import categories; with a share around 15% in the nineties. The share of machinery steeply declined since 1995 (from 18.7% to 11.7% in 2001), a trend which is presumably related to the slow-down of economic growth and of investment rate during this period. The category NES strongly increased in the eighties and, this category represents the third most important import category, almost on par with machinery, in 2001.

Table 13 – Sectoral Breakdown of Indian Exports (in %)

	1980	1985	1990	1995	2001
Textiles	28.0	23.5	31.6	32.5	30.1
Food agriculture	34.2	27.5	21.1	18.4	15.8
Chemicals	6.2	5.7	9.3	11.3	14.7
N.E.S.	8.1	10.1	14.7	15.2	14.4
Machinery	7.2	5.7	6.0	5.2	6.4
Iron & steel	7.7	6.3	5.3	5.6	4.7
Energy	0.9	15.7	5.5	3.0	3.6
Electrical	1.7	1.3	1.3	1.4	2.5
Wood paper	1.5	0.8	0.9	1.7	2.3
Electronic	0.7	1.0	1.6	1.8	2.2
Vehicles	2.6	1.3	1.7	2.5	1.9
Non ferrous	1.2	1.1	1.2	1.5	1.4
Total	100.0	100.0	100.0	100.0	100.0

Source: CEPII CHELEM Database.

Table 14 – Sectoral Breakdown of Indian Imports (in %)

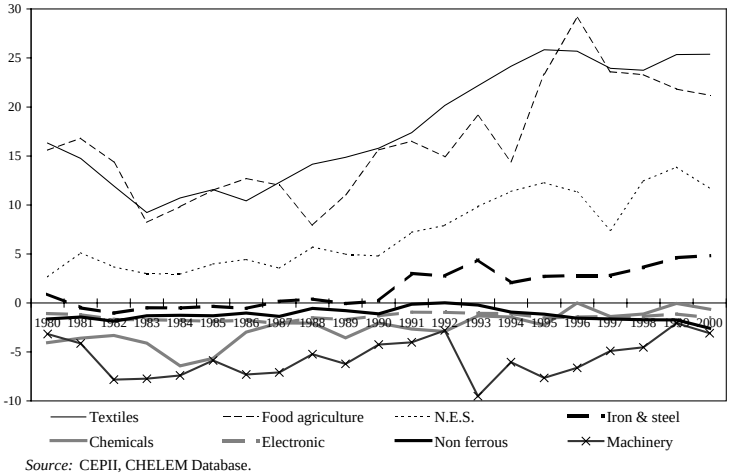
	1980	1985	1990	1995	2001
Energy	42.4	24.4	25.7	21.6	27.7
Chemicals	13.7	18.3	15.2	16.8	15.1
N.E.S.	3.8	6.1	11.8	11.4	11.8
Machinery	13.1	17.9	17.4	18.7	11.2
Electronic	2.7	6.1	6.2	7.1	8.8
Food agriculture	8.3	8.8	4.8	5.9	7.6
Non ferrous	4.1	2.9	3.2	3.3	4.1
Wood paper	2.0	3.0	3.1	3.1	3.8
Electrical	1.8	2.5	2.6	4.0	3.3
Iron & steel	6.4	7.1	7.1	5.1	3.2
Textiles	0.5	0.9	1.4	1.6	2.2
Vehicles	1.3	1.9	1.4	1.5	1.2
Total	100.0	100.0	100.0	100.0	100.0

Source: CEPII CHELEM Database.

3.2.2. Comparative Advantage at Commodity Level

Figure 6 below shows the comparative advantages and disadvantages of India by chains of production, measured by the indicator of contribution to trade balance[4]. Indian comparative advantages are located in textiles, food agricultural, jewellery, iron and steel and have tended to increase in the nineties. The Indian main disadvantage in manufacturing industry is located in machinery. In its overall trade its major comparative disadvantage is located in energy not presented in the **Figure 6**.

Figure 6 – India: Major Comparative Advantage and Disadvantages by Sectors, 1980-2000



Source: CEPII, CHELEM Database.

[4] For the definition of the indicator see Appendix 1.

The analysis at the product level **(Table 15)** confirms that the range of products for which India has a comparative advantage has recorded no significant changes since 1980. Out of the ten products which ranked at the top of India's comparative advantages in 2001, seven already ranked at the top in 1980 and in 1990. They include textile and clothing, leather products, jewellery, some food and agricultural products.

Table 15 – India: Major Comparative Advantages and Disadvantages: 10 top and 10 bottom in 2001

	1980	1985	1990	1995	2001
Clothing	6.0	4.8	6.0	8.6	7.3
Yarns fabrics	2.4	1.3	3.0	6.0	6.4
Jewellery	1.4	2.8	3.0	6.5	4.9
Leather	4.4	3.7	4.2	5.2	4.4
Carpets	3.1	2.5	2.3	4.1	4.4
Knitwear	1.5	1.3	2.3	3.6	4.2
Meat	1.7	1.7	1.5	3.2	3.3
Other edible agricultural prod.	4.1	3.7	3.5	3.0	2.7
Refined petroleum prod.	-5.9	0.2	-2.9	-9.4	2.6
Cereals	0.3	0.4	0.5	2.7	1.9
Miscelleanous hartware	0.5	-0.1	0.2	0.8	1.9
Non-monetary gold	0.0	0.0	-0.7	0.0	-1.1
Precision instruments	-1.3	-1.4	-1.5	-1.7	-1.1
Aeronautics	-2.8	-1.0	-1.8	-1.7	-1.2
Specialized machines	-0.8	-1.4	-0.9	-3.7	-1.3
Coals	0.0	-0.1	-0.1	-1.2	-1.4
Non-edible agricultural prod.	1.5	1.1	0.9	-0.5	-1.6
Basic inorganic chemical	-0.4	-0.7	-0.7	-1.4	-1.6
Telecommunications equipment	-0.7	-1.7	-0.8	-1.7	-1.8
Computer equipment	-0.6	-0.5	-0.3	-0.7	-2.0
Fats	-2.4	-1.1	-0.1	-0.7	-2.1
Crude Oil	-6.0	-2.7	-7.3	-9.8	-31.3

Source: CEPII CHELEM Database.

3.3. Specialisation According to Factor Content

A classification of products based on their factor intensity regarding skill, technology and capital was used to assess the factor content of Indian foreign trade and its evolution over the last twenty years. The analysis presented here is based on the classification proposed by UNCTAD (1996) and results in five product categories by factor intensities[5]:

1) group 1 includes primary commodities fuels and other primary commodities including processed food;

2) group 2 includes labour intensive and resource based industries, with a low skill-, technology –and capital– content, or where use can be made of indigenous skills and technology acquired through earlier handicraft production;

[5] For the product composition of the five groups see Appendix 2.

3) group 3 includes industries with a low-to-medium level of skill, technology, capital and scale requirements;

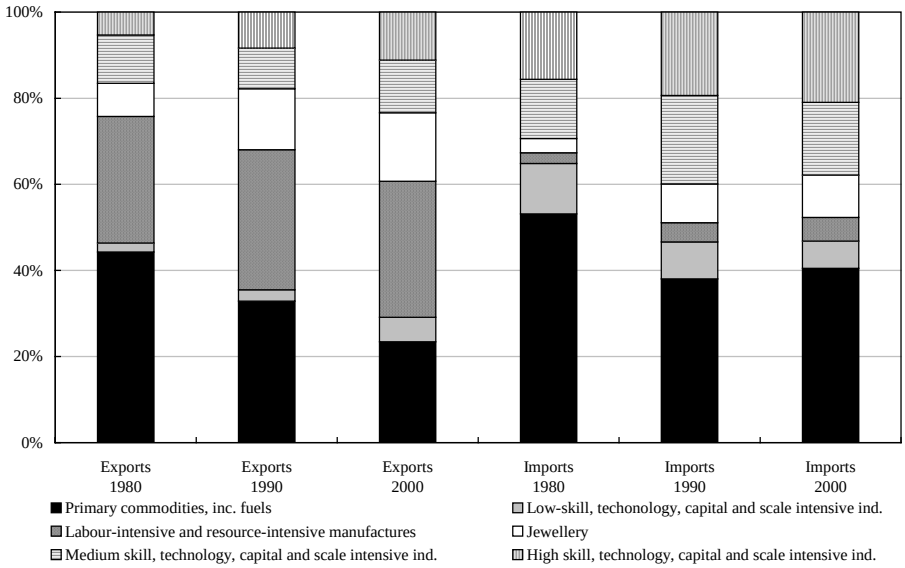
4) group 4 includes industries with a medium-to-high level requirements in skill, technology, capital and scale;

5) group 5 includes industries which have the highest requirements in terms of skill, technology, capital and scale;

6) group 6 corresponds to a special category which is important in India's exports and imports: jewellery (precious stones and metals, pearls).

Figure 7 shows that on the import side, primary products still play an important part (almost 40% in the nineties), mainly related to fuels imports. On the export side a major change over the last twenty years was the sharp relative decline of primary goods, which means that Indian export growth has been driven by manufactured products.

Figure 7 – India's Exports and Imports by Factor Content, 1980-1990-2000



Source : CEPII CHELEM Database, authors calculation.

3.3.1. A Slow Upgrading

Considering only India's trade in industrial manufactured products (excluding primary goods, agriculture and food products), **Table 16** shows that its exports are concentrated in labour intensive and resource-intensive manufactures (group 2) which makes up more than to 40% of its exports in 2001, while its imports are heavily concentrated on goods with medium and high intensity in technology, capital, and scale (groups 4 and 5) which, taken together, account for around 64% of its imports over the whole period.

Over the last twenty years, there has been a slight upgrading of Indian foreign trade, both on imports and export sides.

Exports of high skill-, technology-, capital- and scale- intensive manufactured products have increased more rapidly than labour intensive and resource-intensive manufactures, rising from 10% to 16% between 1980 and 2001 (**Table 16**).

The import side shows a clear trends towards a decline of products with low-to-medium skill-capital-, technology-and scale intensity from 25% in 1980 to 8% in 2001. The relative importance of the most sophisticated technology products (group 5) has tended to increase.

In imports as well as in exports, jewellery (group 6) recorded the most rapid export growth in the eighties, and its share stabilised around one sixth of imports and over one fifth of exports in the nineties. Although these exports may be characterised by a high value-added, this traditional industry can hardly be considered as a sector which conveys technology transfer, or which have strong backwards and forward linkage with the rest of the economy.

Table 16 – India's Exports and Imports by Factor Content (Industrial Manufactured Products)

	1980	1985	1990	1995	2001
India manufactured exports	100	100	100	100	100
Labour-intensive & resource-intensive ind. (2)	53	50	48	46	43
Low-to-medium skill-, technology-, capital- & scale-intensive ind (3)	4	5	4	7	6
Medium-to-high skill-, technology-, capital-, & scale-intensive ind. (4)	20	16	14	15	17
High skill-, technology-, capital- & scale- intensive ind. (5)	10	9	12	12	16
Jewellery (6)	14	20	21	20	18
India manufactured imports	100	100	100	100	100
Labour-intensive & resource-intensive ind. (2)	5	6	7	7	11
Low-to-medium skill-, technology-, capital- & scale-intensive ind (3)	25	18	14	12	8
Medium-to-high skill-, technology-, capital-, & scale-intensive ind. (4)	29	33	33	37	27
High skill-, technology-, capital- & scale- intensive ind.(5)	33	34	31	30	37
Jewellery (6)	7	8	15	14	17

Source: CEPII CHELEM Database, authors calculation.

3.3.2. Rising Comparative Advantage in Labour-Intensive Products

China displays a large and rising comparative advantage in labour and resource intensive products. Its largest comparative disadvantages lays in high-skill, technology and capital intensive products (besides fuels and agricultural products). In low-skill and technology intensive products, its deficits turned into a small surplus during the nineties, and in medium skill and technology intensive products, its deficit has tended to narrow.

Table 16 bis – India's Comparative Advantage by Factor Content

	1980	1985	1990	1995	2001
Labour-intensive and resource-intensive manufactures	17.0	12.4	16.8	26.7	25.8
NA-Jewellery, works of art (5)	1.4	2.8	3.0	6.5	4.9
Low-skill, techonology-, capital- and scale- intensive manufactures	-4.3	-3.3	-2.5	-1.7	0.5
Medium skill-, technology-, capital, and scale intensive manufactures	-2.9	-7.3	-5.3	-10.3	-0.5
High skill-, technology-, capital- and scale- intensive manufactures	-8.2	-8.7	-5.9	-9.6	-5.8
Fuels and primary commodities total (1)	-2.9	4.1	-6.1	-11.6	-25.0

Source: CEPII CHELEM Database. Authors calculations.

India's rising comparative advantage (CA) in labour and resource intensive manufactured products are heavily concentrated in textile and clothing industries. Comparative advantage in this industry encompasses both intermediate products (yarns) and finished goods, indicating that its specialisation is mainly "horizontal", its comparative advantage covers all stages of production (from upstream to downstream) **(Table 17)**.

Indian textile exports currently face protectionism in world markets due to existing AMF quota and the liberalisation of international trade in this sector may provided India with an opportunity to strengthen its position in world markets. Most studies stimulating the effects of dismantling the Multifiber agreement estimate that India, together with China, is likely to be one of the main winners of the international redistribution of production and exports of textile and apparel *(Chadha et alii, 2002; Fouquin et alii, 2002, Kathuria and Bhardwaj, 1998).*

Table 17 – Comparative Advantages in Labour Intensive and Resource Intensive Manufactures

	1980	1985	1990	1995	2001
Labour-intensive and reource-intensive manufactures	**17.0**	**12.4**	**16.8**	**26.7**	**25.8**
Yarns fabrics	2.4	1.3	3.0	6.0	6.4
Clothing	6.0	4.8	6.0	8.6	7.3
Knitwear	1.5	1.3	2.3	3.6	4.2
Carpets	3.1	2.5	2.3	4.1	4.4
Leather	4.4	3.7	4.2	5.2	4.4
Wood articles	0.2	0.1	0.1	0.2	0.1
Furniture	0.1	0.0	0.0	0.2	0.4
Paper	-0.9	-0.9	-0.8	-0.9	-0.9
Printing	0.0	-0.1	-0.1	-0.1	-0.2
Miscellaneous manuf. articles	0.2	-0.2	-0.2	-0.2	-0.2

Product are ranked according to the indicator of comparative advantage, descending order.
Source: CEPII CHELEM Database, authors' calculations.

However, India's textile sector may turn out to suffer from poor competitiveness if existing regulations, which aim to protect small firms, continue to block the industry's modernisation *(Srinivasan & Tendulkar, 2003)*. The competitiveness of Indian textiles is based on the low cost of labour and their principal raw material, cotton, as well as on the flexibility stemming from the decentralised organisation of production (sub-contracting). This organisation, which has been a way for large firms to by-pass the system of reservation of certain products to small firms, also acts to sideline India from mass markets which require long production runs of standard quality goods *(Ramaswamy & Gereffi, 2000; World Bank, 1999)*.

3.3.3. Comparative Disadvantage in Skill- and Technology Intensive Goods: The Exception of Chemicals.

In high skill-, technology-, capital- and scale- intensive, India has an overall comparative disadvantage **(Table 18)**. However in the nineties India built up relative trade surpluses in several chemical products: pharmaceutical, basic organic chemicals, paints. In organic chemical, India switched from a structural deficit to a structural surplus over the period. This evolution is all the more remarkable as pharmaceutical and cosmetic products are characterised by a fast rising international demand *(Mayer, Butkevicius and Kadri, 2002)*.

Table 18 – Comparative Advantages in High skill-, Technology-, Capital- and Scale- Intensive Manufactures

	1980	1985	1990	1995	2001
High skill, technology, capital and scale intensive manufactured products	**-8.2**	**-8.7**	**-5.9**	**-9.6**	**-5.8**
Pharmaceuticals	0.8	0.8	1.1	1.3	1.7
Basic organic chemicals	-1.3	-1.4	-1.1	-0.9	1.3
Paints	0.2	0.1	0.4	0.6	0.7
Clockmaking	-0.1	-0.1	-0.1	0.0	0.1
Toiletries	0.3	0.0	0.7	-0.1	-0.1
Consumer electronics	0.0	-0.1	-0.1	0.0	-0.1
Optics	0.0	-0.1	-0.1	-0.3	-0.3
Electronic components	-0.4	-0.8	-0.8	-0.9	-0.6
Fertilizers	-1.9	-1.7	-0.9	-2.0	-0.7
Precision instruments	-1.3	-1.4	-1.5	-1.7	-1.1
Aeronautics	-2.8	-1.0	-1.8	-1.7	-1.2
Basic inorganic chemicals	-0.4	-0.7	-0.7	-1.4	-1.6
Telecommunications equipment	-0.7	-1.7	-0.8	-1.7	-1.8
Computer equipment	-0.6	-0.5	-0.3	-0.7	-2.0

Product are ranked according to the indicator of comparative advantage, descending order.
Source: CEPII CHELEM Database, authors' calculations.

The development of Indian pharmaceutical industry has been deliberately promoted by government policy. The legislation passed in the 1970s has ended the application of international law on patents, and replaced it by legislation aimed at facilitating foreign

technology to be acquired[6]. This has permitted India to become the world's top exporter of generic medicines and for Indian companies to capture 65% of the local market in pharmaceutical products, compared to 25% in 1971 *(Minefi-Dree/Trésor, 2002)*. In this sector, India has strengthened its comparative advantage which presently lie in its highly-qualified personnel, integrated into international networks, in high-quality public research institutions and powerful pharmaceutical companies. This success has encouraged India to replicate this strategy in the sector of *biotechnology (Ruet, M.H. Zerah, A. Maria & P.N. Giraud, 2002).*

The development of these industries leans heavily on the large domestic market: the local pharmaceutical industry (including both national and foreign companies) meets 80% of the domestic demand for drugs and exports about one third of its production. The development prospects of this sector depend on the policy India will pursue in terms of protecting intellectual property rights. As a member of the WTO, India is committed to respecting the Agreement on Trade-Related Aspects of Intellectual Property Rights (trips Agreement) by 2005, and a revision of India's Patents Act of 1970 is currently under discussion. Some producers are trying to hold back changes in legislation, fearing that it will weaken their competitiveness in the drugs market. Others, however, believe that change will allow India's pharmaceutical industry to move beyond imitation to innovation, and that the country will expand its capacity for developing new products. India is especially active in international negotiations in promoting a loose interpretation of the trips Agreement and the Doha declaration on the rights of countries facing public health emergencies. This allows these countries not only to produce drugs without patent permission, but also to import such drugs if they do not have the capacity to produce them. India could thus continue supplying such products to developing countries.

4. A COMPARISON WITH OTHER EMERGING ASIAN ECONOMIES

4.1. Sharp Contrasts in Factor Intensity of Foreign Trade

The comparison between India and the East and South-East Asian economies reveals sharp contrasts in the factor intensity of foreign trade. Participation in the international production processes appears as the underlying factor which shapes the specialisation of these emerging economies.

4.1.1. Commodity Specialisation and Factor Content

The comparison confirms that in 2001 Indian exports are lagging behind most East-Asian exports in terms of technology-, skill-, and capital intensity. Exports of labour intensive

[6] Under Indian legislation, patents protect production processes but not products. This permits reverse engineering whereby molecules can be reconstituted using production techniques that are different to the inventor's technique.

products are much more important for India (42%) than for any East Asian countries. By contrast, exports with a high content of technology, skill, and capital are much less important for India (17%) than for the other countries **(Table 19)**.

Table 19 – Exports of India and Other Asian Countries by Factor Intensity Category, 2001

	Taiwan	Thailand	South-Korea	Philipines	Malaysia	India
Labour-intensive and resource-intensive ind. (2)	17	22	16	12	10	42
Low-to-medium skill-, technology-, capital- and scale-intensive ind. (3)	6	4	12	2	2	6
Medium-to-high skill-, technology-, capital-, and scale-intensive ind. (4)	32	29	33	11	12	17
High skill, technology, capital and scale intensive ind. (5)	45	41	38	75	74	17
NA (6)	0	4	1	0	1	18
Manufactured products	100	100	100	100	100	100

Source: CEPII CHELEM Database, authors'calculations.

The divergence of specialisation paths is especially remarkable between India and China in the nineties **(Table 20)**. Up to 1990, China exports were even more concentrated on labour and resource intensive products than Indian exports. Since 1990, China's exports have experienced rapid changes: a fall in the share of labour intensive products, which are now down to the same level as in India; a very rapid rise of products with a medium and high skill-, technology-, capital-, and scale- intensity (groups 4 and 5), which in 2001 amount to more than half China's exports, against 34% in India's exports.

Table 20: China Exports by Factor Content (manufactured products)

	1980	1985	1990	1995	2001
Total	100	100	100	100	100
Labour-intensive & resource-intensive ind. (2)	54	62	62	52	43
Low-skill, technology, capital & scale intensive ind. (3)	9	5	6	8	4
Medium skill, technology, capital & scale intensive ind. (4)	16	12	15	19	24
High skill, technology, capital & scale intensive ind. (5)	18	19	17	21	29
NA	2	2	1	0	1

Source: CEPII CHELEM Database, author's calculations.

A closer investigation of the commodity composition of high skill-, technology- intensive exports of the different Asian countries helps understand why Indian exports differ so much. Most Indian exports within this group are made of chemical and pharmaceutical products, while most other Asian countries exports are concentrated in computer equipment and electronic components **(Table 21)**. The difference between the technological level of

India's exports and that of the other Asian countries coincides with different sectoral specialisation.

Asian country trade in electrical and electronic goods is strongly linked to production sharing between the most industrialised countries which produce and export parts and components and the late-comers which have specialised in assembly, importing components and exporting final products. Production sharing has thus allowed less industrialised Asian countries to diversify their exports towards new sectors with a strong international demand and to upgrade the technological level of their exports *(UNCTAD, 1996; Ng and Yeats, 1999; Lemoine and Unal-Kesenci, 2002).* Assembly countries' exports shows a high technological level which reflects their content in imported high –tech parts and components.

Table 21 – Commodity Composition of Exports with High Skill and Technology Intensity* by India and Other Asian Countries in 2001

(In % of total manufactured exports of each country)

	India	Taiwan	Thailand	South Korea	Philippines	Malaysia	China
Basic organic chemicals	6	2	2	3	0	2	1
Pharmaceuticals	3	0	0	0	0	0	1
Paints	2	1	0	1	0	1	0
Toiletries	1	1	1	0	0	1	0
Computer equipment	1	21	17	9	26	25	10
Precision instruments	1	1	1	1	1	1	1
Basic inorganic chemicals	1	0	0	0	0	0	1
Aeronautics	0	0	0	0	0	0	0
Fertilisers	0	0	0	0	0	0	0
Electronic components	0	13	9	11	40	26	1
Telecommunications equip.	0	4	4	9	4	8	5
Optics	0	2	2	1	1	1	2
Clockmaking	0	0	1	0	1	0	1
Consumer electronics	0	1	3	2	1	9	4
Total	**17**	**45**	**41**	**38**	**75**	**74**	**29**

* Group 3: for the definition of this group see the text.
Products are ranked according to their share in Indian manufactured exports.
Source: CEPII CHELEM Database, author's calculations.

Hence, the technological level of exports does not provide a true indicator of the actual technological capacities of emerging countries' manufacturing industries. Technological catch-up requires that emerging countries over time succeed in upgrading their involvement beyond more labour-intensive activities toward more capital, skill and technology intensive processes *(Mayer, Butkevicius and Kadri, 2002).*

The factor contents of Indian manufacturing exports is thus directly linked with the lack of involvement in the international segmentation of production process in electrical and electronic sectors which has been developed between East and South East Asian countries. India's manufacturing industry has thus remained on the sidelines of globalisation, a

situation which explains the slow structural changes and the technological upgrading of its foreign trade.

The positions of India and China in international trade, analysed in the light of the different types of specialisation: an "horizontal" specialisation, confirms that India's comparative advantage in most sectors covers the whole process of production (from upstream to downstream stages) while in most sectors China shifts from a comparative disadvantage in upstream stages of production to a comparative advantage in final goods *(Lemoine and Ünal-Kesenci, 2002)*.

The relatively poor performance of Export Processing Zone (EPZ) in India reveals how much Indian opening up experience has differed from that of the East Asian countries. Although the exports of all the EPZs[7] taken together grew at a higher pace than the country's total export earning in the 1990s, their share in total exports remained around 3 to 4% during this period *(Kundra A.K., Sharan V., 2000)*. In China, the Special economic zones (and the Special open areas) accounted of almost 20% of exports in 2001. In fact, while some Indian EPZs performed well, others performed badly because of locational factors, infrastructural conditions, etc. Their capacity to attract FDI has remained very low.

4.1.2. The Low Level of Indian High-Tech Imports

An analysis based on a narrower definition of high-tech goods confirms that the high-tech content of India's foreign trade is relatively low *(Lemoine and Ünal-Kesenci, 2003)*. In 1997-1999, high-tech goods accounted for 4% of India's total exports, a proportion much smaller than in China's exports (9%). In imports the gap was even wider at the share of high-tech products (5%) is three times smaller than in the case of China (14%). The reason can be found in the nature of India's imports. The two categories of products which are the main channel of high technology transfer in international trade, *i.e.* parts and components on the one hand and capital goods on the other, occupy only a small place in India's imports. Parts and components accounted for only 10% and capital goods for 7% of Indian imports in 1999. India's imports were dominated by semi-finished products (48%) and primary products (29%)[8] **(Table 22)**. Even when primary products are excluded, the relative importance of high-tech products in Indian imports of manufactured products is much lower than in the case of China (7% against 16%).

[7] The EPZs encompass : the KAFTZ, located at Kandla (Gujurat State) ; SEEPZ, located in Bombay ; CEPZ, located near Cochin ; MEPZ, near Madras ; NEPZ, near Delhi ; FEPZ, near Calcutta ; and finally VEPZ, near Vishakhapattanam.

[8] Products were reclassified by stage of production, using a table of concordance based on a revised version of the Broad Economic Categories (BEC) of the United nations. The BEC has been elaborated by the UN, and it derived from the SITC, rev.3 (standard International Trade Classification). SITC items are reclassified according to the principal use of products. More precisely, foreign trade data are reclassified into categories corresponding to the final or intermediate use of the products, in accordance to the system of National Accounts. See Françoise Lemoine and Deniz Ünal-Kesenci (2002).

Interestingly, chemical products are the most important channel of India's high-tech imports (22% of HT imports) and provide almost 80% of Indian high-tech exports, confirming that this sector plays a crucial role in the upgrading of India's manufacturing industry **(Table 23)**.

Table 22 – Share of High Technology (HT) Products in India's Imports by Stage of Production (average 1997-1999) in %

	Total	HT	Other
Primary products	28	0	28
Semi-finished products	48	1	47
Parts & components	9	2	7
Capital goods	8	2	6
Consumption goods	7	0	7
Total	100	5	95

Source: Lemoine and Ünal-Kesenci, 2002.

The analysis of Indian high-tech manufactured exports thus tends to indicate that its export competitiveness is based on strong domestic capacities to assimilate (replicate) foreign technology and on its endowment in qualified labour In contrast with other Asian latecomers, Indian high tech exports rely mainly on domestic technical capabilities and on local human capital and not on the assembly of high-tech components into final products.

Table 23 – Structure by Industrial Chain of High Technology Trade

NACE	Imports	Exports
Chemicals	22	78
Metal products	0	0
Machines & equipement	12	3
Computer equipement	15	6
Electrical equipment	3	0
Telecommunications equipment	21	9
Precision instruments	20	3
Other transport equipment	7	1
Total HT	100	100

Source: United Nations, Comtrade Database, Author's calculation.

4.2. Strong Point in Low-Cost Skilled Labour Exports: the Service Sector

4.2.1. The Rise of Service Exports

While India's manufacturing exports lag far behind those of other Asian countries, both in quantity and quality, in services, India 's exports are rapidly catching-up. The share of India in world exports of services doubles from 0.6% in 1990 to 1.2% in 2001, while during the same period its share of world goods exports rose only from 0.5% to 0.7%. The rapid growth of the service sector observed in the domestic economy has thus been associated

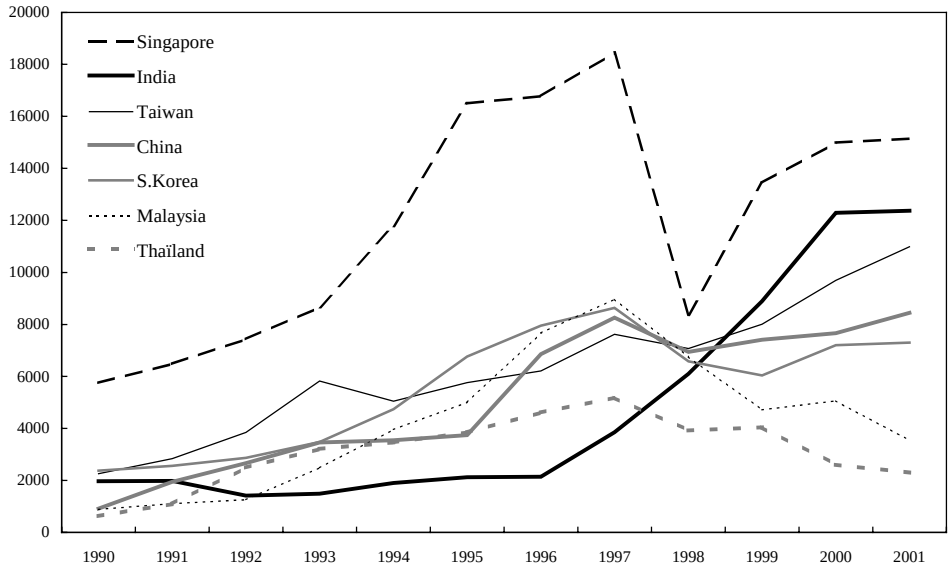
with an increased competitiveness in world markets. Services account for a growing share of Indian exports of goods and services (20% in 1990 and 31% in 2001) but record a negative balance. Indian service exports have been driven by Business services which amounted to more than two-thirds of these exports in 2001 (against 42% in 1990) and have given rise to a rapidly expanding surplus **(Table 24)**. Since 1999 India is the second exporter of business services among Asian emerging economies, after Singapore **(Figure 8)**.

Table 24 – India: Trade in Services (in US$ million)

	Credit		Debit		Balance	
	1990	2001	1990	2001	1990	2001
Transport	960	1 860	-3 417	-7 589	-2 457	-5 729
Travel	1 557	3 050	-393	-2 472	1 164	578
Banking services, insurance	123	231	-345	-675	-222	-444
Business services	1 968	12 373	-1 716	-8 183	252	4 190
Other services	16	720	-219	-595	-203	125
Total	4 624	18 234	-6 090	-19 514	-1 466	-1 280

Source: CEPII, CHELEM Database.

Figure 8 – Business Service Exports of Emerging Asian countries, 1990-2001 (US$ million)



4.2.2. The World Leading Exporter of IT And Software

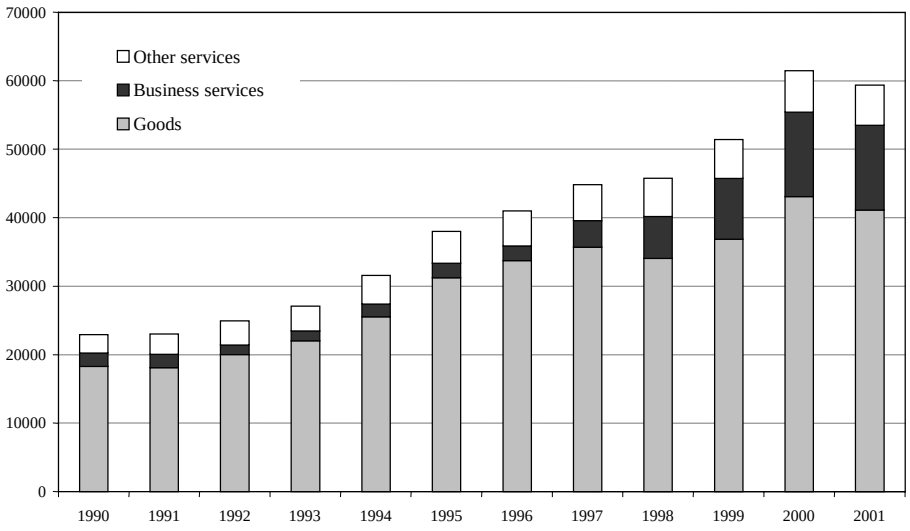
Since the mid-nineties, software and computer services have been the most dynamic component of Indian service exports. In 2001 they account for 10 % of overall goods and services exports, for 40% of total service exports and for almost 60% of business service exports. With 20% of world exports, India has thus become the world leading exporter of IT service, ahead of Ireland and the United-States **(Table 25)**. In this field, India far outpaces China and is in direct competition with developed economies.

Table 25 – Principal Exporters of IT services

US$ billion	1999	2000	2001
World	31.1	31.8	35.1
India	4.0	6.3	7.2
Irland	5.6	5.5	6.5
United States	4.8	4.9	5.1
Germany	2.9	3.8	4.7
UK	3.7	3.8	4.2
Spain	2.1	2.0	2.2
BLEU	1.7	1.8	1.9
Canada	1.6	1.6	1.4
Sweden	1.1	1.2	1.4
Japan	1.3	1.6	1.4

Source: CEPII CHELEM Database; RBI.

Figure 9 – Indian Exports of Goods and Services, 1990-2001, US$ millions



Source: CEPII CHELEM Database; RBI.

Software exports take different channels. On site services are delivered on the clients' site itself; off-site software services are developed in India and then exported, either on physical terms (disks), or, for the bulk of them, in non physical terms (satellites, e-mails) *(RBI, 2000)*. The bulk of export services takes place in this latter form. While physical software exports are reported as part of merchandise exports, non physical exports (on site and off-site services) are recorded under computer services as a part of the non-factor services in the balance of payments. Data on Indian IT Software and service exports are available since 1996 *(NASSCOM and Reserve Bank of India)*.

Indian IT software and service exports have started to develop in the nineties, as US IT companies, which had "imported" Indian professionals in the eighties, have begun to relocate part of the work on the subcontinent *(Bomsel & Ruet et alii, 2001)*. India's competitiveness in IT services stems from its resources in English-speaking engineers and skilled labour, whose wage rates are very low compared to their western counterparts. Furthermore, this sector is less sensitive to the obstacles limiting competitiveness in other industries (infrastructural deficiencies and capital shortages), is little exposed to resistance from existing structures and is largely export-oriented *(Tschang, 2003)*. "The bulk of it service exports produced by Indian companies is linked to orders by foreign firms and the largest share of exports (70%) go to the United States. Networks of Indian engineers recruited by US firms during the 1980s, followed by the subcontracting of administrative, financial and logistical functions etc. during the 1990s have greatly favoured the dynamic growth of this sector, which was also able to meet demand generated by the YK2 bug and the adoption of the euro. Henceforth, India is seeking to accede to the market for on-site services by obtaining greater international mobility of persons through the WTO negotiating processes. The industry is presently moving up the value-added chain and firms are becoming larger *(Arora and Athreye, 2001)*.

Despite the economically unfavourable environment (the downturn in the electronic industry at world level, in 2001), Indian IT software exports have continued to increase (+15% in 2001 and +30% in 2002).

Box 2 - Indian IT Industry

Major segments of Indian IT industry, in 2001 US$bn	
Revenues	11.4
Exports of software and services	5.4
Exports of products and technology	0.8
Domestic sales of software and services	2.2
Domestic sales of hardware	3.0

Source: NASSCOM.

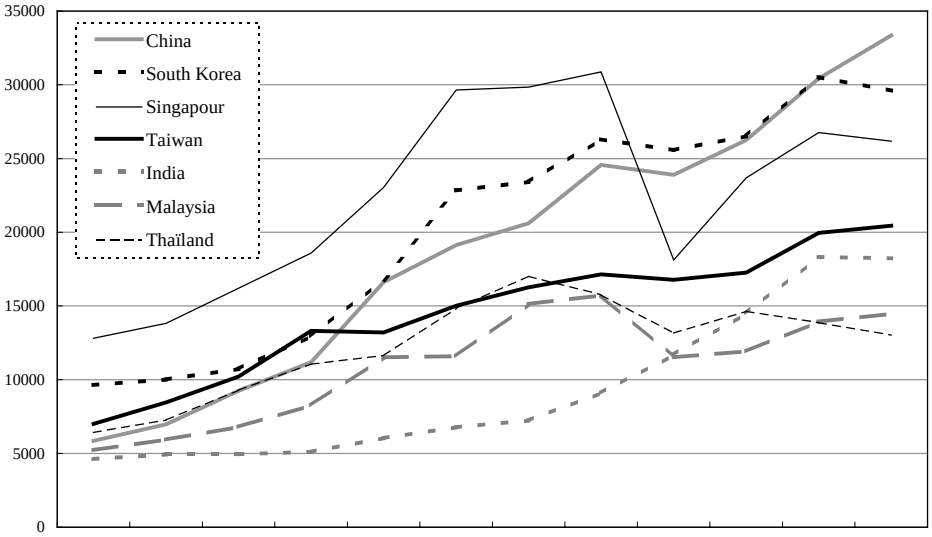
The IT industry is strongly export-oriented, and the domestic market accounts for less than half of revenue. Most software and services are exported (75%). Indian firms are

responsible for the largest share (75% in 2001) of IT software and service exports but are mainly involved in providing outsourcing services to foreign companies. Almost 70% of IT software and service exports was directed to the US in 2002.

4.2.3. Comparison with China

China has become the leading exporter of services among Asian emerging economies **(Figure 10)**, but India has outpaced Thailand and Malaysia as a service exporter while it still lags behind them in good exports.

Figure 10 – Main Exports of Services Among Asian Emerging Economies (US $ billion)



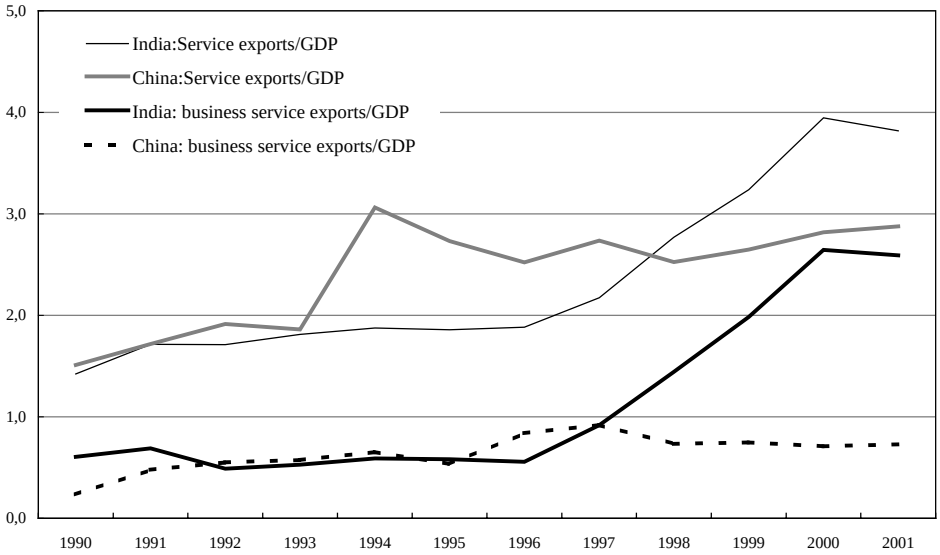
Source : CEPII CHELEM Database.

Whereas China's economy is much more open to trade in goods, the Indian economy appears more open to trade in service. The share of service exports in GDP is now larger in India (3.9%) than in China (2.8%). This difference is due to the importance taken by business service exports for the Indian economy **(Figure 11)**. Since 1998, India has overtaken China in business service exports, due to its performance in software (data on China's software exports are not available in balance of payment statistics).

In the future however, there might be some limitations to the further development of Indian IT industry. Indeed, the absence of a sizeable domestic market will inhibit its future expansion, when cost advantages are eroded. Computer software constitutes a sophisticated industry in an unsophisticated economy, a leading sector in an ocean of backwardness *(Balasubramamyam and Balasubramamyam, 1997)*. There are still few backward or forward linkages. The sector's development will depend on the development of the rest of

the Indian economy. Moreover, the competition from China is likely to intensify. China's policy aims at promoting a strong software and IT industry and to lure the Chinese engineers working in the US back into the mainland.

Figure 11 – India and China: Exports of Services and Business Services in Percent of GDP, 1990-2001



Source: CEPII CHELEM Database.

4.3. Market Position and Export Performance

Two indicators help to further characterising Indian position in world trade: the indicator of market position and the indicator of performance.

4.3.1. Market Position: a Shallow Integration in International Trade

The indicator of market position is given by a country trade balance in a given product as a share of world trade for the corresponding product *(G. Lafay et alii, 1999)*[9]. Comparing the relative trade balances of India with that of other countries and their evolution makes it possible to identify its strengths and weaknesses in international competition.

[9] $POS_{ik}^{n} = 100 \times \left[\frac{X_{ik}^{n} - M_{ik}^{n}}{W_{k}^{n}} \right]$

Where k is the product, i the country, n the year, X the exports and M the imports.

Figure 3 (in Appendix) presents India competitive position in world markets compared to that of other Asian economies (NIEs1 and NIEs 2, China) and to that of North African countries. India has a strong position in three sectors:

- In textile products, India has a trade surplus which is comparable to that of NIEs2, well larger that of North African countries, and well below that of China and that of NIEs. The latter have lost ground only in favour of China. Since the early 1980s, India has slowly strengthens its position in world trade of textile products.
- In agriculture and food products India has a trade surplus which is comparable to that of China, and is well below that of NIEs2 but contrasts with the negative trade balance of NIEs1. In both sectors, Indian position is stable, with a slight upward trend.
- In steel products, the market position of India strongly contrasts with those of other Asian countries, which are marked by large trade deficits. India competitive position has regularly improved over the period, as it shifted from a deficit to a surplus.

In other sectors India's position in world markets shows a deficit:

- In Machinery and Chemical products, its deficit is relatively narrow compared to that of other Asian countries and is shrinking steadily over the period, tending to disappear in 2000.
- In electrical and electronic goods, India's trade deficit is small and stable and contrasts with the far-reaching changes which are taking place in the positions of other Asian countries. This confirms that the country is not taking part in the international division of production processes which explains the large changes in the relative positions of NIEs1, NIEs2 and China.

All in all, India's positions in world markets are quite different from that of most other Asian countries. They are characterised by relatively small trade deficits and surpluses, indicating a limited involvement in international trade. Moreover its positions display a regular evolution, and are not strongly affected by the changes in international division of labour which have characterised the period under review. This suggests a shallow integration in the world economy.

4.3.2. Export Performance

The indicator of export performance is meant to assess the variation of a country's share in world exports by bringing forwards two components:

- A structural effect which gauges the effect which results from the expansion or the contraction of imports by product and partner countries. The structural effect shows what would have been the evolution of exports of country i if it had kept the same market share by products and by countries. It indicates to what extent the structure of exports from country i is adapted to the growth in imports by products of its partners. It reflect the "potential" growth of a country's exports given the geographic and commodity structure of its exports.

- A performance effect which express the gains or losses of market share by products and by countries (*i.e.* with respect to competitors in basic markets). These gains (losses) reflect increase (decrease) in the country's competitiveness.

Table 26 presents India's export share variation, and its decomposition, vis-à-vis the world.

From 1990 to 2001, India slightly enlarged its share in world exports (+0.17% of world exports), thanks to an improved competitiveness. In most sectors, the effect of the initial structure of Indian exports was negative, indicating that India was not positioned in the fastest growing market. This initial disadvantage was offset by a performance effect (an increased market share). The Indian export performance was especially strong in the following sectors: textile, chemicals, food and agriculture.

Table 26 – Decomposition of Export share Variation between India and the World between 1990 and 2001, in Thousandths of World Market

	Export share variation	Performance indicator	Estimated Structural Effect
Total	1.67	1.67	0.00
Textiles	0.42	0.60	-0.18
Chemicals	0.54	0.52	0.02
Food agriculture	-0.03	0.30	-0.33
Machinery	0.13	0.17	-0.04
Iron & steel	0.05	0.14	-0.09
Wood paper	0.11	0.12	0.00
Electrical	0.10	0.09	0.02
Non ferrous	0.03	0.05	-0.01
Vehicles	0.04	0.04	0.00
Electronic	0.07	0.03	0.04
Energy	-0.04	-0.02	-0.02
N.E.S.	0.23	-0.33	0.55

Sectors are ranked according to the indicator of export performance, descending order.
Source: CEPII CHELEM Database.

5. THE GEOGRAPHIC PATTERN OF INDIA'S TRADE: THE ROLE OF EUROPE

5.1. Geography Matters: The Lack of Strong Regional Integration

The pattern of Indian trade is quite balanced among geographic areas, showing no sign of a strong regional integration. Due to its geographic location India is outside the economic integration taking place in Europe on the one hand and in East Asia on the other hand.

The attempt to develop a regional economic integration in South-Asia with the establishment of the South Asian Association for Regional Cooperation (SAARC) in 1985 has not led to substantial results, even in terms of trade liberalisation. The neighbouring economies of South Asia have low levels of income and do not provide it with much demand *(Redding & A.J. Venables, 2002).* Although some progress has been made in liberalising the SAARC country trade regimes in the 1990s, the region remains one of the

least opened in the world *(Bandara J., S. and Mc Gillivray M., 1998)*[10]. India's trade with the South-Asian region has remained low **(Table 27 and Table 28)**.

As the globalisation process has a strong regional basis, the lack of involvement in a dynamic regional environment has probably impeded the internationalisation of India's economy.

Up to 1990, the main destinations of Indian exports were the European union[11], the former USSR, NAFTA and Japan **(Table 27)**. The importance of the European Union fluctuated around 30% and has tended to decline since the mid-nineties. Between 1990 and 2001, the share of the former USSR in India's exports fell from 15% to 2%. Indian export growth in the nineties was thus achieved despite the collapse of one of its major market, which was compensated by an accelerated growth of exports to the rest of the world. The share of Japan also declined, but this trend was partially offset by the increase of exports to the NIEs1. NAFTA has seen his share increase and reach almost the same level as the European Union in 2001.

Table 27 – Geographic Destination of Indian Exports (in percent)

	1980	1990	1995	2001
European Union	27.4	29.1	29.5	25.0
Former USSR	15.2	15.7	2.6	2.0
NAFTA	13.0	16.9	18.0	22.4
Australia/New Zealand	1.9	1.3	1.5	1.2
Japan	10.9	10.2	8.5	4.6
Asian NIE 1*	3.1	4.6	8.6	6.8
Asian NIE 2**	1.6	3.6	3.8	3.4
South Asia / Oceania***	3.5	3.3	5.7	4.3
Sub-Sahara Africa	4.2	1.7	4.0	5.0
Rest of the World	19.1	13.7	17.9	25.3
EU+USSR	42.5	44.7	32.0	27.0
NAFTA	13.0	16.9	18.0	23.3
Japan + NIEs	15.6	18.4	20.9	14.9

* NIEs 1: First tier of new industrialised economies: Hong-Kong, South-Korea, Singapore, Taiwan.
** NIEs 2: Second tier of new industrialised economies: Malaysia, Thailand, Philippines.
*** This zone encompasses SAARC members (Bangladesh, Bhutan, Maldives, Sri Lanka, Pakistan, Nepal excluding India) as well as other Asian and Pacific countries (Afghanistan, Brunei, Fidji, French Polynesia, Guam, Kiribati, Macao, Mongolia, Mynamar, New Caledonia, North Korea, Pacific Islands).

Source: CEPII CHELEM Database.

[10] India also participates in the ior-arc (Indian Ocean Rim Association for Regional Cooperation) and the bimst-ec (Bangladesh, India, Myanmar, Sri-Lanka, Thailand Economic Cooperation).

[11] In the paper, all data on EU trade encompasses the present 15 member states.

On the import side, the European Union accounts for between one fourth and one third of Indian imports over the 1990-2001 period **(Table 28)**. The share of NAFTA dropped (from 12% to 8% in 2001) and so did the share of the former USSR. India's imports from Japan also lagged behind but its imports from the first and second tiers of NIEs accelerated, which resulted in a substantial increase in the share of Asia. The share of Sub Saharan Africa in India's imports has also increased from around 1% in 1990 to 6% in 2001. This might be linked to the setting up of the Indian Ocean Rim (IOR) Association of regional Co-operation which was established in 1997 and which has particularly boosted trade relationship between India and South Africa.

All in all, the geographic trade pattern of India in the nineties shows a reorientation towards the new industrialised Asian economies, and away from the European continent. The EU however remained by far the first trading partner, which means that the structures and the trends in bilateral trade flows have an important effect on India's overall trade performance *(EC, 2002).*

Table 28 – Geographic Origin of Indian Imports (in percent)

	1980	1990	1995	2001
European Union	23.2	33.7	33.2	21.4
Former USSR	3.3	3.6	2.9	2.0
NAFTA	13.5	11.9	9.6	8.2
Australia/New Zealand	1.4	2.4	2.3	2.7
Japan	6.2	7.6	7.1	4.0
Asian NIE 1*	4.1	5.9	7.5	7.1
Asian NIE 2**	2.1	2.4	2.9	3.6
South Asia / Oceania***	0.7	0.5	1.2	1.4
Sub-Sahara Africa	1.0	1.3	2.9	6.2
Rest of the World	44.5	30.7	30.3	43.4
EU+USSR	26.6	37.3	36.1	23.3
NAFTA	13.5	11.9	9.6	8.2
Japan+NIEs	12.4	15.8	17.5	14.7

* NIEs 1: First tier of new industrialised economies: Hongkong, South-Korea, Singapore, Taiwan.
** NIEs 2: Second tier of new industrialised economies: Malaysia, Thailand, Philippines.
*** East Asian nes encompasses SAARC members (Bangladesh, Bhutan, Maldives, Sri Lanka, Pakistan, Nepal excluding India) as well as other Asian and Pacific countries (Afghanistan, Brunei, Fidji, French Polynesia, Guam, Kiribati, Macao, Mongolia, Mynamar, New Caledonia, North Korea, Pacific Islands

Source: CEPII CHELEM Database.

5.2. The High – But Declining – Intensity of EU-India Trade

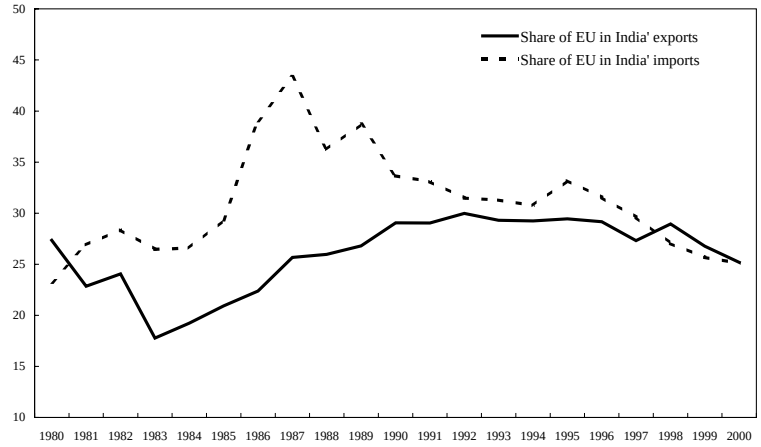
The share of the EU in India's imports reached a peak (45%) in the mid eighties, then declined and stabilised around 21% in 2001[12]. At the same time, the share of the EU in

[12] In the paper, all the data on EU trade encompass the 15 member States. They exclude intra-EU trade.

India's exports increased steadily up to 27% in the mid-eighties and has declined since **(Figure 12)**.

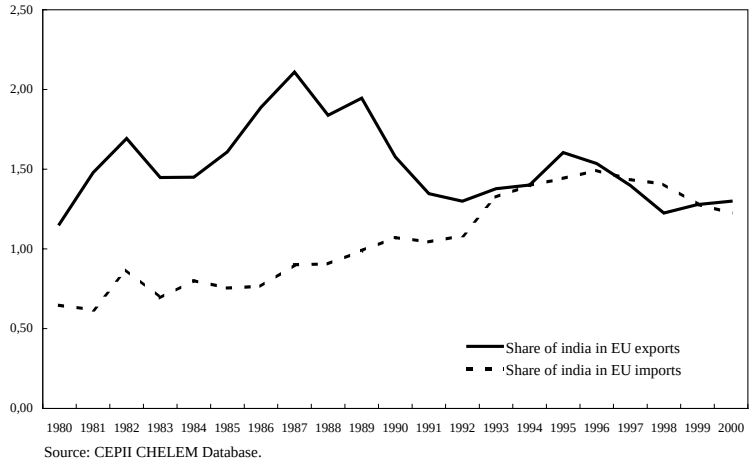
Due to the difference in their commercial sizes, the share of India in EU trade is much smaller than the share of the EU in Indian trade, but it shows similar trends **(Figure 13)**. The share of India in EU exports reached a peak in the late eighties (2%) and then followed a downward trend to 1.2% in the late nineties. The share of India in EU imports increased steadily from 1980 to 1997 and declined to 1.2% in 2000.

Figure 12 – Share of EU in India's trade, 1980-2000



Source: CEPII CHELEM Database.

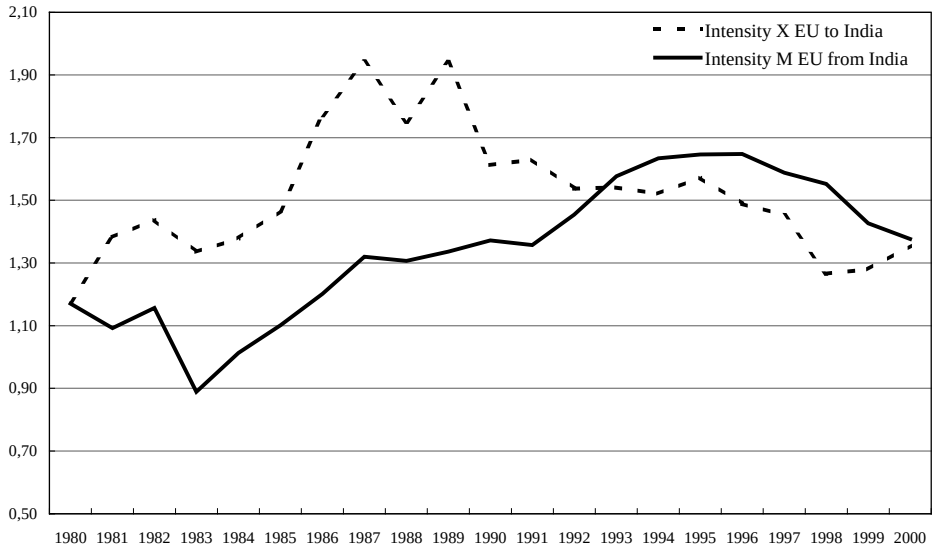
Figure 13 – Share of India in EU trade, 1980-2000



Source: CEPII CHELEM Database.

To quantify the relative importance of the EU-India trade, it is necessary to eliminate the effect of the asymmetry in their commercial size. This can be done using an indicator of trade intensity[13] **(Figure 14)**. Trade intensity between EU and India from 1980 to 2000 exceeds unity for all years under review.

Figure 14 – Trade Intensity between EU and India



Source: CEPII CHELEM Database.

EU export intensity to India (or India import intensity from the EU) increased substantially in the eighties and reached very high level at the end of the decade as the indicator shows a level twice the « normal » level. It declined sharply to 1.3 in 2000. This evolution can be at least partially attributed to the protection of the Indian market up to the early nineties and to the trade liberalisation that followed. As explained by G.Gaulier (2001): "the presence of obstacles to trade leads to distortions in the geographic pattern of suppliers since the obstacles to market access deter the suppliers which are not able to bear the resultant costs (…). As a result, the greater the barriers, the more the imports will be concentrated on a small number of trading partners". Other factors may have played, and especially the changes that have occurred in Indian import demand (see below).

The intensity of EU imports from India (or of Indian exports to the EU) have followed a gradual upward trend between 1983 and 1997. The intensity indicator exceeded 1.6 in

13 The indicator measures the ratio between the bilateral trade flows of two partners and their respective weights in world trade. If geography and history did not influence the direction of bilateral trade, the indicator should equal the unity. An indicator above (below) the unity indicates that the bilateral trade level is higher (lower) than it is expected if this trade were proportional to the respective weight of the two partners in world trade. The indicator was calculated excluding intra EU trade flows, as the EU was considered as a single trade entity.

1996 and then declined to 1.3. in 2000, when export and import intensities reached the same level.

5.3. Factor Content of Traded Goods: Scope for Upgrading

The gap in the levels of income between in India and Europe is quite large (from one to ten), with their GDP per capita (in Purchasing Power Parity) standing respectively at $2400 and $23000, in 2000. This corresponds to large differences in their factor endowments and creates a strong economic complementarity which is reflected in the factor content of trade flows between the two partners.

India's imports from the EU are dominated by categories of products with a medium or high content in skilled labour, technology and capital; they account for around 50% of Indian imports from Europe. However the share of the most sophisticated goods (group 5) is lower in imports from the EU (21% in 2001) than in total Indian imports (36%) **(Table 29)**.

In fact Indian imports from the EU are strongly biased in favour of jewellery, which share has steadily risen since 1980 and accounted for around 36% in 2001. Most of these imports correspond to gems coming from Belgium and the UK. The importance of this item is due to European trading centers and does not correspond to strong links between productive structures.

Table 29 – EU-India Trade According to Factor Content
(Manufactured Industrial Products)

India imports	1980	1985	1990	1995	2001
Labour-intensive and resource-intensive ind. (2)	3.7	4.8	4.2	4.3	6.9
Low-to-medium skill-l, technology-, capital- and scale- intensive ind (3).	19.1	13.9	11.4	9.2	6.4
Medium skill, technology, capital & scale intensive ind. (4)	32.4	34.5	31.0	40.8	29.5
High skill, technology, capital and scale intensive ind (5).	30.3	28.1	27.0	18.2	21.4
Jewellery (6)	14.5	18.7	26.4	27.5	35.7
Total	100	100	100	100	100
India's exports					
Labour-intensive and resource-intensive ind.(2)	72.3	69.6	67.6	64.0	57.3
Low-skill, technology, capital and scale intensive ind. (3)	1.0	2.4	2.0	3.1	3.9
Medium skill, technology, capital, and scale intensive ind.(4)	8.2	5.9	6.2	10.5	14.9
High skill, technology, capital and scale intensive ind.(5)	5.7	6.1	8.6	10.4	11.5
Jewellery(6)	12.8	16.0	15.6	12.0	12.4
Total	100.0	100.0	100.0	100.0	100.0

For the classification of products by technology content see UNCTAD 1996, and statistical appendix.
Source: CEPII CHELEM Database, authors 'calculations.

Symmetrically, India's exports to the EU are heavily dominated by labour intensive or resource intensive goods, which account for 57% of its exports in 2001, a share substantially above average (see section 3 above). There is a trend towards an upgrading of India exports to the EU, as products which have a medium to high intensity in skill, technology and capital accounted for 26% in 2001 against 15% in 1990. However compared to overall India exports, exports to the EU appear to be biased towards products with a low skill-, technology- and capital- intensity.

5.3.1. Transfer of High Technology

The analysis of India-EU trade according to its content in high technology *(Lemoine and Ünal-Kesenci, 2003)* indicates that the EU is the main supplier of HT products to India (31%), far ahead of the US (22%) and Japan (11%) **(Table 30)**. However, Asian countries taken together, constitute the most important source of HT products to India (40% in 1997-1999), ahead of Europe (34%) and America (24%). The three Dragons (HK, Taiwan, South Korea) as well as ASEAN (Singapore) have caught up with Japan as suppliers of high-tech product to India.

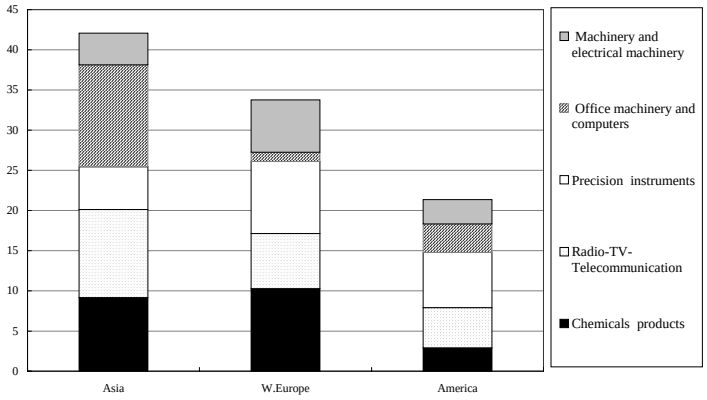
Table 30 – Geographic Pattern of Indian Imports of HT Goods, Average 1997-1999

	Geographic breakdown	HT imports/total Imports
World	100	5
Asia Oceania	40	7
Japan	10	9
Hongkong, S.Korea, Taiwan	9	9
ASEAN	13	7
Western Europe	34	5
EU	32	6
America	24	11
USA	24	12
Others	2	0

Source: *Lemoine and Ünal-Kesenci, 2003.*

Moreover, the technology content of India' imports from the EU (6%) is on average lower than from Japan (9%) and from America (12%) **(Table 30)**. The present structure of India's imports from the EU thus appears less auspicious for technology transfer than that of India's imports from other industrialised economy.

Figure 15 – India's Imports of High Technology by Origin and Sector, 1997-1999 In % (total HT imports = 100)



Source: cf. Lemoine & Unal-Kesenci, 2003.

5.3.2. EU Exports to India: Loosing Ground

At the product level, European firms held very strong position in Indian imports up to the beginning of the nineties, but they weakened considerably in the second half of the decade **(Table 31)**. If jewellery were excluded, the value of EU exports to India would have been lower in 2001 than in 1995. Two reasons explain the weakening of the EU position in the Indian market: first the changes in Indian import demand; second, an increased competition from third countries following India's trade liberalisation.

Table 31 – EU Exports to India by Sectors

	Sectoral Breakdown of EU exports to India			Share of the EU in India's exports		
	1990	1995	2001	1990	1995	2001
Energy	2	2	1	2	2	1
Food agriculture	1	1	2	5	6	5
Textiles	1	1	2	24	25	24
Wood paper	3	3	4	32	30	28
Chemicals	14	11	13	30	21	21
Iron & steel	10	7	4	46	43	27
Non ferrous	2	2	4	16	19	22
Machinery	31	31	20	60	55	43
Vehicles	1	1	1	23	28	27
Electrical	4	7	6	49	56	46
Electronic	7	7	9	38	32	26
N.E.S.	26	29	35	73	84	71
Total	100	100	100	34	33	24

Source: CEPII CHELEM Database. Authors' calculation.

In the second half of the nineties, there was a relative decline of Indian imports of machinery; linked to the domestic economic slow-down and to the slackening of investment effort. Imports of machinery fell from 19% to 11% of total between 1995 and

2001 **(Table 14 above)**. European exports were specially hit by the decline in import demand in a sector in which they had their strongest positions **(Table 31)**. Moreover they lost ground in this market, as their share in Indian imports of machinery fell from 55% to 43%. European firms also lost ground in chemicals. In sectors in which the Indian import demand increased the fastest, such as electronic products, EU exports hold a small market share.

5.3.3. The Diversification of Indian Exports to the European Market

During the late nineties, a shift took place in Indian exports away from textile and towards chemicals, machinery, electrical machinery **(Table 32)**.

Table 32 – India's Exports to the EU by Sectors

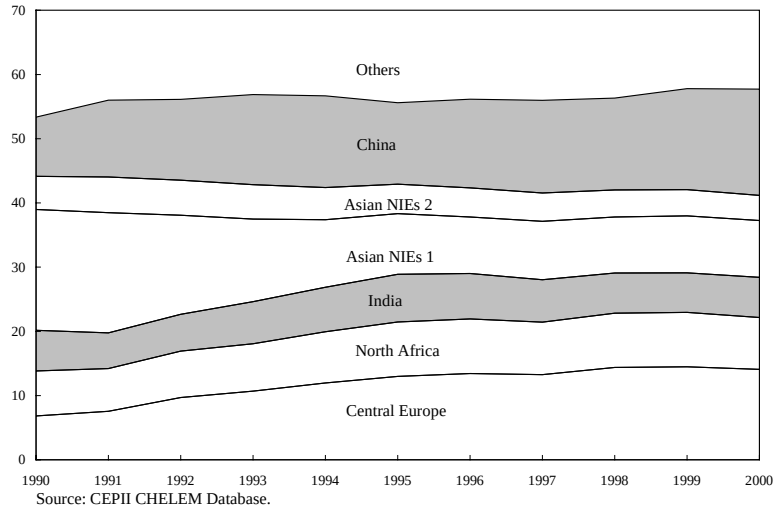
	Sectoral Breakdown of EU imports from India			Share of the EU in India's exports		
	1990	1995	2001	1990	1995	2001
Energy	2	1	1	12	8	8
Food agriculture	14	12	11	19	19	18
Textiles	54	53	46	50	48	40
Wood paper	1	2	3	31	27	39
Chemicals	6	10	12	20	26	22
Iron & steel	2	2	2	10	11	9
Non ferrous	0	0	0	9	6	6
Machinery	5	6	7	25	31	30
Vehicles	1	2	1	10	22	20
Electrical	0	1	3	9	27	32
Electronic	1	2	2	27	29	18
N.E.S.	13	10	11	26	20	21
Total	100	100	100	29	29	26

Source: CEPII CHELEM Database, authors' calculations.

Textile still account for a very large share of Indian exports to the EU (46% in 2001), although it has tended to narrow since 1995. Indian position in the European market does not seem to have been affected by the changes that took place in the geographic origin of textile products imported by the EU, mainly in favour of China and of Central and Eastern Europe. In this context, Indian share in EU textile imports remained around 6% **(Figure 16)**. This stability has been favoured by the MFA quota which limits competition. The phasing out of the MFA in 2005 entails both opportunity and risk for Indian exports, as mentioned above.

Over the last ten years the position of India in the EU market has relied more and more on other products than textile. The most dynamic products were chemicals, which rose from 6% of Indian in 1990 to 12% in 2001 **(Table 32)**.

Figure 16 – Geographic Origin of EU Imports of Textile Products, 1990-2000

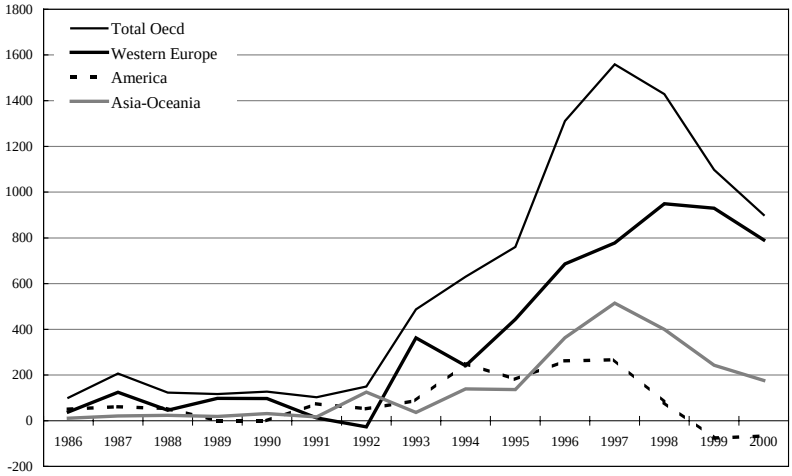


Source: CEPII CHELEM Database.

5.4. The Crucial Role of Europe in FDI to India

The pattern of OECD FDI to India confirms that geography matters. The role of Europe in FDI flows to India is even relatively larger than it is in Indian foreign trade. Since 1991 60% of FDI from the OECD countries to India has come from Western Europe, 25% from Asia-Oceania, 15% from America (US). European FDI has followed the same trend as overall FDI and reached a peak in 1997. However it proved more resilient to the impact of the Asian crisis than FDI from other regions and Europe accounted almost 90% of OECD FDI in India in 1999-2000 **(Figure 17)**.

Figure17 – FDI in India: geographic origin. 1986-2000, $ millions



Source : OECD.

The preponderance European FDI in India stands as an exception in Asia. In other countries (except Philippines), the bulk of FDI comes from Asia and America **(Table 33)**.

Although European FDI plays a crucial role in India, India remains a marginal recipient of Europe's FDI outflows: 1.1% of Europe's FDI to non-OECD countries and 6.3% of its FDI to Asia is directed to India **(Table 34)**.

Table 33 – Geographic Breakdown of OECD FDI in India and in Asian Countries Cumulated flows, 1991-2000

	Total OECD	Western Europe	America	Asie-Oceanie
India	100.0	61.3	13.2	25.5
China	100.0	32.7	19.2	47.9
Indonesia	100.0	15.5	31.3	54.0
Malaysia	100.0	39.2	23.0	39.4
Thailand	100.0	28.8	23.6	47.5
Philippines	100.0	56.9	12.9	30.9
Singapore	100.0	39.4	40.3	21.5
Taiwan	100.0	37.2	32.3	30.4

Source: OECD International Direct Investment Statistics.

Table 34 European FDI in Asian countries, 1991-2000 (%)
Cumulated flows

	On total to non OECD Countries	**On total to Asia Countries**
Singapore	4.1	23.1
China	3.2	18.1
Other Asia	2.5	13.9
Philippines	2.0	11.2
Malaysia	1.5	8.3
Thailand	1.4	8.0
India	1.1	6.3
Indonesia	1.0	5.5
Taiwan	1.0	5.5
Asia	17.7	
Non OECD	100	100

Source: OECD International Direct Investment Statistics.

CONCLUSION

At the beginning of the XXth century, the Indian economy is still more closed to international trade and FDI than almost all other Asian emerging economies, and is characterised by a shallow integration in the world economy. This can be attributed to several factors. The belated opening up policy explains at least partially why India's foreign trade lags behind and suggests it that may catch up in the future. Up to now, barriers to trade have remained high, and besides, in the domestic economy, institutional obstacles (reservation policy) and structural factors (high energy costs, lack of infrastructure) have dampened the rise of competitive industries and the attractiveness of India for FDI. Eventually, its geographic location does provides the Indian economy with a dynamic regional environment and has kept it away from strong regional integration processes, which in Europe and in Asia are an important engine of globalisation.

India's manufacturing industry has remained on the sidelines of globalisation. It has not taken advantage of the international segmentation of production process which has reshaped the industrial specialisation of the East and South-East Asian economies. India's foreign trade in manufacturing underwent limited structural changes over the last twenty years and is still based on traditional complementarity. Exports are still heavily dominated by labour intensive products characterised by a slow-growing international demand and protected markets.

The technology content of India's trade is low by international standards, but India has built up strengths in technology niches. Its high-tech manufactured exports are concentrated in chemical and pharmaceutical industries. Its export competitiveness in pharmaceutical products is based on strong domestic capacities to assimilate and replicate foreign technology and on its endowment in qualified labour. Besides, India has made a breakthrough in international trade of IT and software services, and in this sector is now in competition with developed economies. In contrast with other Asian latecomers, Indian high tech exports rely mainly on domestic technical capabilities and on local human capital and not on the assembly of high-tech components into final products. However, it is doubtful that India can realise its potential if there is no policy changes in the domestic economy.

The pressures for changes are likely to get stronger as a result of increased international competition. Competition will intensify in textile and clothing industry and also in other sectors such as business services, as other emerging countries (among which China) will strive to enter this market. This will play in favour of removing obstacles to economic growth and competitiveness (dismantling the small firm reservation programmes, improving infrastructure). The on-going negotiations on international trade liberalisation will also have important implications for India's strategy. As many issues are of great interest to India (textile, agriculture, intellectual property rights, movements of persons), it may become more actively involved in the multilateral negotiations, and this in turn may consolidate the pace of reforms.

APPENDIX 1: INDICATOR OF COMPARATIVE ADVANTAGE (CHELEM)

Revealed Comparative Advantage 1

The comparative advantage indicator answers the question: "What are the strong points and the weak points of an economy?".

Instead of relative export structures, as in the classic Balassa (1965) method, the analytical indicator used here is based on the share of the total trade balance and takes into account the size of each country's market. For country i and product k, the balance is first calculated in relation to Gross Domestic Product at current exchange rate Y, giving (in thousandths):

$$y_{ik} = 1000 * \frac{X_{ik} - M_{ik}}{Y_i}$$

The contribution of product k to the trade balance, in relation to GDP, is defined by:

$$f_{ik} = y_{ik} - g_{ik} * y_i$$

where: $g_{ik} = \frac{X_{ik} + M_{ik}}{X_{i\cdot} + M_{i\cdot}}$ and $y_{i\cdot} = 1000 * \frac{X_{i\cdot} - M_{i\cdot}}{Y_i}$

In addition, it is necessary to eliminate the influence of changes which are not specific to the country in question but result from the evolution of the importance of the product in world trade. In relation to a base year (r) the flows X and M in the other years (n) are adjusted by multiplying them all by:

$$e_k^n = \frac{W_k^r}{W_\cdot^r} : \frac{W_k^n}{W_\cdot^n}$$

The comparative advantage indicator f ' is therefore calculated using world weights for the base year (r). For this year it is identical to the relative contribution f. For the other years (n) the difference is all the greater, the more world trade in product k diverges from the average tendency for all merchandise.

Comparative advantages are calculated for individual products at the most detailed level of the CHELEM sectoral classification. The advantage by chain or by stage or production is then calculated by summing.

APPENDIX 2: GROUPING OF PRODUCTS BY FACTOR INTENSITY

Low-skill, technology, capital and scale intensive manufactures
Iron Steel
Cement
Ceramics
Glass
Tubes
Non ferrous metals
Ships

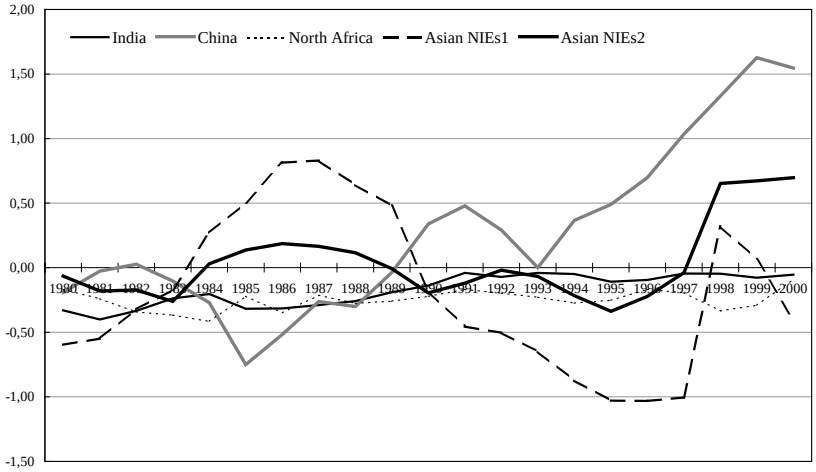
Labour-intensive and resource-intensive manufactures
Yarns fabrics
Clothing
Knitwear
Carpets
Leather
Wood articles
Furniture
Paper
Printing
Miscellaneous manuf. articles

Medium skill, technology, capital, and scale intensive manufactures
Metallic structures
Miscellaneous hardware
Engines
Agricultural equipment
Machine tools
Construction equipment
Specialized machines
Arms
Domestic electrical appliances
Electrical equipment
Electrical apparatus
Vehicles components
Cars and cycles
Commercial vehicles
Plastics
Plastic articles
Rubber articles (incl. tyres)

High skill, technology, capital and scale intensive manufactures
Precision instruments
Clockmaking
Optics
Electronic components
Consumer electronics
Telecommunications equipment
Computer equipment
Aeronautics
Basic inorganic chemicals
Fertilizers
Basic organic chemicals
Paints
Toiletries
Pharmaceuticals

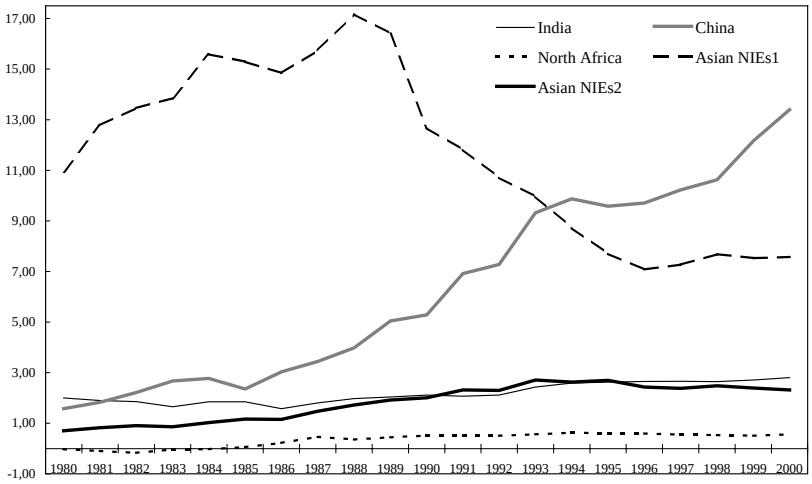
APPENDIX 3: INDIA AND OTHER EMERGING ECONOMIES: MARKET POSITIONS IN WORLD TRADE

India and Selected Emerging Economies: Market Positions in World Trade – All Products



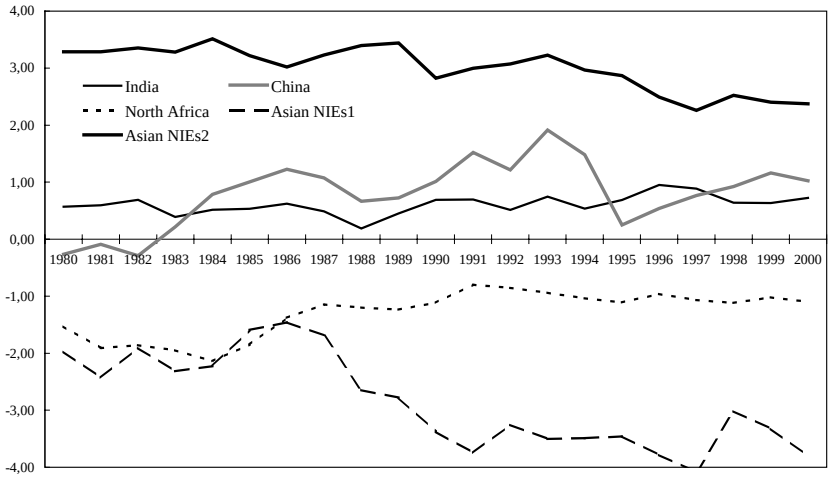
Source : CEPII, CHELEM Database.

India and Selected Emerging Economies: Market Positions in World Trade – Textile Products



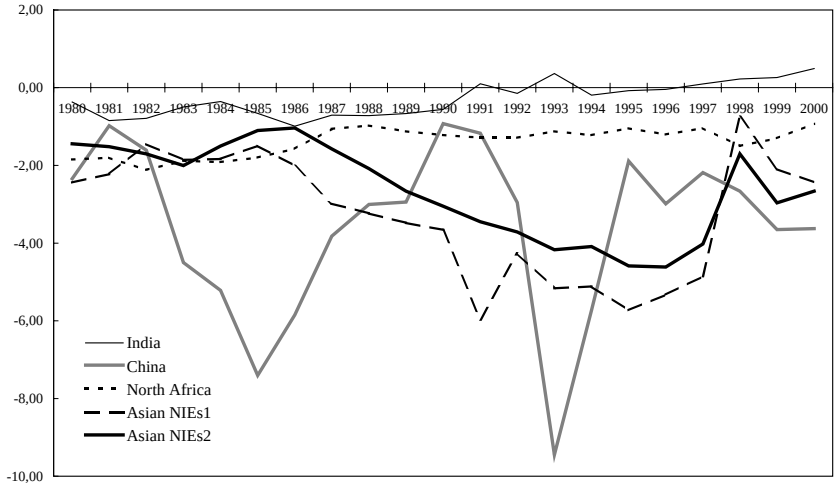
Source : CEPII, CHELEM Database.

India and Selected Emerging Economies: Market Positions in World Trade – Agricultural and Food Products



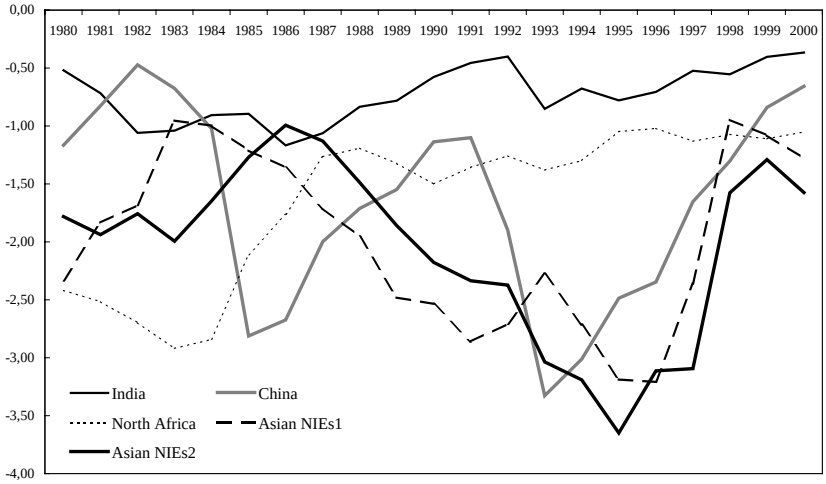
Source : CEPII, CHELEM Database.

India and Selected Emerging Economies: Market Positions in World Trade – Iron & Steel Products



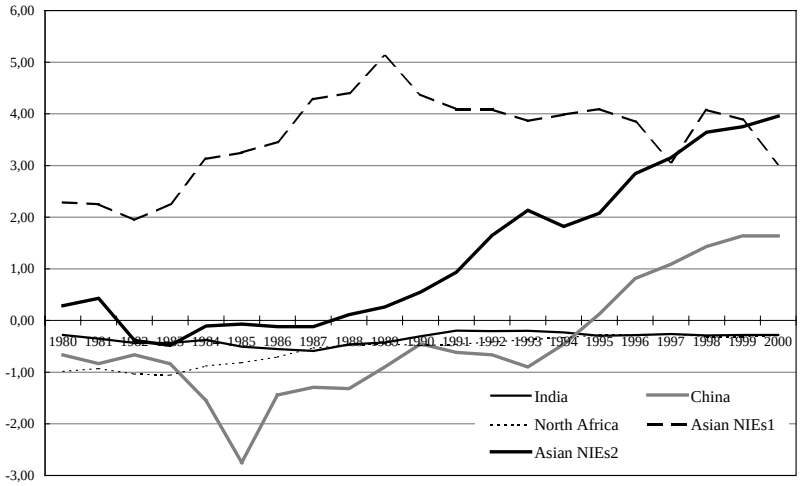
Source : CEPII, CHELEM Database.

India and Selected Emerging Economies: Market Positions in World Trade –Machinery



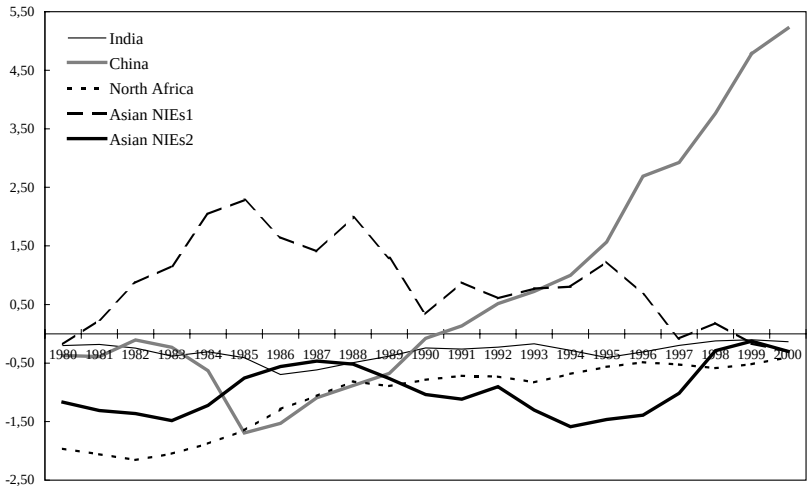
Source : CEPII, CHELEM Database.

India and Selected Emerging Economies: Market Positions in World Trade –Electronic Goods



Source : CEPII, CHELEM Database.

India and Selected Emerging Economies: Market Positions in World Trade – Electrical Machinery



Source : CEPII, CHELEM Database.

BIBLIOGRAPHY

ACHARYA S.R (2001), "India's Macroeconomic Management in the Nineties", paper presented at the ICRIER Seminar on *Ten years of Economic Reforms*, October.

ADB (2000), Asian Development Outlook.

AGGARWAL (2001), "Liberalisation, Multinational Enterprises and Export Performance: Evidence form Indian Manufacturing Industry", *ICRIER Working Paper*, June.

ARORA A. and ATHREYE S. (2001), "The Software Industry and Indian Economic Development", *Wider Discussion Paper*, n°2001/20.

BALASUBRAMAMYAM V.N. and A. BALASUBRAMAMYAM (1997), "International Trade In Services: The case of India's Computer Software", *The World Economy*, vol.20, n°6.

BANDARA J.S and Mc M. GILLIVRAY (1998), "Trade Policy Reforms in South Asia", *The World Economy*, Vol. 21, n°7.

BOMSEL O. and J. RUET *and alii*, (2001), "Digital India", *Report on the IT Industry*, CERNA, Centre d'économie industrielle, Ecole Nationale Supérieure des Mines de Paris.

CII (Confederation of Indian Industry) and THE WORLD BANK (2002), "Competitiveness of Indian Manufacturing. Results from a Firm-Level Survey", January.

CHADHA R D.K. BROWN, A.V. DEARDOFF and R.M. STERN (2000), "Computational Analysis of the Impact of the Uruguay Round and the Forthcoming WTO Trade Negotiations", May, mimeo.

DELONG B. (2001), "India since Independance: An Analytical Growth Narrative", July (www.j-bradford-delong.net).

EC (2002), "The EC-India Country Strategy Paper 2002-2006, www.eudelindia.org/ta5.htm.

FOUQUIN M. *et alii* (2002), "Mondialisation et régionalisation : le cas des industries textiles et de l'habillement", *Document de travail du CEPII*, n°2002-08, septembre.

GAULIER G. (2001), "Discrimination commerciale : une mesure à partir des flux bilatéraux", *Document de travail du CEPII*, n°2001-04, mars.

HULTEN C. and .S. SRINIVASAN (1999), "Indian Manufacturing Industry: Elephant or Tiger ? New Evidence on the Asian Miracle", *NBER Working Paper*, n°7441, December.

IMF (2002), "India: Selected Issues and Statistical Appendix", *Country Report*, n°02/193.

IMF (2001), "India: Recent Economic Developments and Selected Issues", *Country Report*, n°01/81, October.

IMF (2000), "India: Recent Economic Development", *Country Report*, n°00/155, November.

KATHURIA S. and A. BHARDWAJ (1998), "Export Quotas and Policy Constraints in the Indian Textile and Garment Industry", *mimeo*, October.

KOHLI R. (2001), "Capital Flows and Their Macroeconomic Effects in India", *IMF Working Paper*, n°01/192, December.

KUNDRA A.K. and V. SHARAN (2000), "Performance Evaluation of India EPZs since Economic Liberalization", *Economia Internazionale*, Journal of the Institute for International Economics, Vol. LIII, n°3.

LAFAY, G., C.HERZOG, M. FREUDENBERG and D. ÜNAL-KESENCI (1999), *Nations et mondialisation*, Economica.

LALL S. (1999), "India's Manufactured Exports: Comparative Structure and Prospects", *World Development*, Vol. 27, n°10, pp1769-1789.

LEMOINE F. and D. ÜNAL-KESENCI (2003), "Insertion internationale et transferts de technologies : les cas comparés de la Turquie, de l'Inde et du Japon", *Document de travail du CEPII*, forthcoming.

LEMOINE F. and D. ÜNAL-KESENCI (2002), "China in the International Segmentation of Production Processes", *CEPII Working Paper*, n°2002-02, March.

MADDISON A. (2001), "L'économie mondiale: une perspective millénaire", *Etudes du Centre de Développement*, OCDE.

MAYER J., A. BUTKOVICIUS and A. KADRI (2002), "Dynamic Products in World Exports", *UNCTAD Discussion Paper*, n°159, May.

MINEFI-DREE/TRÉSOR (2002), "L'industrie pharmaceutique en Inde", septembre, http://www/dree.org.

NASSCOM (National Association of Software and Service Companies), http://www.nasscom.org.

NG F. and A. YEATS (1999), "Production Sharing in East Asia: Who does What, for Whom and Why?", World Bank, *PolicyResearch Working Paper*, WPS 2197.

OECD (1996), "Réforme des politiques en Inde", sous la direction de C. Oman. Séminaire du Centre de Développement.

OECD, International Direct Investment Statistics.

OMC (2002a), Examen des politiques commerciales de l'Inde, Rapport du Secrétariat, 22 mai.

OMC (2002b), Examen des politiques commerciales de l'Inde, Rapport du gouvernement. 22 mai.

RACINE J.L (2000), "La transition indienne", *Futuribles* n°258, novembre.

RBI (Reserve Bank of India) (2000), *Annual Report 1999-2000*, www.rbi.org.

RBI (Reserve Bank of India) (2001), *Annual Report 2000-2001*, www.rbi.org.

RBI DRG (Reserve Bank of India Development Research Group) (2000), "Productivity in Major Manufacturing Industries in India : 1973-1974 to 1997-1998", www.rbi.org

RAMASWAMY K.V. and G. GERFFI (2000), "India's Apparel Exports: the Challenge of Global Markets", *The Developing Economies*, Vol. XXXVIII, n°2, pp:186-210. June.

REDDING S. and A.J. VENABLES (2002), "Explaining Cross-Country Export Performance: International Linkages and Internal Geography", *Discussion Paper* n°549, Centre for Economic Performance, September.

RUET J, M.H. ZERAH, A. MARIA and P.N. GIRAUD (2002), "Biotechnology in India", http://www.cerna.ensmp.fr.

SHARMA, K. (2000), "Export Growth in India: Has FDI played a role?", *Economic Growth Center Discussion Paper*, n°816, July.

SIVASUBRAMONIAN S. (2002), "Twentieth Century Economic Performance of India" in The Asian Economies in the Twentieth Century, edited by A. Maddison, D.S. Prasada Rao and W.F. Shepherd.

SRINIVASAN T.N. (2001), "India's Reform of External Sector Policies and Future Multilateral Trade Negotiations", *Economic Growth Center*, Yale University, Center Discussion Paper n°830, June.

SRINIVASAN T.N. and TENDULKAR S.D. (2003), Re-integrating India with the World Economy, Institute fo International Economics, Washington D.C.

TANEJA N. (1999), "Informal Trade in the SAARC Region", *ICRIER*, n°47, March.

TENDULKAR S.D. (2000), "Indian Export and Economic Growth in Asian Perspective", Indian Council For Research on International Economic Relations, *Working Paper* n°54, December.

TSCHANG T. (2003), "China's Software Industry and its Implications for India", *OECD Development Centre*, Technical Papers, No 205, February.

UNCTAD (1996), *Trade and Development Report.*

UNEL B. (2003), "Productivity Trends in India's Manufacturing Sectors in the last Two Decades", IMF Working Paper, n°22.

WORLD BANK (1997), "India: Five Years of Stabilization & Reforms and the Challenges ahead", *World Bank Country Study*.

WORLD BANK (1999), "India: Cotton and Textile Industries: Reforming to Compete", *World Bank Report*, January 14.

WORLD BANK (2002), World Development Indicators.

WTO (1998), India: April 1998, www.wto.org/wto/french/tratop_f/tpr_f/tp071%20_f.htm

LIST OF WORKING PAPERS RELEASED BY CEPII[14]

No	*Title*	*Authors*
2003-08	Imitation Amongst Exchange-Rate Forecasters: Evidence from Survey Data	M. Beine, A. Bénassy-Quéré & H. Colas
2003-07	Le Currency Board à travers l'expérience de l'Argentine	S. Chauvin & P. Villa
2003-06	Trade and Convergence: Revisiting Ben-Davil	G. Gaulier
2003-05	Estimating the Fundamental Equilibrium Exchange Rate of Central and Eastern European Countries the EMU Enlargement Perspective	B. Egert & A. Lahrèche-Révil
2003-04	Skills, Technology and Growth is ICT the Key to Success?	J. Melka, L. Nayman, S. Zignago & N. Mulder
2003-03	L'investissement en TIC aux Etats-Unis et dans quelques pays européens	G. Cette & P.A. Noual
2003-02	Can Business and Social Networks Explain the Border Effect Puzzle?	P.P. Combes, M. Lafourcade & T. Mayer
2003-01	Hyperinflation and the Reconstruction of a National Money: Argentina and Brazil, 1990-2002	J. Sgard
2002-18	Programme de travail du CEPII pour 2003	
2002-17	MIRAGE, a Computable General Equilibrium Model for Trade Policy Analysis	M.H. Bchir, Y. Decreux, J.L. Guérin & S. Jean
2002-16	Evolutions démographiques et marché du travail : des liens complexes et parfois contradictoires	L. Cadiou, J. Genet & J.L. Guérin
2002-15	Exchange Rate Regimes and Sustainable Parities for	V. Coudert &

[14] Working papers are circulated free of charge as far as stocks are available; thank you to send your request to CEPII, Sylvie Hurion, 9, rue Georges-Pitard, 75015 Paris, or by fax : (33) 01 53 68 55 04 or by e-mail Hurion@cepii.fr. Also available on: \\www.cepii.fr. Working papers with * are out of print. They can nevertheless be consulted and downloaded from this website.

[14] Les documents de travail sont diffusés gratuitement sur demande dans la mesure des stocks disponibles. Merci d'adresser votre demande au CEPII, Sylvie Hurion, 9, rue Georges-Pitard, 75015 Paris, ou par fax : (33) 01 53 68 55 04 ou par e-mail Hurion@cepii.fr. Egalement disponibles sur : \\www.cepii.fr. Les documents de travail comportant * sont épuisés. Ils sont toutefois consultable sur le web CEPII.

	CEECs in the Run-up to EMU Membership	C. Couharde
2002-14	When are Structural Deficits Good Policies?	J. Chateau
2002-13	Projections démographiques de quelques pays de l'Union Européenne (Allemagne, France, Italie, Royaume-Uni, Pays-Bas, Suède)	R. Sleiman
2002-12	Regional Trade Integration in Southern Africa	S. Chauvin & G. Gaulier
2002-11	Demographic Evolutions and Unemployment: an Analysis of French Labour Market with Workers Generations	J. Château, J.L. Guérin & F. Legros
2002-10	Liquidité et passage de la valeur	P. Villa
2002-09	Le concept de coût d'usage Putty-Clay des biens durables	M.G. Foggea & P. Villa
2002-08	Mondialisation et régionalisation : le cas des industries du textile et de l'habillement	M. Fouquin, P. Morand R. Avisse G. Minvielle & P. Dumont
2002-07	The Survival of Intermediate Exchange Rate Regimes	A. Bénassy-Quéré & B. Coeuré
2002-06	Pensions and Savings in a Monetary Union : An Analysis of Capital Flow	A. Jousten & F. Legros
2002-05	Brazil and Mexico's Manufacturing Performance in International Perspective, 1970-1999	N. Mulder, S. Montout & L. Peres Lopes
2002-04	The Impact of Central Bank Intervention on Exchange-Rate Forecast Heterogeneity	M. Beine, A. Benassy-Quéré, E. Dauchy & R. MacDonald
2002-03	Impacts économiques et sociaux de l'élargissement pour l'Union européenne et la France	M.H. Bchir & M. Maurel
2002-02	China in the International Segmentation of Production Processes	F. Lemoine & D. Ünal-Kesenci
2002-01	Illusory Border Effects: Distance Mismeasurement Inflates Estimates of Home Bias in Trade	K Head & T. Mayer
2001-22	Programme de travail du CEPII pour 2002	
2001-21	Croissance économique mondiale : un scénario de référence à l'horizon 2030	N. Kousnetzoff

2001-20	The Fiscal Stabilization Policy under EMU – An Empirical Assessment	A. Kadareja
2001-19	Direct Foreign Investments and Productivity Growth in Hungarian Firms, 1992-1999	J. Sgard
2001-18	Market Access Maps: A Bilateral and Disaggregated Measure of Market Access	A. Bouët, L. Fontagné, M. Mimouni & X. Pichot
2001-17	Macroeconomic Consequences of Pension Reforms in Europe: An Investigation with the INGENUE World Model	Equipe Ingénue
2001-16*	La productivité des industries méditerranéennes	A. Chevallier & D. Ünal-Kesenci
2001-15	Marmotte: A Multinational Model	L. Cadiou, S. Dees, S. Guichard, A. Kadareja, J.P. Laffargue & B. Rzepkowski
2001-14	The French-German Productivity Comparison Revisited: Ten Years After the German Unification	L. Nayman & D. Ünal-Kesenci
2001-13*	The Nature of Specialization Matters for Growth: An Empirical Investigation	I. Bensidoun, G. Gaulier & D. Ünal-Kesenci
2001-12	Forum Economique Franco-Allemand - Deutsch-Französisches Wirtschaftspolitisches Forum, Political Economy of the Nice Treaty: Rebalancing the EU Council and the Future of European Agricultural Policies, 9th meeting, Paris, June 26th 2001	
2001-11	Sector Sensitivity to Exchange Rate Fluctuations	M. Fouquin, K. Sekkat, J. Malek Mansour, N. Mulder & L. Nayman
2001-10*	A First Assessment of Environment-Related Trade Barriers	L. Fontagné, F. von Kirchbach & M. Mimouni
2001-09	International Trade and Rend Sharing in Developed and Developing Countries	L. Fontagné & D. Mirza
2001-08	Economie de la transition : le dossier	G. Wild
2001-07	Exit Options for Argentina with a Special Focus on Their Impact on External Trade	S. Chauvin

2001-06	Effet frontière, intégration économique et 'Forteresse Europe'	T. Mayer
2001-05	Forum Économique Franco-Allemand – Deutsch-Französisches Wirtschaftspolitisches Forum, The Impact of Eastern Enlargement on EU-Labour Markets and Pensions Reforms between Economic and Political Problems, 8th meeting, Paris, January 16 2001	
2001-04	Discrimination commerciale : une mesure à partir des flux bilatéraux	G. Gaulier
2001-03*	Heterogeneous Expectations, Currency Options and the Euro/Dollar Exchange Rate	B. Rzepkowski
2001-02	Defining Consumption Behavior in a Multi-Country Model	O. Allais, L. Cadiou & S. Dées
2001-01	Pouvoir prédictif de la volatilité implicite dans le prix des options de change	B. Rzepkowski
2000-22	Forum Economique Franco-Allemand - Deutsch-Französisches Wirtschaftspolitisches Forum, Trade Rules and Global Governance: A long Term Agenda and The Future of Banking in Europe, 7th meeting, Paris, July 3-4 2000	
2000-21	The Wage Curve: the Lessons of an Estimation Over a Panel of Countries	S. Guichard & J.P. Laffargue
2000-20	A Computational General Equilibrium Model with Vintage Capital	L. Cadiou, S. Dées & J.P. Laffargue
2000-19	Consumption Habit and Equity Premium in the G7 Countries	O. Allais, L. Cadiou & S. Dées
2000-18	Capital Stock and Productivity in French Transport: An International Comparison	B. Chane Kune & N. Mulder
2000-17	Programme de travail 2001	
2000-16	La gestion des crises de liquidité internationale : logique de faillite, prêteur en dernier ressort et conditionnalité	J. Sgard
2000-15	La mesure des protections commerciales nationales	A. Bouët
2000-14	The Convergence of Automobile Prices in the European Union: An Empirical Analysis for the Period 1993-1999	G. Gaulier & S. Haller

2000-13*	International Trade and Firms' Heterogeneity Under Monopolistic Competition	S. Jean
2000-12	Syndrome, miracle, modèle polder et autres spécificités néerlandaises : quels enseignements pour l'emploi en France ?	S. Jean
2000-11	FDI and the Opening Up of China's Economy	F. Lemoine
2000-10	Big and Small Currencies: The Regional Connection	A. Bénassy-Quéré & B. Coeuré
2000-09*	Structural Changes in Asia And Growth Prospects After the Crisis	J.C. Berthélemy & S. Chauvin
2000-08	The International Monetary Fund and the International Financial Architecture	M. Aglietta
2000-07	The Effect of International Trade on Labour-Demand Elasticities: Intersectoral Matters	S. Jean
2000-06	Foreign Direct Investment and the Prospects for Tax Co-Ordination in Europe	A. Bénéssy-Quéré, L. Fontagné & A. Lahrèche-Révil
2000-05	Forum Economique Franco-Allemand - Deutsch-Französisches Wirtschaftspolitisches Forum, Economic Growth in Europe Entering a New Area?/The First Year of EMU, 6th meeting, Bonn, January 17-18, 2000	
2000-04*	The Expectations of Hong Kong Dollar Devaluation and their Determinants	B. Rzepkowski
2000-03	What Drove Relative Wages in France? Structural Decomposition Analysis in a General Equilibrium Framework, 1970-1992	S. Jean & O. Bontout
2000-02	Le passage des retraites de la répartition à la capitalisation obligatoire : des simulations à l'aide d'une maquette	O. Rouguet & P. Villa
2000-01*	Rapport d'activité 1999	
1999-16	Exchange Rate Strategies in the Competition for Attracting FDI	A. Bénassy-Quéré, L. Fontagné & A. Lahrèche-Révil
1999-15	Groupe d'échanges et de réflexion sur la Caspienne. Recueil des comptes-rendus de réunion (déc. 97- oct. 98)"	D. Pianelli & G. Sokoloff

1999-14	The Impact of Foreign Exchange Interventions: New Evidence from FIGARCH Estimations	M. Beine, A. Bénassy-Quéré & C. Lecourt
1999-13	Forum Economique Franco-Allemand - Deutsch-Französisches Wirtschaftspolitisches Forum, Reduction of Working Time/Eastward Enlargment of the European Union, 5 th meeting, Paris, July 6-7 1999	
1999-12*	A Lender of Last Resort for Europe	M. Aglietta
1999-11*	La diversité des marchés du travail en Europe : Quelles conséquences pour l'Union Monétaire ; Deuxième partie : Les implications macro-économiques de la diversité des marchés du travail	L. Cadiou, S. Guichard & M. Maurel
1999-10*	La diversité des marchés du travail en Europe : Quelles conséquences pour l'Union Monétaire ; Première partie : La diversité des marchés du travail dans les pays de l'Union Européenne	L. Cadiou & S. Guichard
1999-09	The Role of External Variables in the Chinese Economy; Simulations from a macroeconometric model of China	S. Dees
1999-08	Haute technologie et échelles de qualité : de fortes asymétries en Europe	L. Fontagné, M. Freudenberg & D. Ünal-Kesenci
1999-07	The Role of Capital Accumultion, Adjustment and Structural Change for Economic Take-Off: Empirical Evidence from African Growth Episodes	J.C. Berthélemy & L. Söderling
1999-06	Enterprise Adjustment and the Role of Bank Credit in Russia: Evidence from a 420 Firm's Qualitative Survey	S. Brana, M. Maurel & J. Sgard
1999-05	Central and Eastern European Countries in the International Division of Labour in Europe	M. Freudenberg & F. Lemoine
1999-04	Forum Economique Franco-Allemand – Economic Policy Coordination – 4 th meeting, Bonn, January 11-12 1999	
1999-03	Models of Exchange Rate Expectations: Heterogeneous Evidence From Panel Data	A. Bénassy-Quéré, S. Larribeau & R. MacDonald
1999-02	Forum Economique Franco-Allemand – Labour Market & Tax Policy in the EMU	
1999-01	Programme de travail 1999	

CEPII
DOCUMENTS DE TRAVAIL / WORKING PAPERS

Si vous souhaitez recevoir des Documents de travail,
merci de remplir le coupon-réponse ci-joint et de le retourner à :

Should you wish to receive copies of the CEPII's Working papers,
just fill the reply card and return it to:

Sylvie HURION – Publications
CEPII – 9, rue Georges-Pitard – 75740 Paris – Fax : (33) 1.53.68.55.04

M./Mme / Mr./Mrs .....

Nom-Prénom / Name-First name .....

Titre / Title .....

Service / Department.....

Organisme / Organisation .....

Adresse / Address.....

Ville & CP / City & post code.....
Pays / Country.....Tél.....

Désire recevoir les **Document de travail** du CEPII n° :

*Wish to receive the **CEPII's Working Papers No**:*.....

.....

.....

.....

.....

.....

.....

.....

.....

☐ Souhaite être placé sur la liste de diffusion permanente (**pour les bibliothèques**)
*Wish to be placed on the standing mailing list **(for Libraries)**.*