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## **India and the Dutch economy**

Stylised facts and prospects

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## Abstract in English

India's impressive economic performance over the past few decades has had a positive net impact on the Dutch economy. Peculiar for India is its relatively strong position on the global markets for services. Imports of cheap Indian products have slightly improved Dutch households' purchasing power. Increasing Indian exports did not have a noticeable impact on the pace of restructuring in the Netherlands. Nor did this development lead to a marked widening of Dutch wage differentials. Concerning global competition, Indian export products tend to be more complements than substitutes for Dutch export products. The large Indian market yields interesting investment opportunities for Dutch firms. Over the next few decades, the Indian economy is expected to continue its rapid expansion. Increasing trade with India will continue and is expected to enhance Dutch welfare in the upcoming years and will continue to be associated with modest increases in competition and continued restructuring on some markets.

*Key words:* India, Dutch economy, globalisation, trade, foreign direct investment, scenario analysis

*JEL code:* F14, F23, F40, F47, J31, O40, O57

## Abstract in Dutch

De indrukwekkende economische groei in India gedurende de afgelopen decennia heeft per saldo een positief effect gehad op de Nederlandse economie. Met name het presteren van de dienstensector valt gegeven het niveau van ontwikkeling in positieve zin op. Relatief goedkope importen hebben de koopkracht van Nederlandse gezinnen licht verbeterd. Negatieve effecten in de vorm van herstructureringen blijken bescheiden te zijn. Offshoring van Nederlandse dienstenactiviteiten naar India was in de afgelopen jaren zeer beperkt. Ook is er geen substantieel negatief effect waarneembaar in de vorm van toegenomen loonongelijkheid. Het exportpakket van India blijkt slechts in beperkte mate te overlappen met dat van Nederland. Grote concurrentie-effecten en daaruit voortvloeiende sectorale verschuivingen zijn dan ook niet te verwachten van de opkomst van India. Tegelijkertijd biedt de grote afzetmarkt in India interessante investeringsmogelijkheden voor Nederlandse bedrijven. Voor de nabije toekomst is de verwachting dat de exporten van India verder zullen toenemen, waarbij de daaruit voortvloeiende economische herstructurering in Nederland bescheiden zal zijn. Voor Nederland zal de verdere opkomst van India naar verwachting positieve effecten hebben voor de welvaart.

*Steekwoorden:* India, Nederlandse economie, globalisering, handel, directe buitenlandse investeringen, scenario-analyse

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## Preface

The rapid economic development of India in recent years, in combination with its huge size, have contributed to lively debates on the economic consequences of globalisation for a small open economy such as the Netherlands. While China's emergence is typically associated with the manufacturing sector, India's 'awakening' is often linked to the services sector. This Document aims to take stock of the recent developments in India and their impacts on European economies and the Dutch economy in particular. It starts with the identification of a range of stylised facts regarding India's growth performance and economic reforms, its position in the world economy, and its trade relationships with its trading partners in general and the Netherlands in particular. Subsequently, the potential impacts of India's developments on the position of the Netherlands on global markets are analysed, as well as the impact on purchasing power, unemployment, sectoral restructuring and income inequality. Scenario analyses are used to identify possible developments in the longer term. The Document concludes with a policy outlook discussing the major risks and challenges that are associated with past and future developments in India and considering the implications for Dutch policy.

This Document is part of an ongoing effort of the CPB Netherlands Bureau for Economic Policy Analysis to evaluate the impacts of globalisation on economic development. The project on India stems in part from explicit requests for further analysis by the Embassy of the Kingdom of The Netherlands in India and the Ministry of Economic Affairs. They have partly financed the project.

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Coen Teulings  
Director





## Summary

India's outstanding growth performance in recent decades has had little impact on the Dutch economy. Cheap imports from India has slightly improved Dutch households' purchasing power. Exports to India account for in between ten and fifteen thousand jobs in the Netherlands. Imports from India on the other hand have neither raised unemployment, nor have they amplified wage inequality.

At present, the size of Dutch-Indian trade is modest. Less than 1% of Dutch merchandise exports is destined for India. In this regard the Netherlands are no different than other West European countries. However, rapid economic growth in India will fuel demand for Dutch products. Under the most favourable circumstances Dutch exports to India may expand fifteen fold by 2040, while Dutch imports from India may even grow stronger.

India and the Netherlands generally export different products, so competition between Indian and Dutch firms is unlikely to intensify. Therefore, India's emergence as an economic power will not lead to massive restructuring of Dutch industry. Investment by Dutch firms in India – presently modest in scale – is set to grow as consumer demand in India will continue to rise fast in coming years.

### **The Indian economy in the past three decades**

During the first decades after Independence in 1947, the Indian economy was characterised by slow growth. Economic policy followed a *dirigiste* model, with a high degree of state intervention in economic life, aimed at enhanced self-reliance and favouring small-scale production. Barriers to international trade were formidable. This started to change, however, in the beginning of the 1980s as the government's attitude towards business became more positive. This was followed by fundamental policy reforms from the early 1990s onwards. Reform measures that were taken included trade liberalisation, the abolishment of several state monopolies, the abolishment of the need for government approval of private investment plans, financial sector reform, tax reform, and fiscal reform. Early this century the number of industries where restrictions on firm size applied was reduced.

While during the three decades up to 1980 GDP growth averaged 3.5% per year, in the 1980s GDP grew by 4.9%, in the 1990s by 6.0% and since 2000 by 7% per year. Income per capita has almost tripled since 1980. The poverty rate has fallen by more than half since 1983. The most remarkable, and atypical, characteristic of India's strong growth is that it has been concentrated in the services sector rather than in manufacturing. While at present over half of the Indian labour force is still employed in agriculture, both the share of agriculture in total employment and its share in GDP have declined substantially over the last 25 years.

The Indian economy has become distinctly more open. The ratio of the total value of imports and exports to GDP has increased from 13% in 1985 to 49% in 2006. Nonetheless, India's market share of world goods and services exports is still less than its share in world output. Export growth initially came from booming sales of software and IT-related services, but the provision of other business services has become increasingly important. As a result, between 1995 and 2005 India's share in world exports of services has quadrupled. In recent years India's market share in goods trade has been rising as well.

So far, real GDP growth in India has never been quite as high as in 'growth miracles' such as China, Korea, and Japan, but it is getting close, with growth reaching 9% in 2006. In India, like in other Asian 'tiger economies', growth has to a large extent been export-led. But two characteristics of India's macroeconomic performance set the country apart from others: the rapid advancement of the services sector and relatively low capital formation. India apparently has relied relatively little on 'deferred gratification' (invest now, consume later). In the 1980s and 1990s, private consumption expenditure averaged 67% of Indian GDP, much more than in China and Japan during their respective take-off periods.

Raising GDP growth even further would require the Indian government to undertake major further reforms in labour market policy, education, and infrastructural development. Concerns about environmental degradation in India are rising and environmental sustainability is a major policy challenge. Another major policy challenge is to spread economic growth more widely across regions, especially in view of the current huge income disparities and higher population growth in states where income is lowest.

#### **The impact of India on Dutch foreign trade in goods**

Dutch goods imports from India have grown much more rapidly than total imports in the first half of the 1990s. In recent years, the growth difference is less, but the share of Dutch imports coming from India still reveals an upward trend. India ranks 30th among Dutch import partners, with a share of 0.6% in total goods imports. About half of Dutch imports from India are re-exported, mainly to other EU countries. The share of Indian exports in total Dutch goods exports has remained rather stable, at around 0.3%. India's share in international trade with the Netherlands is smaller than it is in the average EU-15 country, but as a percentage of GDP it is comparable. The overall impact of Indian goods exports on world markets is currently still fairly small; India's share in world trade in goods is only 1.1% (compared with a share in world GDP of 1.8% measured at current exchange rates, and 6.3% measured in purchasing power parities). However, with a growth rate of twice the growth rate of world exports, Indian trade is bound to become increasingly important.

The degree of competition between India and the Netherlands on export markets depends primarily on whether the strength of the Indian and Dutch sectors coincide and on their geographical reach. Analysis of revealed comparative advantages shows that the overlap of Indian and Dutch strengths is limited, but not completely absent. India is strong in unskilled-labour intensive products like clothing and textile products, in primary products like coffee and tea, and in natural-resource intensive products like diamonds. The Netherlands are strong in agricultural and other primary products. The product groups for which both countries have a comparative advantage belong to the primary and chemical sectors. An analysis of the destinations of the Indian exports reveals that a substantial share of exports flows to countries more than 4,000 kilometres away, although this share is somewhat lower for the strongly overlapping product groups than for the total exports of India.

### **The impact of India on Dutch foreign trade in services**

India has a strong position in the services trade and has increased its strength in recent years. This is reflected in increased openness of the services sector and a relatively high and increasing share of services in total trade of goods and services. Although the share of trade with India in total Dutch services trade is below 1%, the Netherlands rank within the top ten of industrialised countries trading services with India (sixth for exports and fourth for imports). Within the Indian services sector, output of computer services and 'other business services' is growing rapidly - and so are exports of these services. Currently, India is mainly exporting computer services to the United States. However, given its revealed comparative advantage in computer services, India's export of computer services to the EU countries, including the Netherlands, may rise in the near future.

### **Foreign direct investment in India**

In the second half of the 1990s, foreign direct investment (FDI) inflow in India increased but remained below a modest 5 billion dollars (1% GDP), largely because of restrictions on foreign participation, strict labour-market regulations and poor infrastructure. After restrictions were relaxed in the 1990s, FDI inflows surged to 20 billion dollars in 2006 (2% of GDP). With a recorded share of 5% in 2006, the Netherlands are a major investor in India.

A third of FDI in India concerns services, while electronic equipment and telecommunication account for 20%. Direct investment in India in services is mainly directed at IT-related services, accounting, insurance and real estate. Important reasons for foreign enterprises to invest in India are the big market size, increasing purchasing power, low-cost labour and the availability of modern technological knowledge, particularly on IT.

In industry, Dutch companies have gained a firm foothold in India and are expanding capacity. Investment by Dutch banks and insurance companies is increasing, in view of the growing

market for financial services. Total Dutch investment remains, however, below 300 million euro per year and consists, in contrast with FDI of other advanced economies in India, for the greater part of investment in mining, oil, chemicals and electronics. The limited size of Dutch FDI and the capital-intensive and knowledge-intensive nature of these industries indicate that there is no large relocation of Dutch production activity to India. Regarding business services and R&D, low wages in India may have contributed to the decision of Dutch manufacturing firms and banks to invest in India, in conjunction with the availability of a pool of high-skilled workers.

If high economic growth continues as it is expected to, the growing size of India's consumer market will encourage more foreign firms to invest. India will probably benefit from the continuing tendency to offshore business services, which may boost the inflow of foreign investment. Thus, the medium-term and long-term prospects for India to attract a growing FDI flow are promising. Even so, poor infrastructure and strict labour-market regulations are still impediments. Deregulating labour markets, opening the retail market and creating more Special Economic Zones would all be steps forward, but meet at the moment strong political opposition.

#### **The impact of India on the Dutch wage distribution and employment**

During the past decade, Dutch wage inequality has only slightly increased. This is in contrast to developments in most other OECD countries, where wage inequality has increased more substantially. Changes in the composition of the labour force, like increased part-time working, a higher share of high-skilled workers and more participation of unskilled workers in the labour market seem to be relatively important causes of the changes in the Netherlands. The contribution of globalisation to trends in wages and wage inequality seems to be modest, even though it is possible - but not very likely - that some adversely affected groups left the labour market (and thus no longer show up in the wage distribution). It is to be noted, however, that the role of different explanations for wage inequality is still heavily debated, and more research will be done in the near future. Given the most recent insights, however, acceleration of trade with India is unlikely to have a significant negative effect on the wage distribution in the Netherlands, although it might temporarily affect unemployment in certain sectors.

#### **Long-term scenarios**

Two different scenarios have been constructed to explore possible future developments of the global economy, with a special focus on the impact of developments in India. If globalisation continues at the current pace (as in the Globalisation scenario), India's economic growth would be high and India would integrate further in the world economy, although it would remain smaller in size than the EU-15. Openness would increase substantially, resulting in a 20-fold increase of exports to the EU-15 in the years 2006–2040. Also growth rates in the EU-15 would be enhanced and the services sector would grow substantially in both India as well as the EU-15

in response to high per capita income growth. In the second scenario, the Regionalisation scenario, the globalisation process loses pace and the world economy settles into regional cooperation. Growth in world exports would be less, and the share of intra-EU trade would remain relatively high. Output growth in the EU-15 would decelerate, in contrast to growth in the Globalisation scenario. Also the rise of the services sector would be more modest. In both scenarios, there is a considerable increase in bilateral trade flows between the EU-15 and India. While changes are much more pronounced in case of further trade liberalisation, there are already significant changes when trade barriers are left roughly unchanged. Increased trade flows, however, will be only partially responsible for the continuing labour and production reallocation towards the services sectors.

#### **Implication for Dutch economic policy**

The significance of India and other emerging economies for the Dutch economy is set to rise in years to come. As a result, Dutch consumers will benefit from the supply of a wide range of cheap products and Dutch firms will find new market outlets for their products. As happened in the past, such positive developments will entail painful structural adjustments. The adjustment process does not call for specific, new policy measures, however. The existing social security framework, coupled with active labour market programmes that enable workers to quickly change jobs, will suffice. In addition, ongoing structural change in the world economy requires strengthening Dutch firms' ability to innovate.



# 1 Introduction

Globalisation has been one of the dominant trends in economic development in the past century. The welfare gains associated with increased specialisation are potentially large. At the same time, globalisation meets often fierce opposition. Perceived massive job losses and drastic sectoral restructuring are often put forward to justify this opposition. The recent rapid economic developments in China and India have resulted in a revived interest in the impacts of globalisation. For a small open economy such as the Netherlands, the potential effects are particularly large. In an earlier study, we looked at the impact of the emergence of China as a main player on global markets (Suyker and De Groot, 2006; CPB, 2006). In this study, we take a detailed look at India. Notwithstanding the many similarities between India and China, there are also many differences that potentially result in differentiated impacts of the awakening of these two economic giants.

In assessing the impact of India on the Dutch economy, a first important notion is that India and the Netherlands are incomparable in many respects. India's population is almost seventy times that of the Netherlands. The Indian capital New Delhi alone has almost as many inhabitants as the Netherlands as a whole. Moreover, India's GDP per capita is only a tenth of that of the

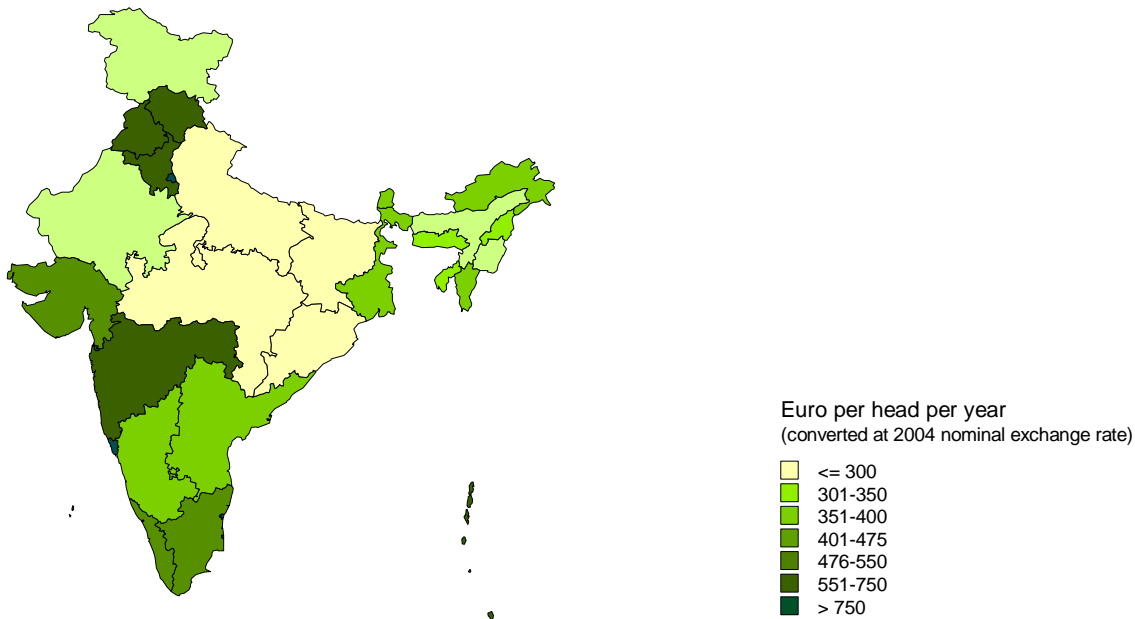
**Table 1.1 Key statistics India and the Netherlands, 2005**

	India	The Netherlands
Surface (million sq. km)	3.29	0.04
Population, total (million)	1095	16.3
Life expectancy at birth (years)	63.5	79.3
Mortality rate, under-5 (per 1,000)	74.0	5.0
Fertility rate, total (births per woman)	2.8	1.7
Agriculture, value added (% of GDP)	18.3	2.1
Industry, value added (% of GDP)	27.3	24.4
Services, value added (% of GDP)	54.4	73.6
Exports of goods and services (% of GDP)	20.5	71.2
Imports of goods and services (% of GDP)	24.2	63.0
GDP (current dollars, billion)	806	624
GDP per capita (in dollars at PPPs)	3	33
Urban sanitation facilities (% of urban population with access) <sup>a</sup>	59.0	100.0
Water availability (% of population with access) <sup>a</sup>	86.0	100.0
Internet users (per 1,000 people)	55	739
Fixed line and mobile phone subscribers (per 1,000 people)	128	1436
Energy use (kg of oil equivalent per capita) <sup>a</sup>	531	5045

<sup>a</sup> 2004.

Source: World Bank, World Development Indicators 2007.

Figure 1.1 India, GDP per capita by state, 2004



Source: Government of India - Ministry of Statistics and Programme Implementation

Netherlands. Also other development indicators such as life expectancy, sectoral composition and access to modern communication technologies illustrate the existing huge disparities in terms of the stage of development (see Table 1.1 for some key statistics). Despite the promising development in recent years, India is still among a large group of less advanced countries in the global economy. In assessing its performance, it has also to be kept in mind that the economic progress is very unevenly spread over the states in India (Figure 1.1).

There are many open questions regarding the potential impact of India on the Dutch economy. This document aims to answer some of these questions. It is structured similarly to the China study published last year (Suyker and De Groot, 2006). In order to provide some relevant background and to put India in proper perspective, it starts in Chapter 2 with a characterisation of India's economic development since the early 1980s. Some lessons are also drawn from a comparison between India's developments with the rapid developments of Japan, Korea and China witnessed at different points of time in the second half of the previous century. The Chapter concludes with a discussion and evaluation of the implications of the reform process and future prospects. Chapter 3 provides an overview of the most salient features of the impact of India's emergence on the European economies in general and the Dutch one in particular. Apart from a description of the emergence of India as a respectable player on some global export markets, it pays attention to the impact on Dutch foreign trade in goods and services, on Dutch foreign direct investment, and on Dutch labour markets, with a special focus on wage



inequality. As such, it discusses the most important aspects of globalisation in general, applied to the specific impact of India on the Dutch economy. Chapter 4 aims to describe the impact of future developments in India on the world economy using scenario analysis. Since both the developments and the associated impacts are inherently uncertain, alternative scenarios up to 2040 are used. Chapter 5 summarises impact, outlook and risks of India's rapid development. It concludes with a discussion of possible Dutch policy responses towards India's emergence in particular and globalisation in general.



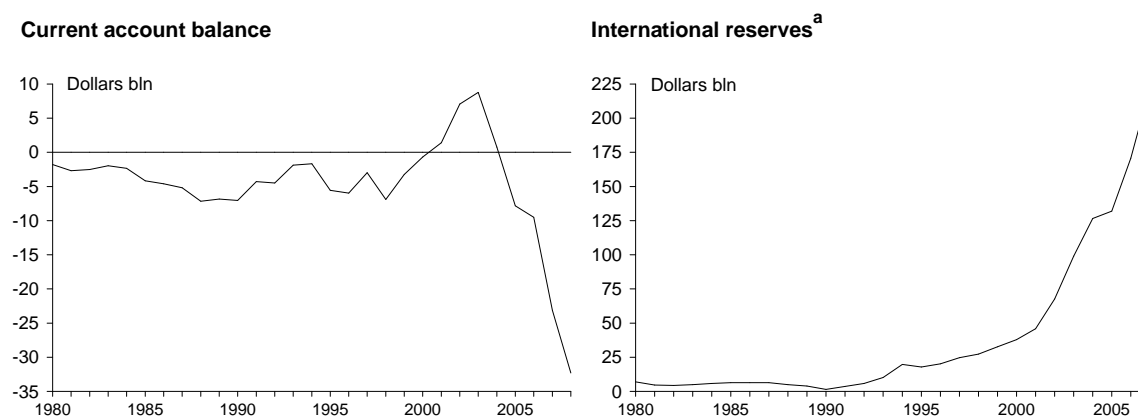
## 2 Structural change and policy reform in India

During the first decades after Independence, the Indian economy was characterised by slow growth, which was somewhat derisively referred to as the 'Hindu rate of growth'. This image belongs to the past. India, a country which spreads across a subcontinent, is home to 1.1 billion people, and has a recorded history going back thousands of years. It is quickly opening up to today's globalised world economy and is becoming a major economic power. While GDP per capita increased by only 1¼% per year on average during the three decades up to 1980,<sup>1</sup> it has increased by 6.4% on average in the years 2001-2005. In 2006, GDP growth reached 9.4%.<sup>2</sup> In 2007, output growth remains strong and is accompanied by substantially increasing foreign reserves, an appreciating currency vis-à-vis the US dollar and a strong stock market (Figure 2.1 and Figure 2.2).

Although average per capita income in India is still low (about 10% of that in the Netherlands in 2006),<sup>3</sup> size and rapid income growth combine to push the country ahead of others in terms of total income. The country is set to become the third largest economy in the world in 2007, after the United States and China and just ahead of Japan.<sup>4</sup>

The remarkable acceleration of income growth, that started some 25 years ago, has been accompanied by the gradual opening up of the economy to international trade. While India's

**Figure 2.1 Current account balance and international reserves, 1980-2008**



<sup>a</sup> 2007 August.

Sources: IMF, International Financial Statistics and IMF, World Economic Outlook, Autumn 2007.

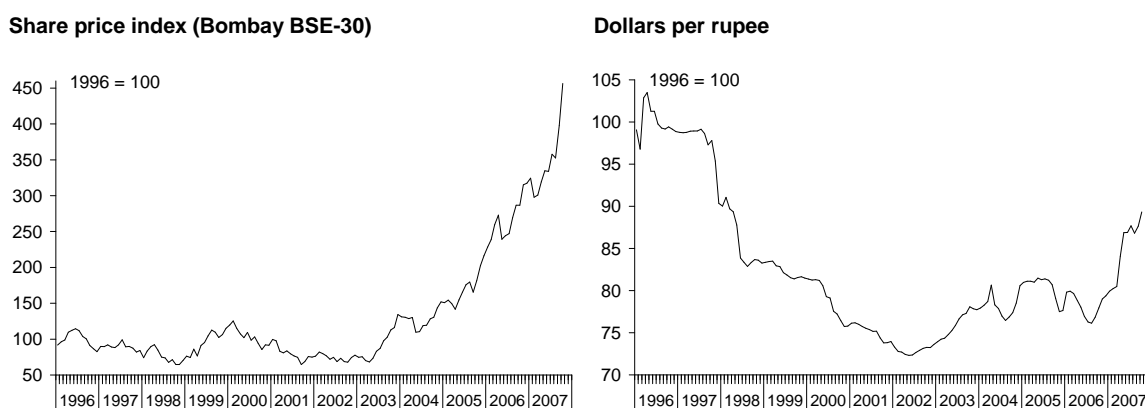
<sup>1</sup> Before Independence, economic growth was even less: 0.9% per year in the period 1900-1947 (Reddy, 2007).

<sup>2</sup> This concerns fiscal year 2006/2007. Fiscal years start in April. Other numbers on the Indian economy presented in this Document may also refer to fiscal year instead of calendar year.

<sup>3</sup> Measured by purchasing power parities. This takes into account international differences in price level.

<sup>4</sup> India's share in world GDP measured at purchasing power parities is 6.4% in 2007, compared with shares of 19.3%, 15.8% and 6.1% for the United States, China and Japan, respectively (IMF World Economic Outlook Database, Autumn 2007). The shares of the euro area and the Netherlands are 14.3% and 0.9%, respectively. India's current share in world GDP is clearly higher than the share of 3% in the 1970s but still a fraction of the share of 24.4% in 1700 (Maddison, 2007). Seen in this perspective of several centuries, India is not an emerging economy but one that is returning to its 'natural' position (HFD, 2007).

**Figure 2.2 India's share price index and exchange rate, 1996-2007**



share in world exports is still much lower than its share in world output, the world market share of Indian goods and services exports has increased from 0.5% in 1980 to 1.1% in 2005.

The much improved macroeconomic performance has led to a substantial reduction of poverty. In 2004, 22% of the Indian population lived in poverty, less than half the proportion reported for 1983. In the three decades up to 1980 the poverty rate had hardly moved. Since the turn of the century the number of people living below the poverty line has fallen in relative as well as absolute terms.

This chapter reviews the structural changes that have taken place and the policy reforms that have made these changes possible. It also looks ahead at the main policy challenges facing the Indian government in the coming years.

## **2.1 The overhaul of economic policy**

### **The license raj**

For many years following Independence in 1947 economic policy in India followed a *dirigiste* model. Characteristic for this model was a high degree of state intervention in economic life, aimed at enhanced self-reliance (as opposed to relying on foreign products, technology, and capital) and favouring small-scale production. Imports were subject to severe restrictions. The provision of goods and services by the government was far from limited to common fields of government activity such as transport and utilities, while domestic private investment was restrained by an extensive system of licenses and regulations (hence the term 'licence raj'<sup>5</sup>), the reservation of particular activities for small enterprises, the application of restrictive labour laws on large ones, and the provision of credit to favoured activities.

The results were far from satisfactory. Income growth was low and poverty remained widespread. This led to a policy emphasis on income redistribution and subsidising necessities for the poor. In the first half of the 1980s, however, the Indian government started considering the need to reduce the role of the state in favour of the private sector. Some of the restrictions

<sup>5</sup> Raj is 'rule' in Hindi. The British Indian Empire was also called British Raj.

on the expansion of domestic firms were lifted. The number of products which could be imported without a license – very few at the time – was increased and import bans were replaced by quotas and tariffs. The state monopoly on trade in imported products was abolished. But policy reform in the 1980s was unsystematic and politically difficult (see also Box on page 25). For example, the discontent caused by a reduction of food and energy subsidies prompted a big increase in subsidies on agricultural inputs. In spite of the steps that were taken towards liberalisation of the economy, barriers to trade remained formidable.

**Table 2.1 Key indicators of the Indian economy**

	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2006
	Annual percentage changes					
Volumes <sup>a</sup>						
Gross Domestic Product (GDP)	5.6	4.4	4.9	6.3	6.0	9.4
GDP per capita	3.4	2.2	2.9	4.4	4.4	7.7
Household consumption expenditure	5.1	4.4	3.6	6.0	4.7	6.3
Government consumption expenditure	7.2	7.0	2.7	10.2	3.2	11.3
Gross fixed capital formation	6.7	9.4	4.0	8.8	9.8	20.9
Exports of goods and services	4.3	5.2	12.4	9.5	16.9	22.9
Imports of goods and services	4.6	4.0	9.7	12.2	15.7	24.2
Government revenue	5.7	6.0	2.9	5.1	11.3	.
Government outlays	6.7	4.7	1.6	3.8	6.4	.
Savings	.	6.1	7.5	6.3	9.4	14.2
Foreign Direct Investment	.	.	.	16.5	18.9	8.2
Consumer price index	10.5	7.8	10.2	8.8	3.9	5.0
	Average percentage of GDP					
Household consumption expenditure	70.9	68.5	67.2	65.0	62.9	62.6
Government consumption expenditure	10.0	11.8	11.3	11.6	11.8	11.5
Gross fixed capital formation	19.6	21.2	22.2	22.7	24.1	24.4
Exports of goods and services	6.5	6.1	9.0	11.1	14.8	.
Imports of goods and services	9.0	7.9	9.5	12.5	16.1	.
General government revenue	12.6	14.1	13.0	12.3	13.2	.
General government outlays	17.8	19.3	16.3	14.6	14.4	.
Savings	.	21.2	22.9	23.6	26.3	.
Foreign Direct Investment	.	.	0.1	0.6	1.0	1.6

<sup>a</sup> Value deflated with GDP deflator.

Source: IMF, International Financial Statistics.

### **Towards a market economy**

Reform became more drastic and targeted in the early 1990s. This happened against a background of rising concerns about the mounting fiscal deficit and the related currency crisis of 1991. The monopoly of state enterprises in many areas was abolished, leaving intact only

those in (among few others) railway transport, petroleum refining, and defence-related activities. By the end of the 1990s, government approval of private sector investment was required only in a few specific industries, rather than in all industries with a few exceptions. Furthermore, access to foreign products was increased. Quantitative restrictions were abolished and import tariffs substantially lowered. In 2000 the ratio of import duties to import value was 20%, still a high figure by most contemporary standards, but low when compared to the 1990 figure of 50%.<sup>6</sup> While barriers to trade were lowered, many industries remained, however, reserved for small-scale enterprises, which now had to compete with large foreign firms. The number of industries where restrictions on firm size applied was reduced only after 2002. In 2001 the government decided to lower tariffs to the level prevailing in member countries of the Association of South-East Asian Nations (ASEAN). The highest standard tariff was to be lowered to 10% by 2007. In 2005, the latest year for which data are available, import duties amounted to 10% of import value, again a much lower percentage than previously, but still a multiple of what it is in most OECD member countries.

Before 1990, state-owned banks controlled 90% of bank deposits. The government set interest rates and decided on the allocation of credit. Since then, government control of financial services has been gradually diminished. In most market segments interest rates are no longer under government control. The share of bank deposits that must be lent to the government has been significantly reduced. Barriers to entry have been removed, opening the market for financial intermediation to both domestic and foreign private companies.<sup>7</sup> Furthermore, measures have been taken to improve the financial position of existing banks. These include the creation of a new regulatory body, the strengthening of capital requirements, and the use of substantial government funds to recapitalise banks.

Tax reform was another key element in the reform program of the early 1990s. Marginal income tax rates were significantly reduced. Excise taxes on manufactures were replaced by a value added tax, while services became gradually subject to taxation. Sales taxes at the state level were also transformed into a value added tax, eliminating the successive taxation of products along the distribution channel. The considerable decrease in revenue from tariffs and excises was partly counterbalanced by an increase in revenue from direct taxation – caused by broadening the tax base. Nonetheless, the increase in total revenue resulting from the introduction of tariffs in the 1980s was reversed.

Fiscal policy underwent a major revision in 2003, when the Fiscal Responsibility and Budget Management Act was passed. This law stipulates that by fiscal year 2008/2009 the central government fiscal deficit must not exceed 3% of GDP. By now, 25 out of the 28 state

<sup>6</sup> Both figures include product taxes levied on both domestic and foreign products.

<sup>7</sup> There is not yet a full opening up of the Indian financial sector for foreign companies. At present, the maximum foreign participation stake is 74% in banking and 24% in private insurance.

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## Overview of India's economic reforms

Year	Policy change.
1947	Independence.
1947	India becomes founding member of the General Agreement on Tariffs and Trade (GATT). (In 1995, India is a founding member of its successor, the World Trade Organisation.)
1969	Nationalisation of large commercial banks.
1976	Prior government permission for layoffs mandated from establishments in the manufacturing sector with more than 300 workers.
1980	Indira Gandhi returns as prime minister and gradually shifts policy in a business-friendly direction.
1982	Regulation on layoffs sharpened. Prior government permission becomes required for establishments in the manufacturing sector with more than 100 workers.
1984	New Computer Policy: lowering of import tariffs on software and hardware; delicensing of software exports; access to finance for IT firms; foreign firms allowed to fully own Indian software establishments.
1991	Currency crisis triggers domestic deregulation and reductions in import restrictions.
1994	Rupee becomes convertible for current account transactions.
1995	First permission given for private airlines to operate scheduled services.
1998	New private sector park development policy. The policy stimulates IT enterprises located in software parks by provision of basic infrastructure, tax holidays and duty-free imports.
1998	The National Highway Development Project (NHDP) launched to upgrade the interurban road network and the connectivity of ports.
2001	Government decides to lower import tariffs to level of ASEAN countries.
2002	Government lower the number of industries for which firm size rules apply.
2003	Fiscal Responsibility and Budget Management Act passes. The act requires a medium-term reduction in the central government budget deficit.
2005	National Rural Employment Guarantee Act approved. The act provides one hundred days of employment at the minimum wage to rural households. In 2006, the scheme starts in 200 districts.
2007	Further relaxation of capital outflow rules.

Sources: OECD (2007a) and own additions.

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governments have adopted similar legislation. These measures followed the rapid increase in fiscal deficits that occurred in the second half of the 1990s, from an already high 7% of GDP in fiscal year 1997/1998 to 10% in 2001/2002. Until the late 1990s, this led to only moderate increases in the debt to GDP ratio. But the growing deficit caused interest payments to increasingly crowd out non-interest expenditure, especially capital expenditure. As inflation started to decrease considerably after 2000, so did nominal GDP growth. The primary deficit now led to a sharp increase in the debt-to-GDP ratio, rising from below 70% in 1997/1998 to over 85% in the years 2002/2003 - 2004/2005. The overall deficit is now targeted to be 6% of GDP in 2008. In view of the ongoing high GDP growth in recent years, this is sufficiently low to cause the debt-to-GDP ratio to decline.

## 2.2 Economic performance and structural change

As a result of the unprecedentedly high growth rates from 1980 onwards, India is set to become the third largest economy in the world in 2007, even though average real income per capita in India is still very low. Since 1980 India is leaving behind most low-income countries at

increasing speed, both in terms of total real income and average real income. The gap between India and middle-income countries has become considerably smaller.

### 2.2.1 Income and productivity growth have surged

Decomposing income growth into its constituent components – a method known as growth accounting – yields insight into the causes of growth. In the upper part of Table 2.2, GDP growth is first decomposed into employment and labour productivity growth; the latter is subsequently split into capital deepening (the increase in the amount of physical capital per worker, so-called capital intensity) and total factor productivity (TFP) growth. The latter can be further decomposed into a component associated with growth of human capital and a residual which is left unexplained and covers, among many other factors, changes in the sectoral composition. Choosing a different angle, growth of GDP per capita can be decomposed into three components: demographic factors (population growth and changes in the age structure of the population, explaining the number of people of working age), participation (the ratio of employment to working age population), and productivity (production per worker). This latter approach is shown in the lower part of Table 2.2.

	1950–1979	1980–1989	1990–1999	2000–2005
	Average annual percentage changes			
GDP <sup>b</sup>	3.5	4.9	6.0	6.5
Employment	2.3	2.1	1.6	2.6
GDP per worker	1.3	2.8	4.4	3.8
Capital intensity	0.8	0.9	1.9	2.0
Total factor productivity (TFP)	0.5	1.8	2.4	1.8
Human capital	0.3	0.4	0.4	0.2
Residual	0.2	1.5	2.1	1.6
GDP per capita	1.3	2.7	3.9	4.8
Demographics	–0.1	0.6	0.1	0.8
Participation	0.1	–0.7	–0.6	0.2
GDP per worker	1.3	2.8	4.4	3.8

<sup>a</sup> The decomposition of labour productivity into capital deepening, human capital growth, and a residual requires postulating and estimating a production function. All other identities hold by definition.

<sup>b</sup> Corrected for variations in rainfall.

Source: OECD (2007a).

Since the 1980s, both GDP growth and growth of GDP per capita show an upward trend. Comparing the most recent figures with the three decades up to 1980, GDP growth has nearly doubled and growth of GDP per capita is now an even larger multiple of the 1950-1979 figure. As can be seen in the upper three lines of Table 2.2, before 1980 GDP growth was driven mainly by the increase in the number of workers, with labour productivity growing by a poor 1.3% per year on average. Productivity growth started to rise substantially after 1980. Since



then it is the most important component of GDP growth. The contribution from employment growth is still considerable, however, and will most probably remain so. This is because the

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### **What set off India's 'growth miracle' and when did it happen?**

It has been noted above that policy reform started in earnest in the early 1990s. However, GDP growth already started to rise in the 1980s. As can be seen in Table 2.1, GDP growth was even higher during the first half of that decade than during the second half. Various econometric studies, including cross-national analyses, confirm that a substantial improvement in economic performance, notably trend productivity growth, occurred in or around 1980 (OECD, 2007a). The OECD refers to the 1980s as a 'transition period'. We are nonetheless confronted with something of a conundrum. What caused the marked increase in trend GDP and productivity growth in 1980?

Rodrik and Subramanian (2005) make an interesting and convincing case that although the 1980s did not experience serious reform measures of the kind taken after the 1991 economic crisis, the national government went through an attitudinal shift shortly after 1980. This had important consequences for the business climate and subsequently the economy as a whole. This shift is described as a politically motivated move from downright hostility towards private business (which had its origins in the colonial past) to a pro-business stance. The government's aim at this time was not to open up the economy to the forces of domestic or foreign competition, but rather the policy environment became supportive of incumbent, organised private sector industrial and commercial companies, by lifting restrictions on capacity expansion and reducing corporate taxes for example, while leaving external barriers largely in place. Market-oriented reform, favouring consumers and stimulating competition by allowing free market entry, occurred after 1991. Viewed this way, the liberalisation process that started in the 1990s has sustained and deepened an already ongoing growth process, without adding all that much to aggregate economic performance.

Alternative, seemingly natural explanations of the sudden and persistent productivity surge that occurred in the early 1980s turn out to be inadequate. For example, external conditions in the 1980s were quite unfavourable (the terms of trade were most unfavourable since 1960). The fiscal expansion that occurred in the course of the 1980s explains at best a minor part of the surge in TFP growth, although public investment has conceivably played a role through spillover effects on the private sector. Substantial trade liberalisation started only after 1990, a fact that is reflected in trade intensity. The Green Revolution – labour productivity growth in agriculture went up from 0.1% a year in the 1970s to 2.6% a year in the 1980s – cannot explain aggregate outcomes for several reasons, one of them being that productivity growth in manufacturing and services accelerated faster than in agriculture at the time. Finally, 'internal liberalisation' (breaking down the license system and removing other controls on domestic investment and competition) only started in earnest in 1991. The relatively small steps that were taken in the second half of the 1980s were too small, too little and too late to explain something which clearly happened at the beginning of the decade.

If the policy change of the early 1980s was so limited in scope and aimed to benefit primarily existing industrial companies, then how can it have had such a sizable effect on aggregate economic performance? Again according to Rodrik and Subramanian, this was because at that time India was performing far below its potential. By cross-country standards, for a country at its income level India had very strong political and economic institutions. Conversely, its income should have been much higher than it was, considering its institutional strength. This was also true in 1980, when income, according to one estimate, was about one quarter of what it could have been. Under such circumstances a minor change in the policy environment can have large consequences.

For the reasons outlined above, the year 1980 can be considered as a turning point, even though it is clear that true market-oriented policy reform started only after 1990.<sup>a</sup>

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<sup>a</sup> The turning point is crucial in very simple analyses based on the assumption that the Indian economy lags behind other dynamic Asian economies a certain number of years and will follow a comparable growth pattern. See in this context, Figure 2.3.

present age distribution of the population – India has a very young population – causes the labour force to grow rapidly relative to total population size (see also Chapter 4).

Capital formation, as measured by the increase in capital intensity, shows a moderate but steady increase since 1950. Movements in labour productivity (GDP per worker) growth mainly reflect movements in TFP growth, the ten year average of which reached a high of 2.4% per year in the 1990s, when productivity growth averaged 4.4%. The contribution of the accumulation of human capital to income growth has been moderate: the ten year averages shown in Table 2.2 never exceed 0.4% per year. The OECD estimate of potential output growth has reached 8½% in 2006.<sup>8</sup> The recent, substantial increase in potential output growth is attributed to a high and accelerating rate of fixed capital formation.

The lower part of Table 2.2 shows that labour productivity growth accounts almost fully for the continuous increase in per capita income. The relatively small contributions from demographic factors and changes in participation more or less cancel each other out. Only since the turn of the century the latter two factors combine to raise per capita income by a full percentage point. As is true for total income, demographics will most likely continue to contribute positively to per capita income growth as well for quite some time (see also Chapter 4).

We return to growth accounting in Section 2.3, where India is compared to other Asian ‘growth miracles’.

### 2.2.2 Structural change: manufacturing stagnant, services rising

In India, the agricultural sector still generates about one fifth of GDP (see Table 2.3; since 2000 the figure for the Netherlands is about 2%), employing over half of the total labour force. The share of agriculture in GDP has nonetheless shown a sustained and rapid decline. During the 15

**Table 2.3 Sectoral composition of GDP in India, 1995-2005**

	1995	2000	2005
	Percentage of GDP		
1 Agriculture, forestry, fishing	30	25	20
2 Industry <sup>a</sup>	22	20	20
3 Construction	5	6	7
4 Trade, hotels and restaurants, transport, communication	20	22	26
5 Financial intermediation, insurance, real estate, business services	11	13	14
6 Community services, social and personal services <sup>b</sup>	12	15	14
7 Total	100	100	100

<sup>a</sup> Mining, manufacturing, and utilities.

<sup>b</sup> Includes all public services.

Source: Indian Ministry of Statistics and Programme Implementation

<sup>8</sup> This is somewhat above the IMF estimates in the range from 7.4% to 8.1% per year in 2006 and about 8% over the medium term (Oura, 2007).

years between 1980 (not shown in Table 2.3) and 1995 it decreased by 9%-points. During the 10 years between 1995 and 2005 it lost another 10%-points. In the latter period the output share of industry declined by 2%-points. This decline mainly reflects the decrease of the share of manufacturing (down to 15% in 2005). All other activities have increased their shares, most notably the provision of services by the private sector, which increased from 31% to 40% (the sum of lines 4 and 5 in Table 2.3). Output growth of the services sector is concentrated in communications, insurance, and IT-related services, activities which have been substantially liberalised. Growth in sectors that remain dominated by state-owned companies, such as utilities, railway transport, and post, has been below average.

**Table 2.4** Sectoral productivity<sup>a</sup> and employment shares, 1970–1999

	1970–1979	1980–1989	1990–1999
	Average annual percentage changes		
Labour productivity			
Agriculture	0.1	2.6	1.3
Manufacturing	2.0	6.3	6.0
Services <sup>b</sup>	2.6	5.8	6.6
Total	0.7	3.9	3.3
	1975	1985	1995
	Percentage of total		
Employment			
Agriculture	71	64	61
Industry	12	15	16
Services	17	20	23
Total	100	100	100

<sup>a</sup> Estimates of total labour productivity growth do not coincide exactly with OECD figures presented in Table 2.2.

Source: Rodrik and Subramanian (2005).

In 1975, before the start of the reform process, the output share of manufacturing in India was just over 15%. This was high compared to other countries at similar stages of development. This may be due to the one-time policy objective of autarky. The country's size could arguably also play a role. The development of India since the 1970s has been atypical in that the share of manufacturing has been nearly stagnant; in other countries it is generally seen to rise as per capita income rises, up to a certain income level (OECD, 2007a). The output share of services on the other hand has increased more rapidly than it has in other countries at similar stages of development. In 2005, the output share of manufacturing in India was just over half of that of countries such as China, Indonesia, Korea, Malaysia, and Thailand. Since 1980, when labour productivity in both the manufacturing and the services sector surged, employment growth in manufacturing has been less than that in the services sector, preventing its output share from

rising (see Table 2.4). From the mid-1980s to the mid-1990s the employment share of industry rose by 4%-points, while the services sector increased its share by 15%-points.

The unusual growth pattern seen in India has been to a large extent policy-driven. It bears the marks both of pre-reform patterns of production and structural changes induced by reform measures. A most remarkable characteristic of the industrial sector in India is the distribution of establishment size: in most industrial activities the average scale of establishments is extraordinarily small, while others are dominated by a small number of very large firms.<sup>9</sup> This pattern persists today, even though the deliberate measures that gave rise to it – reserving many activities for small scale producers while granting state monopolies in others – have been largely dismantled. The fact that employment growth in manufacturing has been relatively low is consistent with the view that while the policy environment after 1980 became more supportive of existing private sector companies, entry of new firms into existing activities continued to be blocked. New activities on the other hand could develop relatively freely. According to the OECD, ‘Change has been politically difficult, making it harder for the manufacturing sector than for the services sector to expand.’

### **2.2.3 Opening up**

In the course of two decades the Indian economy has become distinctly more open. The ratio of total value of imports and exports to GDP has increased from 13% in 1985 to 45% in 2005. The export-to-GDP ratio was still only 7% in 1985. In 2005 it stood at 20%. The development of the export-to-GDP ratio in India during that period closely resembles that in China during the period 1975-1995. China at present has a export-to-GDP ratio of 35%. India’s market share of world goods and services exports (1% in 2005) however still lags its share in world output (6% in 2006, valued at purchasing power parity). Export growth initially came from booming sales of software and IT-related services, but the provision of other business services has become increasingly important. As a result, between 1995 and 2005 India’s share in world exports of services has quadrupled to over 2% (see also Section 3.2). In recent years India’s market share in goods trade has been rising as well.

Details of India’s goods trade are shown in Table 2.5. In 2004, over half of both goods imports and goods exports are intermediates, which even account for over 60% of imports from and exports to other Asian countries. About one fifth of imports consist of raw materials and another fifth of capital goods. Most intermediates exports are destined for Asian countries, while consumption goods, which account for a third of goods exports, are sold both to the rest of Asia and the West (see also Section 3.1.2). There are indications that India is becoming increasingly

<sup>9</sup> Almost 90% of manufacturing employment is in firms of less than 10 employees. This compares to less than 50% in Korea, about 5% in China, and 11% in the Netherlands. Sources: figures on China, India, and Korea. Sources: OECD 2007a; CBS, Landelijk Informatiesysteem Arbeidsplaatsen. All figures refer to 2002 or the closest alternative year for which information is available.

integrated into regional supply chains. Both Asia's share in Indian imports and Asia's share in Indian exports are rising.

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### **India's Special Economic Zones**

In a number of steps the Indian government has introduced legislation enabling the creation of so-called Special Economic Zones (SEZs). Companies located in SEZs enjoy considerable tax concessions as well as exemptions from regulation, most notably in the field of labour protection. Setting up these special areas is aimed at improving infrastructure, creating additional economic activity and employment, and promoting export growth (OECD, 2007a; IMF, 2007b). The policy has been inspired by the well-documented success of Indian software parks, which private sector companies have been allowed to develop since 1998. This was done to help firms operating in the IT sector deal with the problem of inadequate infrastructure (power supply, telecommunication). Since 1998, exports of IT related services have surged from 1.3% of GDP to 3.7% of GDP in 2005, nearly all of which comes from software parks. The SEZs on the other hand are more oriented towards manufacturing.

Until recently, few SEZs had been developed. In 2004 there were only eight, which accounted for just 5% of goods exports. SEZs failed to deliver sufficient infrastructural improvement (roads, power supply) and did not significantly ease the administrative burden that companies face when doing business in India. Unsatisfied with the results, a few years ago the government set out to revise the rules governing SEZs, which led to the passage of the SEZ Act 2005. The new policy relies exclusively on the private sector for infrastructural development. New institutional and legal arrangements are meant to level bureaucratic barriers to doing business. Development permits are cleared through one single window, companies are exempted from many regulations and even from selected central laws, and the application of all municipal and many state laws is left to the SEZ Authority. Tax concessions now include, among other things, full exemption from corporate tax for five years (ten years for zone developers) and exemption from import duties (sales to the domestic market are treated as imports, however). By January 2007, 91 SEZ projects had full legal approval. Two major projects in Maharashtra and Haryana that have been approved under previous legislation will be similar in size (over 100 square kilometres) to two of the three largest SEZs in China, Zhuhai and Xiamen. In the course of 2007, a temporary freeze on SEZ permissions was announced and later withdrawn on the condition that state governments would refrain from compulsory land acquisition. This followed public discontent with a proposed car plant in West Bengal.

The social net benefit of the creation of SEZs depends on its opportunity costs. If investment in SEZs mobilises unused or underutilised resources such as surplus labour and foreign capital, SEZs may produce significant welfare gains, as has happened in Asian economies at early stages of development. If these conditions are not met, however, and resources (including tax revenue) are drawn from the domestic economy, the net effect on welfare may well be negative. The evidence on the importance of tax incentives in attracting FDI is mixed. More importantly, if excessive regulation and poor infrastructure are seen to hamper economic activity, efforts to tackle such impediments nation-wide should be far more effective than excepting confined areas from the general rule. Finally, SEZs may be beneficial to the economy as a whole if their success accelerates the process of country-wide deregulation.

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**Table 2.5 India's goods trade by stage of production and region, 2004**

	Imports to India from				Exports from India to			
	Total	Asia	EU and US	Neth.	Total	Asia	EU and US	Neth.
	%							
Primary goods	21	12	31	9	3	3	3	4
Intermediate goods	54	62	43	65	58	66	51	45
Capital goods	19	20	20	23	4	4	3	4
Consumption goods	6	5	7	4	34	26	43	47
Total	100	100	100	100	100	100	100	100
Proportion of imports / exports	100	32	23	1	100	48	37	2

EU: European Union; US: United States; Neth.: The Netherlands.

Source: OECD ITCS database (download October 2007).

### 2.2.4 Poverty declines while regional disparities are increasing

The sustained acceleration of income growth that started in the early 1980s has led to a marked reduction in measured poverty. The national measure of poverty that is most often used in India is based on the current money value of the calorie intake deemed minimally necessary. The internationally used criterion puts the minimally required consumption considerably higher (OECD, 2007a). India's poverty rate (the share of poor in the total population) has fallen from 45% in 1983 to 22% in 2004, whereas it hardly moved in the three decades before 1980. Since the beginning of this century, the absolute number of people living in poverty has declined substantially as well. General health indicators such as infant and maternal mortality, the overall death rate as well as more specific measures of well-being also point to a more rapid fall in the poverty rate in recent years (see also Table 1.1).

While overall income growth has been crucial in bringing down poverty rates, increasing income inequality has partly offset the potential gains. Over the past twenty years differences in performance between states and sectors have widened (Figure 1.1), with more tightly regulated states and sectors dropping behind and states that encourage private investment and limit the size of government running ahead (OECD, 2007a; IMF, 2006c; Kochhar et al., 2006). Moreover, states that were initially better-off have generally done better than states that were relatively poor to begin with. Broadly speaking, the former group is located in the south and north-west of the country: during the period 1993–2005 real per capita income growth in Kerala, Karnataka, Goa, Andhra Pradesh, Gujarat, Himachal Pradesh, and Tripura was more than 5% per year. The worst-performing group is mainly located in the north-east: in Madhya Pradesh, Uttar Pradesh, Bihar, Assam, and Arunachal Pradesh, real per capita income growth did not exceed 2% per year during the same period.

Compared to countries at a similar per capita income level, the level of urbanisation in India is low. Less than 30% of the population lives in cities. This prevents potential agglomeration economies from materialising, as productivity in urban areas is much higher than in rural areas. One explanatory factor for this is the weakness of local government. Cities have little revenue

of their own and depend on financial transfers from state governments. In many cities, controls on land development hinder efficient land use. Property registers are often in a poor state. Activities such as water supply and sanitation are often the responsibility of state-run boards. In 2005 the central government launched a program which is meant to encourage state governments to strengthen urban local government. This Jawaharlal Nehru National Urban Renewal Mission particularly aims at enhancing the efficiency of land markets.

### **2.3 India's rise compared to other emerging economies in Asia**

It is interesting to see whether the growth pattern of the Indian economy resembles that of Asian 'tiger' economies which emerged as major economic powers at different points in time. In this section a brief comparison is made of economic developments in India on the one hand and those in China, Korea, and Japan on the other. Key figures are shown in Table 2.6.

Real GDP growth in India has never been quite as high as in China, Korea, and Japan during their respective take-off periods (which were often over 10% per year), but with potential output growth estimated to have been 8½% in 2006 and actual growth 9.4%, it is getting close. In all four economies, growth has to a large extent been export-led. The development of the export-to-GDP ratio in India during the twenty years since 1985 closely resembles its development in China during the twenty years following 1975, even though Indian export growth never reached the break-neck speed seen in China (see also Suyker and De Groot, 2006; Buitelaar, 2007). Nonetheless there are important macroeconomic differences between the sudden and sustained growth acceleration that occurred in India after 1980 and the 'growth miracles' that took place in the other three countries. Two characteristics of India's macroeconomic performance set the country apart from the others: its strong TFP growth and the rapid advancement of the services sector. The expansion of the services sector in the 1980s and 1990s and the comparatively poor performance of the manufacturing sector have been briefly discussed in Section 2.2.2. International trade in services is the subject of Section 3.2. Here, we return to the nature of productivity growth.

According to IMF estimates, TFP growth in India during the 1980s and 1990s was 2% a year on average. China tops the list however with average TFP growth 4¾% in the 1980s and 1990s, pushing the East-Asian average in those years up to 3¼% (see Table 2.7). During that period, TFP growth accounts for nearly or fully 60% of labour productivity growth in India and China, respectively. Notwithstanding this contribution to productivity growth in China being similar to that in India in the relevant period, labour productivity growth in China, 7¾% a year, is more than twice that in India.

**Table 2.6 Key data on India, China, Japan, and Korea during 'take-off'**

	India 1980–2004	India 1990–2004	China 1979–2004	Japan 1956–1970	Korea 1961–1981
Average annual percentage changes					
<b>Volumes</b>					
Gross Domestic Product (GDP)	6	6	10	9	8
GDP per capita	4	4	8	8	6
Household consumption expenditure	5	5	9	7	7
Government consumption expenditure	6	5	10	7	7
Gross fixed capital formation	7	7	11	13	13
Exports of goods and services	10	13	18	9	22
Imports of goods and services	9	13	17	8	15
Average annual percentage changes					
Consumer price index	8	8	7	4	15
Average percentage of GDP					
Household consumption expenditure	67	65	48	59	74
Government consumption expenditure	11	12	14	8	11
Gross fixed capital formation	22	23	31	29	23
Exports of goods and services	10	12	15	10	18
Imports of goods and services	11	13	14	10	26
Million					
Population	885	969	1162	97	32

Source: IMF, International Financial Statistics.

**Table 2.7 Contributions to growth in India and East-Asia, 1960–1999**

	Labour productivity	Fixed capital	Human capital	Total factor productivity	Fixed capital	Total factor productivity
	Average annual percentage changes				% Total labour productivity	
<b>East-Asia including China</b>						
1960–1980	3.0	1.5	1.9	1.0	49	32
1980–1999	6.0	2.4	2.9	3.3	41	54
<b>China</b>						
1960–1980	1.8	0.8	0.4	0.6	42	35
1980–1999	7.9	2.6	0.4	4.7	34	60
<b>India</b>						
1960–1980	1.3	0.7	0.4	0.1	56	9
1980–1999	3.6	1.2	0.3	2.1	33	57

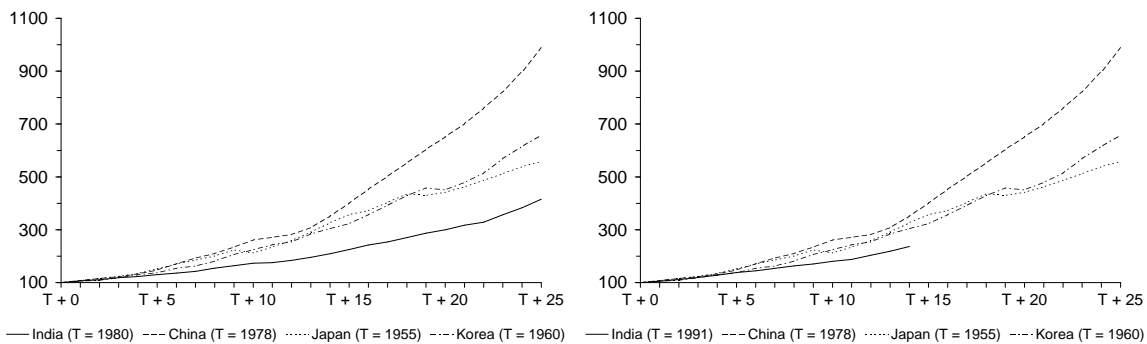
Source: Rodrik and Subramanian (2005).



In Section 2.2.2, it was already noted that the contribution of capital formation to productivity growth in India has been moderate. In China, capital formation financed out of private savings and foreign investment has proceeded much faster. The apparent fact that India has relied relatively little on ‘deferred gratification’ (invest now, consume later) is reflected in the composition of GDP.<sup>10</sup> From 1980 to the beginning of this century, private consumption expenditure constituted 67% of Indian GDP on average. This is much higher than in China and Japan during their respective take-off periods. Of the countries considered here, only Korea consumed more of its income during the relevant period (the 1960s and 1970s). Differences in the share of government consumption expenditure in GDP between the four countries are relatively small. Although private consumption expenditure as a share of GDP is high in India compared to other nations in Asia, the share has been decreasing fast, from 71% in the early 1980s to 63% in the beginning of this century (see Table 2.1), a much faster decline than in China, where it fell from over 50% to 45% at more or less the same points in time.

The policy environment in India during the 1980s – with the government moving to a pro-business stance rather than promoting competition – seems to be similar to that in Korea in the 1960s and 1970s (Purfield and Schiff, 2006). On the other hand, in Korea and also in Japan a small number of very large domestic firms were at the forefront of economic change. In China, finally, foreign firms have played an important role, whereas in India, where manufacturing features extraordinary small scale, productivity gains seem to have been more widespread.

**Figure 2.3 GDP volume of India, China, Japan and Korea (base year T = 100)**



Source: IMF, International Financial Statistics (September 2007).

<sup>10</sup> In Rodrik and Subramanian (2005) however, it is suggested that one of the factors enabling the sudden acceleration of income growth in 1980 was capital formation in the formal sector which had taken place under the earlier policy regime of import substitution.

## 2.4 Economic prospects and policy challenges

Raising GDP growth even further would require that the Indian government undertakes major further reforms in several policy areas.<sup>11</sup> These include reforms of labour-market policy, fiscal policy, education, and infrastructural development. The challenge is to continue the processes of liberalisation (internal and external) and privatisation and to reduce the government's interference with economic life, while spreading economic growth more widely among regions. Concerns about environmental degradation in India are rising and environmental sustainability may become a major policy challenge (see Box on page 35). Regional differences are another major policy challenge, especially because the slowest-growing regions are also the ones with the highest population growth, while internal migration is limited by linguistic differences and lack of social protection.

Labour-market deregulation<sup>12</sup> is essential to foster employment growth and to facilitate the movement of labour from agriculture, which still employs over half of the labour force, to more productive activities. Restrictive labour laws especially apply in manufacturing, while employment growth is concentrated in the services sectors of the economy. Although economic growth in India has been led by services rather than manufacturing, a higher growth rate in manufacturing is needed to create low-skilled jobs that directly help reduce poverty.

Investing in human capital is crucial in sustaining the high speed of economic growth that has been achieved in recent years. Computer services companies, whose executives plan to hire over one million engineering graduates in the next two years, already have increasing difficulty in finding suitable candidates. They find that many university graduates are not employable because they lack basic skills. Out of necessity, firms invest substantial amounts in training. Considerable progress has been made in education over the last half a century. For instance, the literacy rate has risen from 18% in 1951 to 61%. But this is still far removed from near universal literacy, the standard in OECD countries.

<sup>11</sup> See OECD (2007a) and Chapter 4.

<sup>12</sup> Using the OECD indicator for employment protection legislation, employment protection in India is more restrictive than in all but two OECD countries and also more restrictive than in China (OECD, 2007a).

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## **A miracle marred by environmental degradation?**

In the Financial Times of August 15, 2007, Rajendra Pachauri, chairman of the Nobel-prize winning International Panel on Climate Change and director of the Delhi-based The Energy and Resources Institute (TERI), was quoted as saying: 'The rich in our country [India] are doing what the rich in developed countries are doing.' Mr Pachauri was referring to the environmental impact of the emergence of a sizeable middle-class in India and increased levels of consumption. In fact, India is facing a dual environmental problem. Many of the compounding environmental problems that the country has to deal with, such as rising carbon dioxide emissions, industrial waste, chemical pollution, urban sprawl, and loss of habitats, are growth-related. At the same time, India is still home to a large number of poor people who are exposed to poverty-related hazards such as indoor air pollution (due to use of biomass fuels) and poor sanitation.<sup>a</sup> According to a policy statement of the Ministry of Environment and Forests (2006), 'Environmental degradation is a major causal factor in enhancing and perpetuating poverty, particularly among the rural poor, as such degradation impacts soil fertility, quantity and quality of water, air, forests, wildlife, and fisheries.' TERI associates the decline in agricultural productivity growth since the 1980s with ecological damage (TERI, 2006). Earlier this year, the World Bank (2007a) pointed at India's high population density, its vulnerable ecology, extreme climate and heavy economic dependence on natural resources. The World Bank stated that environmental sustainability may become 'the next great challenge along India's development path.'

Rising energy demand is just one way in which economic growth influences the physical environment. In order to meet rising household and industrial demand for electrical power, the Indian government plans to nearly double power generating capacity by 2012. At present, peak load shortages reach 12%. The creation of India's well-known software parks was partly motivated by the inadequacy of public power supply. Around 60% of power supply is coal-based. Coal-based thermal power is associated with a host of environmental externalities. In India it is the main source of carbon dioxide emissions. Other environmental risks relate to the disposal of particulate matter, fly ash and bottom ash, and water effluents. These risks are worsened by the high ash content of India's abundant domestic coal resources and its aging production facilities. On current trends, by 2015 1000 square kilometres of land, about the size of the Amsterdam agglomeration, will be required annually for ash disposal only.

In manufacturing, smallness of scale contributes to the continuation of bad practices (World Bank, 2007a). Large companies are expected to adhere to sound management practices and have better access to modern technology than small ones. Small companies continue to use obsolete methods of production with hardly any pollution control. They are estimated to be responsible for 70% of total industrial pollution.

In many respects, India's size matters a lot to aggregate outcomes. Only about half of Indian households have access to electricity; in 2003 per capita electricity consumption was 435 kWh only. In that year average consumption was 1,400 kWh in China, 6,500 in the Netherlands, while in the United States it was 13,000. Nonetheless, India consumes over six times as much electricity as the Netherlands (although six times less than the United States). Similar arithmetic applies to carbon dioxide emissions. In 2003, per capita emission was 1.2 metric ton in India, 3.2 metric ton in China, and 19.9 metric ton in the United States. Total emissions in that year were 1.3 billion metric ton in India, 4.1 billion metric ton in China, and 5.8 billion metric ton in the United States (World Bank, 2007b).

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<sup>a</sup> Over 350 million people living on less than one price-adjusted US dollar a day.



### 3 The impact of India's emergence on the Dutch and European economies

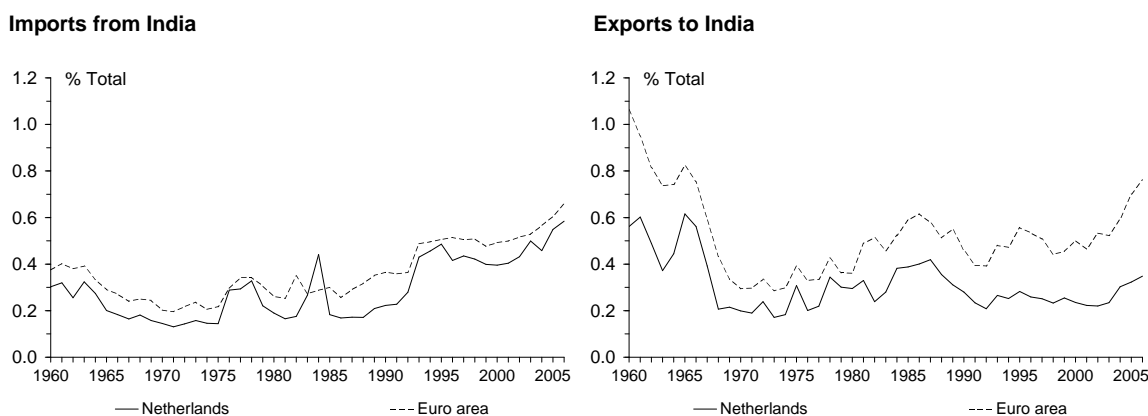
High growth rates, combined with a population of more than 1.1 billion people, is transforming India into an increasingly important player on global markets. This chapter considers several aspects of globalisation and the impact of the rapid developments in India for the Dutch economy.<sup>13,14</sup> More in particular, Section 3.1 focuses on the impact of India's emergence on goods trade and associated specialisation patterns, whereas Section 3.2 focuses on services. Section 3.3 investigates patterns in foreign direct investment. This is followed by an analysis of the possible consequences of developments in India on the Dutch labour market and wage distribution (Section 3.4).

#### 3.1 Impact on foreign trade in goods and specialisation patterns

##### 3.1.1 Stylised facts

Since the early 1990s, the Indian economy has become more outward oriented (see Chapter 2). This is reflected in the development of Dutch goods imports from India, rising from a share of 0.2% of total imports in 1990 to 0.6% in 2006 (Figure 3.1). Dutch imports from India were small during the 1970s and 1980s, and were even characterised by a downward trend in the 1960s when the Indian government aimed at autarky.<sup>15</sup>

Figure 3.1 Dutch foreign trade in goods with India, 1960–2006



Source: OECD, Monthly statistics of international trade (September 2007)

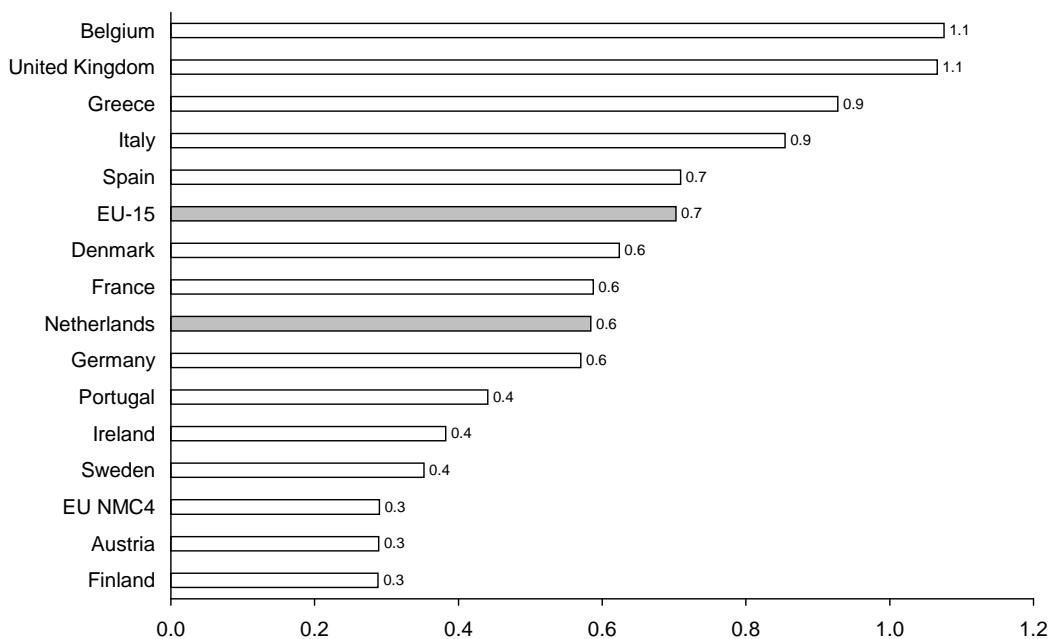
<sup>13</sup> Development assistance is not analysed in detail. Dutch official development assistance (ODA) to India has become less important. While 5.8% of Dutch ODA went directly to India in 1984-1985 (ranking India as the second recipient of Dutch ODA), this share has fallen to 1.5% in 2004-2005 (making India 9th in the recipient ranking). Source: OECD ODA statistics.

<sup>14</sup> Migration flows are also not analysed in detail. These flows have increased, but are still small. In 2006, the number of Indians migrating to the Netherlands was 2100, up from 700 persons in 1996. In 2006, 700 Indians migrated from the Netherlands, up from 200 persons in 1996 (source: CBS Statline).

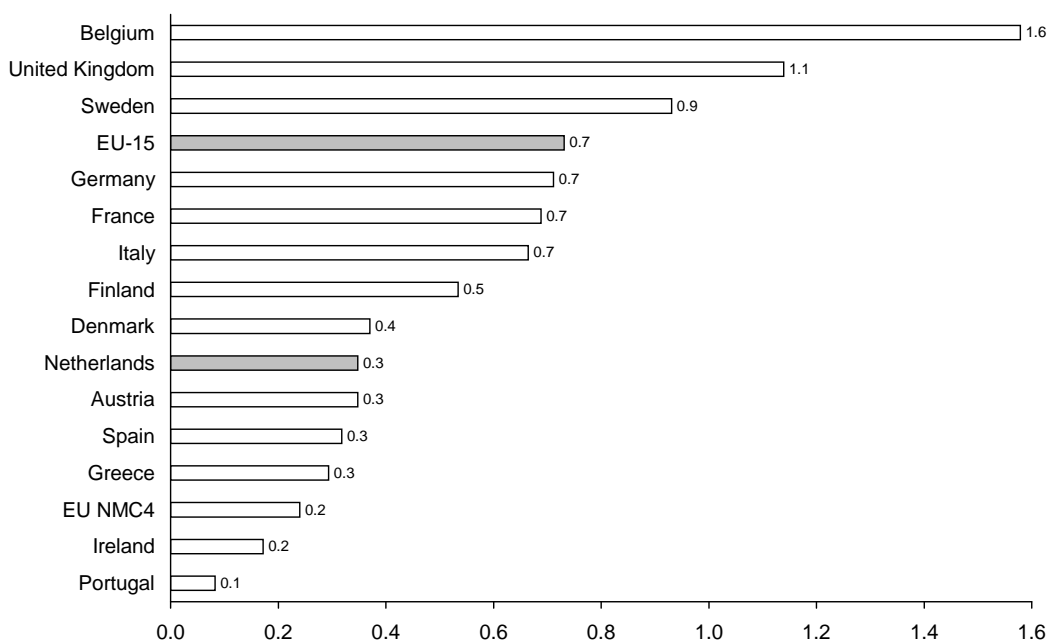
<sup>15</sup> Imports from India rose temporarily in 1976-1978 and in 1984. The first peak is caused by a rise in imports of diamonds, accounting for over 40% of total Dutch imports from India in 1978. In 1984, Dutch imports of Indian oil increased temporarily.

**Figure 3.2 Import and export share<sup>a</sup> of India, goods, 2006**

**Import share (import from India as a percentage of a countries' total goods imports)**



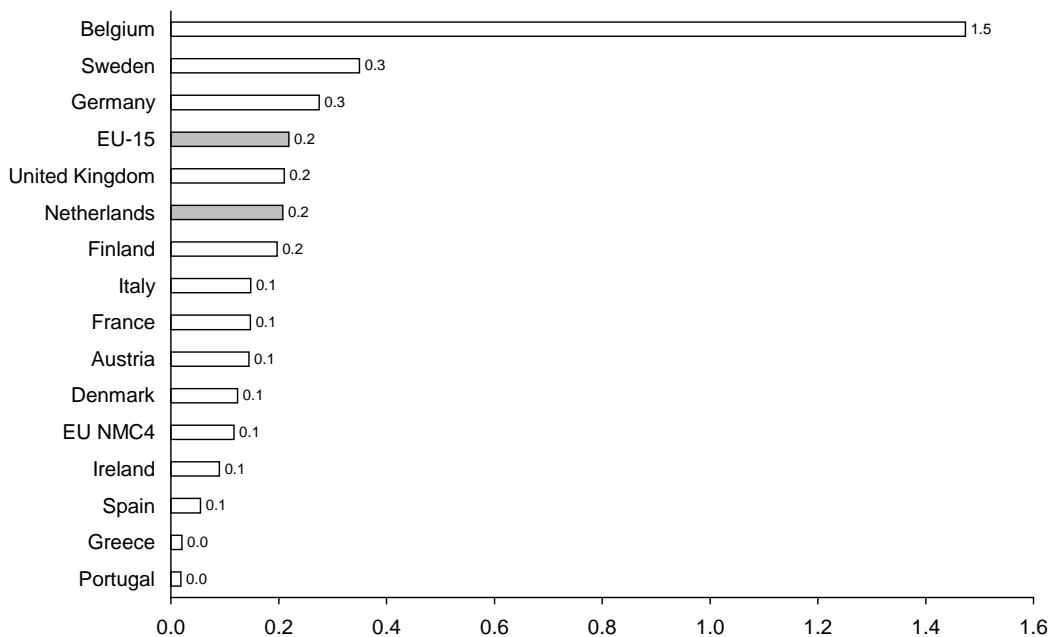
**Export share (export to India as a percentage of a countries' total goods exports)**



<sup>a</sup> EU NMC4: Czech Republic, Hungary, Poland and Slovak Republic.

Source: OECD, Monthly statistics of international trade (September 2007).

**Figure 3.3 Exports of EU-countries<sup>a</sup> to India, 2006**  
(Exports to India as percentage of countries' GDP)<sup>b</sup>



<sup>a</sup> EU NMC4: Czech Republic, Hungary, Poland and Slovak Republic.

<sup>b</sup> Based on the exports to India as a percentage of total exports of goods and the ratio of exports and GDP.

Source: OECD, Monthly statistics of international trade (September 2007) and OECD, Economic Outlook, no. 81, May 2007.

India is still a relatively small trade partner of the Netherlands and most other European nations (Figure 3.2). India ranks only 30th as supplier of goods to the Netherlands, although this is higher than the 51st place it took in 1980. The share of Dutch imports from India is substantially smaller than the share of imports from China. In 2006, China accounted for 8.1% of total Dutch imports, a share that is 14 times larger than that of India.

Almost half of Dutch exports are re-exports of imported goods (CBS, 2007). No specific information is available on Dutch re-exports of goods imported from India. But information on the average re-exports by type of product and the composition of imports from India indicate that re-exports of imports from India are likely to be substantial at around 50% of total imports

**Table 3.1 Import and export shares, 1990 and 2006**

Imports from	Netherlands		EU-15		Exports to	Netherlands		EU-15	
	1990	2006	1990	2006		1990	2006	1990	2006
India	0.2	0.6	0.4	0.7	India	0.3	0.3	0.5	0.7
China	0.6	8.1	0.9	5.9	China	0.1	1.1	0.5	1.8
Dynamic Asia <sup>a</sup>	5.6	7.3	6.5	6.0	Dynamic Asia <sup>a</sup>	2.3	2.4	4.1	3.5

<sup>a</sup> Japan and Korea and ASEAN.

Source: OECD, Monthly statistics of international trade (September 2007).

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### The impact of export composition on India's share in total exports

The importance of India as an export market for the Netherlands is below the EU-15 average. Belgium, but also the United Kingdom and Sweden, have above-average exports to India. A possible explanation for these differences is provided by the export composition. Some countries are strong exporters of products that India imports heavily. The effect of export composition has been calculated from the deviation of the export composition of EU-15 countries relative to the EU-15 average. The export structure explains about half of the relatively low share of India in total Dutch exports. About half of the relatively strong Belgian export performance can be attributed to its favourable export composition. The export structure of the United Kingdom, however, explains only a small part of the relatively strong exports to India.

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### The impact of the export composition on the share of India in total exports

2006	India's share in total exports, difference from EU-15 average	Of which: Export composition effect
Belgium	0.9	0.4
United Kingdom	0.4	0.1
Sweden	0.2	-0.1
Italy	0.0	0.1
France	0.0	0.1
Germany	0.0	-0.1
Finland	-0.2	-0.1
Denmark	-0.3	-0.1
Spain	-0.4	0.0
The Netherlands	-0.4	-0.2
Austria	-0.4	0.0
Greece	-0.4	0.0
Luxembourg	-0.5	-0.3
Ireland	-0.5	-0.2
Portugal	-0.6	0.1
Greece	-1.3	-0.1
Portugal	-1.4	0.0

Source: OECD, International Trade by Commodity Statistics database (September 2007).

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from India.<sup>16</sup>

In the EU, the share of imports coming from India is largest for Belgium. This is to a large extent caused by the fact that both India and Belgium are important hubs in the processing of diamonds (see also Box above). The second position of the United Kingdom as an importer of Indian products is likely to be determined mainly by historical colonial ties. India's share in Dutch exports was 0.3% in 2006 and has been fairly stable since 1990.<sup>17</sup> This contrasts with the EU-15, which experienced a small increase in the share of India in its total exports (Table 3.1). The limited importance of India in Dutch exports is partly due to an 'unfavourable' composition

<sup>16</sup> This is still less than for China. Two-third of Dutch imports from China are re-exported (CBS, 2005). The importance of re-exports for the Dutch economy are analysed in detail in Mellens et al. (2007).

<sup>17</sup> This share excludes indirect exports to India, on which no data are available. For instance, the Dutch company Stork Aerospace supplies European aircraft manufacturer Airbus the electrical wiring for the A380 aircraft. Some of those aircrafts may be sold to India, but the intermediate goods delivered by Stork show up in the Dutch export statistics as exports to France.



of Dutch exports. By measuring exports to India as a percentage of GDP (Figure 3.3), differences in openness are taken into account. On this indicator, the Indian market is as important for the Netherlands as for the EU-15. This indicator puts Belgium even further on top of the list of European exporters to India.

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### **Impact of globalisation on Dutch purchasing power**

An important effect of globalisation is that it reduces inflation and increases purchasing power due to the contribution of an increased share of relatively cheap goods that can be imported from less-developed countries such as India and other dynamic Asian countries. The price-level differential between import prices from those countries and domestic producer prices in advanced countries can be as big as 50%. At the same time, the rapid growth in India and the rest of Asia is likely to have contributed to the recent hike in world commodity prices and therefore to the rise in the Dutch import price of raw materials. It is beyond the scope of this study to investigate in detail the specific effect of increased imports from India on Dutch inflation and purchasing power. Instead, we will rely on recent OECD estimates that indicate the net effect of globalisation on inflation of lower import prices on the one hand and rising commodity prices on the other hand has been slightly favourable (see OECD, 2007b, and Pain et al., 2006).

More specifically, the OECD concludes that globalisation has reduced inflation in net terms by between 0.1 and 0.3 percentage point per year in the Netherlands and 0.0 and 0.2 percentage point per year for the OECD as a whole. The contribution of India to these effects is likely to be very limited given the simple fact that the share of India in goods imports from dynamic Asia was only 3% in 2006.

This estimate of reduced inflation is likely to be an underestimation as it does not take into account the dampening effect of the fall in producer prices in the mature economies due to enhanced global competition forces. Chen et al. (2004) report a more pronounced impact as an increase in manufacturing imports lead to a fall in the mark-up of domestic firms and higher productivity as the least competitive domestic firms exit the market. Over the period 1988–2000, EU-15 manufacturing prices fell by 2.3%, productivity rose by 11% and mark-ups fell by 1.6% in response to the observed increase in imports of manufactured goods.

The estimate of the dampening effect on Dutch inflation of trade with dynamic Asian countries should be treated cautiously. The more so as inflation in the medium term can be seen as set by central banks in case of credible and effective monetary policy. Only if they are not fully aware of the impact on import prices induced by globalisation, inflation may be temporarily below target (Euroframe, 2006). The IMF also concludes that the impact of globalisation on inflation will be temporary unless it changes the overarching objectives of monetary policy (see IMF, 2006a, Chapter III). It finds, however, a significant impact on relative prices. In the case of high-income countries, a 1%-point increase in the import ratio of a sector reduces the relative producer prices by about 0.1%. As a consequence, the increase in openness explains about 30% of the 1%-point inflation differential between manufacturing and the overall economy, while labour-productivity differences account for about 40%.

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### **3.1.2 Revealed comparative advantages and the spatial dimension of trade in goods: an analysis according to product groups**

In this section, we analyse the effect of India's economy on world markets in general and on the Dutch economy in particular at a detailed sectoral level. This is done by analysing the revealed comparative advantages (RCAs) of different product groups for India and the Netherlands at a two-digit SITC<sup>18</sup> level. Looking at revealed comparative advantages over time enables us to identify emerging and declining sectors. And comparing the revealed comparative advantages

<sup>18</sup> Standard International Trade Classification, Revision 2.

across countries allows for a comparison of relative strengths and weaknesses of the countries under consideration. Furthermore, this section also considers the spatial scope of export product groups in order to determine the extent to which Indian exports are likely to substantially impact relatively distant economies like the Dutch.

### Revealed comparative advantages

The concept of comparative advantage is one of the first and most influential concepts in economics that goes back to the seminal work of David Ricardo. A country has a comparative advantage in producing a good if the opportunity costs of producing that good in terms of other goods is lower in that country than in others. Comparative advantages can empirically be identified by focussing on realised export flows (Balassa, 1965). The most popular index for measuring them is the Balassa index, which measures the exports of a certain product (indexed  $j$ ) by a certain country (indexed  $i$ ) as a share of the total export of that country divided by the share of the export of that product in the total export of a reference group (indicated with index  $w$ ):

$$BI_{i,t}^j = \frac{X_{i,t}^j / X_{i,t}}{X_{w,t}^j / X_{w,t}} = \frac{X_{i,t}^j / X_{w,t}^j}{X_{i,t} / X_{w,t}}, i \in I, j \in J \quad (3.1)$$

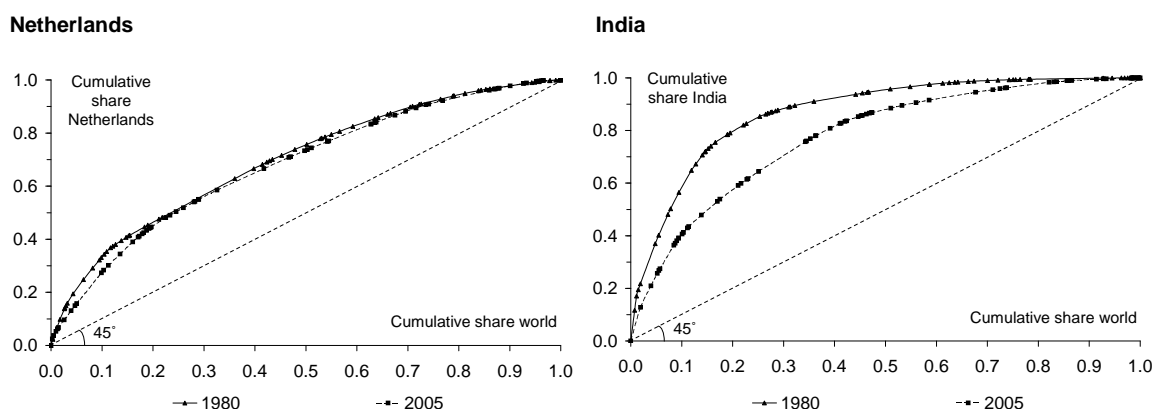
where  $X_{i,t}^j$  equals country  $i$ 's exports of product  $j$  at time  $t$ ,  $X_{w,t}^j$  equals the exports of the reference group of product  $j$  at time  $t$ ,  $I$  is the group of countries considered,  $J$  is the set of products considered,  $X_{i,t} \equiv \sum_j X_{i,t}^j$  and  $X_{w,t} \equiv \sum_j X_{w,t}^j$ .

In words, the Balassa index thus measures the ratio of the share of product  $j$  in total exports of country  $i$  relative to the share of product  $j$  in world exports. If the world is used as the reference group, it can be described as country  $i$ 's share in world trade of good  $j$  relative to country  $i$ 's share in aggregate world trade. An RCA value above unity indicates that a country exports large amounts of the product in question relative to what all other countries in the world export. Deviations of the value of the index from unity may reflect differences in relative costs as well as differences in non-price factors. This index does not include imports and therefore does not look at the possibility of intra-industry trade and re-exports, for which a country's ratio of imports to exports of a product is a measure. As such, it may reflect both a comparative advantage in production as well as in assembly or in trade of a certain good. The last interpretation is particularly relevant for a small open economy such as the Netherlands. Comparative advantages in production may be due to several factors such as cheap inputs, unique resource endowments, but also government support for specific industries in the form of subsidies or special tax treatments under the heading of, for example, infant industry policies.

## Specialisation

A first impression of specialisation patterns of India and the Netherlands and their evolution over time can be obtained from constructing a simple Lorenz curve in which cumulative product shares in exports are depicted on a national and a global<sup>19</sup> level. The analysis is based on a two-digit SITC level, allowing for a division of total trade into 69<sup>20</sup> relatively homogeneous product groups/sectors (for further details see Bakens and De Groot, 2007). The Lorenz curves for the Netherlands and India for 1980 and 2005 are depicted in Figure 3.4. The horizontal axis measures the cumulative world export shares and the vertical axis the cumulative export shares of, respectively, the Netherlands and India. The slope of the line segments of the Lorenz curve equals the RCA-index of the sector in question, starting with the sector with the highest RCA at the lower-left end in the graph and ending with the lowest RCA at the upper-right end in the graph. These sectors can be identified in Annex C in Figure C.1 for India and in Figure C.2 for the Netherlands. Sectors with a high (low) RCA in 2005 will appear high (low) in these figures. The ten sectors of India and the Netherlands with the highest RCA are also listed in Table 3.2 and Table 3.3, respectively. The 45° line starting in the origin of the graphs in Figure 3.4 corresponds to the sectoral composition of total world trade. The more a Lorenz curve deviates from this line, the more specialised the country is. The figure illustrates that India had a strongly specialised export package that strongly deviates from the world average in 1980 compared to the Netherlands. The export pattern of the Netherlands has remained fairly constant over time. India's export package has converged towards the world's export basket, but still remains relatively specialised.

**Figure 3.4** Sectoral specialisation in exports, Lorenz curve of cumulative export shares,<sup>a</sup> 1980 and 2005



<sup>a</sup> The more a Lorenz curve deviates from the 45° line, the more specialised the country is.

Source: Own calculations based on the OECD ITCS database (download October 2007).

<sup>19</sup> The data originate from the ITCS database which is maintained by the OECD. Export figures are based on the reports of the exporters. Because not all countries reported their exports, the reference group only covers the entire world to the extent that data is available. In this section we will refer to the reference group as the world. When comparing two periods the reference group only includes the countries for which data is available for both periods.

<sup>20</sup> Postal packages not classified according to kind (SITC 91) are excluded from the analysis due to lack of data.

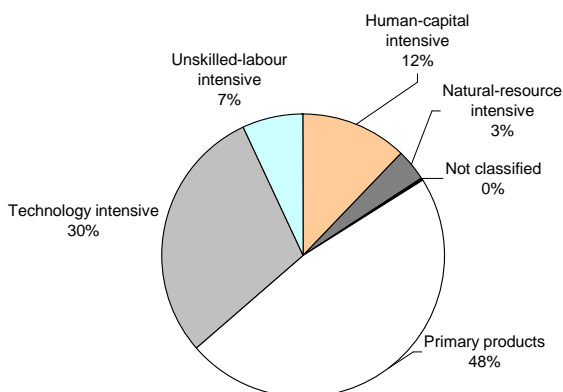
Considering its geographical size, this may be surprising at first sight. Large countries usually have relatively balanced resource endowments and a large home market that allows for economies of scale. This decreases the need for specialisation and makes it profitable to produce most industrial goods domestically (Balassa, 1965). A likely explanation for the result is that India is an emerging economy while world exports are dominated by technologically advanced countries.

In order to put some more structure to the type of products being exported, exports have been classified into several categories ranging from technology intensive to resource based. Figure 3.5 gives a comparison of the factor intensity of the Dutch and Indian exports for 1980 and 2005, based on products at the SITC three-digit level.<sup>21</sup> The figure shows that over 60% of Dutch exports are technology intensive or human-capital intensive in 2005. For India these two categories account for approximately 35% of the exports in 2005. The main categories for India in 2005 are primary products (27%) and unskilled-labour intensive products (20%). Primary products are also an important sector for the Netherlands with an export share of 31%. In the Netherlands, unskilled-labour intensive and natural-resource intensive products are negligible with shares in 2005 of 5% and 2%, respectively. Between 1980 and 2005, both countries show an increase in the shares of technology intensive products and human-capital intensive products and a decrease in the shares of primary products and unskilled-labour intensive products. This partly reflects the characteristic pattern of economic development in which export patterns typically evolve from initially primary-sector oriented towards becoming more high-tech and skilled-intensive oriented. Because these figures are based on export flows they do not only reflect production characteristics. They also reflect assembly or trade activities. The latter may be particularly relevant for the Netherlands because the Netherlands typically have high re-exports. CBS (2007) reports that almost half of Dutch exports are re-exports.

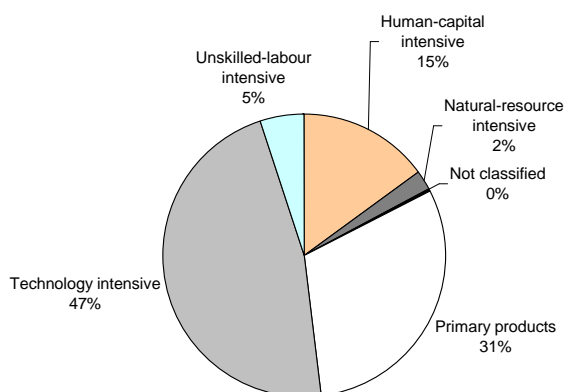
<sup>21</sup> Based on a classification of UNCTAD/ WTO by Hinloopen and Van Marrewijk. To be found at: <http://people.few.eur.nl/vanmarrewijk/eta/intensity.htm>. The analysis is based on an aggregation of products classified at the three-digit SITC level.

**Figure 3.5 Goods exports by factor intensity**

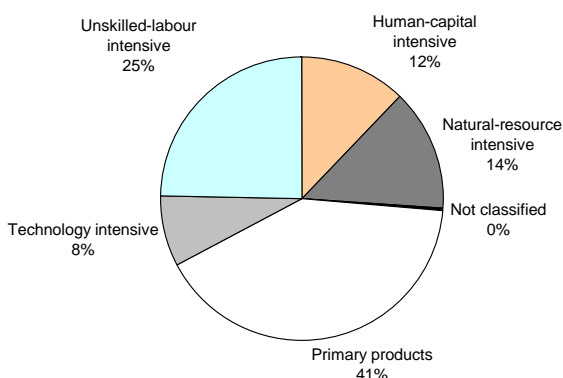
**Netherlands 1980**



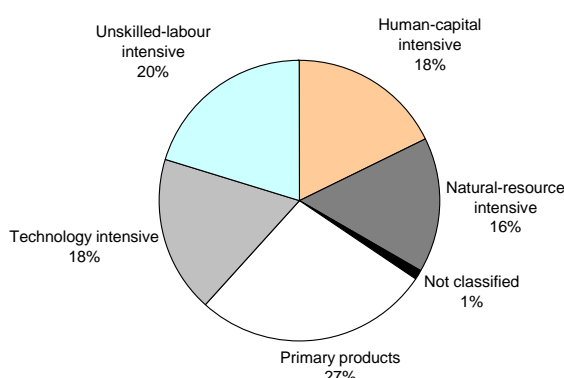
**Netherlands 2005**



**India 1980**



**India 2005**



Sources: Own calculations based on the OECD ITCS database (download October 2007); product classification based on Hinloopen and Van Marrewijk (2006).

### Identifying comparative advantages

In order to get a more detailed insight into the important sectors of India and the Netherlands, this section reviews the sectors with the largest export shares and the sectors with the highest RCA at the two-digit SITC level.

Table 3.2 shows that the largest export sectors in India are: non-metallic mineral manufactures (SITC 66); petroleum, petroleum products and related materials (SITC 33); articles of apparel and clothing accessories (SITC 84); and textile yarn, fabrics, made-up articles and related products (SITC 65). These four sectors account for over 40% of India's exports. Production in these sectors is unskilled-labour and natural-resource intensive. The high exports in the non-metallic minerals sector are caused by the exports of diamonds, which account for 11.3% of total Indian exports. India is an important country in the global market for diamonds: of all diamonds exported in 2005 about 14.8% came from India. This is

**Table 3.2 India's tradables with strong revealed comparative advantage and large national export shares**

<b>India, top 10 export products, 2005</b>		Factor intensity	RCA India	Percentage share of		Import-to-export ratio
SITC-2 (2-digit)	Product group			Total Indian export	World export of sector	
66	Non-metallic mineral manufactures, n.e.s.	Natural-resource / unskilled-labour	6.7	12.7	7.1	0.7
33	Petroleum, petroleum products and related materials	Primary products	1.2	11.3	1.3	3.8
84	Articles of apparel and clothing accessories	Unskilled-labour	3.3	8.9	3.5	0.0
65	Textile yarn, fabrics, made-up articles, n.e.s., related products	Unskilled-labour	4.0	8.2	4.2	0.2
89	Miscellaneous manufactured articles, n.e.s.	Human-capital / technology / unskilled-labour	1.4	5.2	1.5	0.5
67	Iron and steel	Human-capital / natural-resource	1.7	5.2	1.8	0.8
28	Metalliferous ores and metal scrap	Primary products	3.8	4.7	4.1	0.8
51	Organic chemicals	Technology	1.8	4.4	1.9	1.0
78	Road vehicles (including air-cushion vehicles)	Human-capital	0.3	3.0	0.3	0.3
54	Medicinal and pharmaceutical products	Technology	1.0	2.8	1.1	0.4
Total				66.5		
<b>India, top 10 RCA, 2005</b>						
66	Non-metallic mineral manufactures, n.e.s.	Natural-resource / unskilled-labour	6.7	12.7	7.1	0.7
65	Textile yarn, fabrics, made-up articles, related products	Unskilled-labour	4.0	8.2	4.2	0.2
28	Metalliferous ores and metal scrap	Primary products	3.8	4.7	4.1	0.8
08	Feeding stuff for animals, not including unmilled cereals	Primary products	3.5	1.1	3.7	0.1
27	Crude fertilizers and crude materials (excluding coal)	Primary products	3.4	0.7	3.7	1.1
84	Articles of apparel and clothing accessories	Unskilled-labour	3.3	8.9	3.5	0.0
26	Textile fibres (except wool tops) and their wastes	Primary products	3.2	0.8	3.4	0.9
61	Leather, leather manufactures, n.e.s. and dressed fur skins	Natural-resource	3.2	1.0	3.4	0.3
07	Coffee, tea, cocoa, spices, manufactures thereof	Primary products	2.4	1.0	2.6	0.2
96	Coin (other than gold), not being legal tender	Not classified	2.4	0.0	2.5	0.0
Total				39.1		

Sources: Own calculations based on ITCS database (OECD 2007); Factor intensity classification based on Hinloopen and Van Marrewijk (2006).

**Table 3.3 Dutch tradables with strong revealed comparative advantage and large national export shares****Dutch top 10 export products, 2005**

SITC-2 (2-digit)	Product group	Factor intensity	RCA Dutch	Percentage share of		
				Total Dutch export	World export of sector	Import-to- export ratio
75	Office machines and automatic data processing equipment	Technology	2.4	11.6	7.9	1.0
33	Petroleum, petroleum products and related materials	Primary products	0.9	8.1	2.9	1.5
77	Electrical machinery, apparatus and appliances n.e.s.	Technology	0.8	6.3	2.5	0.9
51	Organic chemicals	Technology	1.8	4.5	6.0	0.7
58	Artificial resins, plastic materials, cellulose esters and ethers	Technology	1.8	4.3	6.1	0.4
76	Telecommunications & sound recording apparatus	Human-capital / technology	0.9	4.2	2.8	1.1
78	Road vehicles (including air-cushion vehicles)	Human-capital	0.4	3.9	1.4	1.3
54	Medicinal and pharmaceutical products	Technology	1.3	3.5	4.2	1.0
89	Miscellaneous manufactured articles, n.e.s.	Human-capital / technology / unskilled-labour	1.0	3.5	3.2	0.9
34	Gas, natural and manufactured	Primary products	2.5	3.5	8.4	0.4
Total				53.4		

**Dutch top 10 RCA, 2005**

29	Crude animal and vegetable materials, n.e.s.	Primary products	9.0	2.4	29.7	0.2
12	Tobacco and tobacco manufactures	Primary products	5.1	1.2	16.7	0.3
94	Animals, live, zoo animals, dogs, cats etc.	Primary products	4.0	0.0	13.1	0.2
02	Dairy products and birds' eggs	Primary products	3.6	1.6	11.8	0.5
08	Feeding stuff for animals (not including unmilled cereals)	Primary products	2.9	0.9	9.7	0.6
00	Live animals chiefly for food	Primary products	2.9	0.3	9.5	0.5
43	Animal-vegetable oils-fats, processed, and waxes	Primary products	2.8	0.2	9.3	0.7
05	Vegetables and fruit	Primary products	2.6	2.9	8.6	0.6
34	Gas, natural and manufactured	Primary products	2.5	3.5	8.4	0.4
01	Meat and meat preparations	Primary products	2.5	1.9	8.2	0.4
Total				15.0		

Sources: Own calculations based on ITCS database (OECD 2007); Factor intensity classification based on Hinloopen and Van Marrewijk (2006).

quite high considering that the share of India's exports of all products in 2005 was 1.1%. The list of sectors with the ten highest RCA consists of primary products, unskilled-labour intensive products, and natural-resource intensive products. The high RCA in the unskilled-labour intensive sectors can partly be explained by the relatively low wages in these sectors.

The largest export sectors in the Netherlands are shown in Table 3.3. The results confirm that the degree of specialisation in the Netherlands is lower than in India. The ten largest export sectors in the Netherlands account for 53% of total Dutch exports while the largest 10 export sectors in India generate over 66% of all Indian exports. The largest export sectors in the Netherlands are: office machines & automatic data processing equipment (SITC 75); petroleum, petroleum products and related materials (SITC 33); electrical machinery, apparatus & appliances (SITC 77); and organic chemicals (SITC 51). Note that the import-to-export ratio is particularly high for the largest three sectors. This indicates that a large part of these exports may be re-exports. CBS (2006b) estimates that close to 90% of the exports of electrical machines and electronics are re-exports. It is interesting to see that the ten Dutch sectors with the highest RCA are all classified as primary products. Although the share of these sectors in the total Dutch exports is relatively small, their share in world exports is very high compared to the total share of Dutch exports in the world market (which equals 3.3%).

### **Comparative advantages over time**

The analysis above on revealed comparative advantages is based on 2005 trade flows. The development of Indian and Dutch revealed comparative advantages over time is analysed in Annex C. Comparative advantages are expected to change more quickly in emerging economies like India than in advanced economies like the Netherlands. Figure C.1 and Figure C.2 confirm this hypothesis. These figures plot the RCA<sup>22</sup> in 2005 against that in 1980 for each sector for India and the Netherlands. The RCA of sectors that lie on the 45° line remained the same while sectors that lie above (below) the 45° line experienced an increase (decrease) in the RCA between 1980 and 2005. For India the sectors are clearly more scattered around the 45° line than for the Netherlands. The result that the comparative advantages in the Netherlands are more persistent than they are in India is consistent with other research that concludes that comparative advantages are more persistent in more advanced economies (for example Balassa, 1965; Brasili et al., 2000).

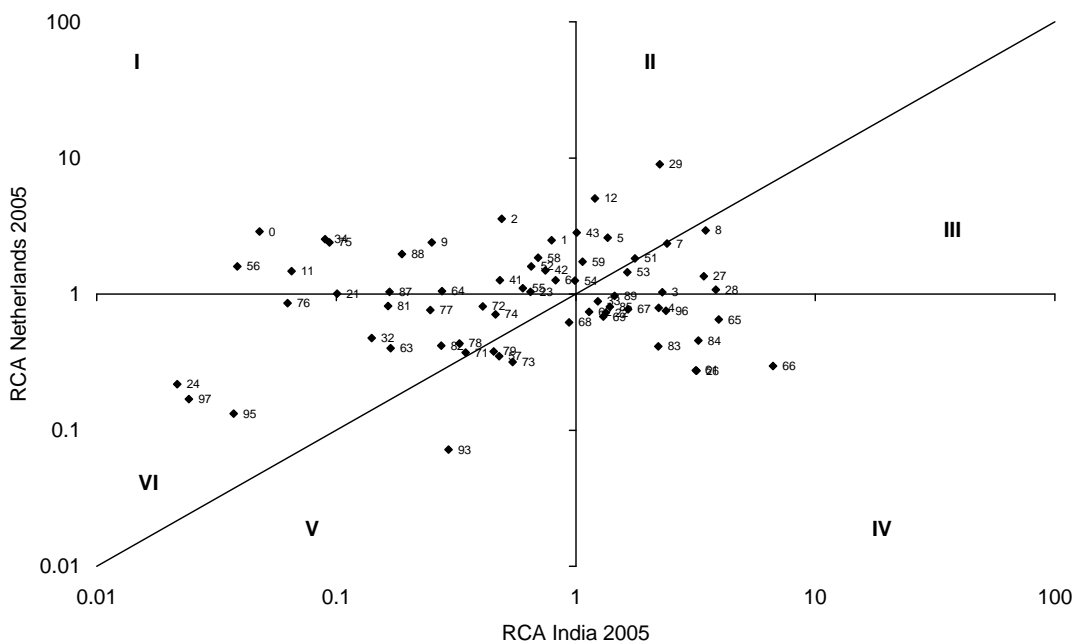
<sup>22</sup> Note that the reference group used for calculating these RCAs consists of fewer countries than in the previous analysis in which only the year 2005 was considered. Because a comparison is made between two different periods, countries for which no data were available for one period have also been removed from the reference group in the other period. For this reason it is possible that the RCAs reported earlier for the same sectors differ slightly from the RCAs reported in Annex C. Results not reported here revealed that removing the countries from the reference group did not lead to major shifts in the sectoral shares of the reference group.



### Identifying relative strengths and weaknesses

For sectors in which it has a strong revealed comparative advantage, India may be a potentially important trading partner which causes lower prices for consumers as well as a source for enhanced competition<sup>23</sup> from abroad for firms localised in the Netherlands. It is also possible that Dutch firms can benefit from Indian sectors with a high RCA when Indian products are complementary to Dutch products. This is particularly important for Dutch sectors that have a high RCA due to re-exports. When India will increase exports to Europe for products for which India has a strong RCA, it is likely that a large part of these trade flows will pass through the Netherlands as re-exports. In that case such sectors might be complementary rather than competing. So whether India's export sectors benefit or harm Dutch firms depends on the extent to which the Dutch sector gets its comparative advantage by a comparative advantage in trade or in production. Unfortunately, lack of data on re-exports makes it difficult to distinguish between these two types of comparative advantages. The import-to-export ratio can, however, be used as an indicator where sectors with a high (low) import-to-export ratio are considered re-export (production) sectors.

**Figure 3.6 Revealed comparative advantage in goods for India and the Netherlands, 2005**



Sources: Own calculations based on the OECD ITCS database (download October 2007). See Annex B for the coding of the product groups. Note: Three products (SITC 25, 35, 94) at the lowest end of the RCA distribution have been left out for presentational clarity.

<sup>23</sup> Possible negative effects of increased competition will typically occur only in the short run. In the long run the economy will adjust to producing products for which it has a comparative advantage. Standard trade theory suggests that trade will eventually benefit both countries by allowing a higher total production.

A comparison between the RCAs in 2005 of India and the Netherlands is made in Figure 3.6. The result is somewhat mixed. Almost 40% of the sectors for which the Netherlands has a high RCA also has a high RCA in India. The 12 sectors for which both countries have an RCA above unity belong to the primary sector (SITC 03, 05, 07, 08, 12, 27, 28, 29, 43) and the chemical sector (SITC 51, 53, 59). The chemical sector is technology intensive and human-capital intensive. In Figure 3.6, the cluster of the primary products mentioned above shows up to the upper right of the cluster of chemical products, indicating that the comparative advantage of India and the Netherlands in primary products is larger.

Relatively low import-to-export ratios in the Netherlands for these primary and chemical products suggest that the strong position in these sectors is caused by a comparative advantage in production rather than in trade. The extent to which India might be competing with the Netherlands for the sectors for which both countries have high RCAs depends on the tradability of the goods produced in these sectors. When they are generally traded over small distances the competition between both countries will be limited. In Annex C, the geographic destinations of the Indian exports are studied to reveal the geographic scope of the sectors. This is done by determining the fraction of the exports that is exported to countries within a predefined distance from India. This analysis revealed that about 66.5% of the Indian exports flows to countries at a distance of more than 4,000 kilometres from India. For the sectors in which both India and the Netherlands have a comparative advantage, this is about 55%. This indicates that the overlapping sectors with a comparative advantage in both countries have a somewhat less global nature, but still a substantial share of the exports from these sectors is traded over large distances.

Another consideration that should be made is that the level of aggregation at the two-digit SITC level can include very different types of primary products. The group vegetables and fruit (SITC 05), for example<sup>24</sup>, includes potatoes (SITC 0541) and tomatoes (SITC 0544) as well as leguminous vegetables (SITC 0542) and edible nuts (SITC 0577). The former two goods are typically exported from the Netherlands while India is exporting relatively more of the latter two goods. This suggests that although both countries show a comparative advantage in the vegetables and fruit group, they might be exporting very different products that do not compete much with each other.

Another cluster of product groups that can be clearly identified consists of unskilled-labour intensive products. This cluster includes products like textile yarn, fabrics, made-up articles and related products (SITC 65), travel goods, handbags and similar containers (SITC 83), articles of apparel and clothing accessories (SITC 84) and footwear (SITC 85). These product groups show up in plane IV of Figure 3.6, indicating that India is strong and the Netherlands are weak in these sectors.

<sup>24</sup> The reason that these examples are chosen is that the RCA values are particularly high for potatoes and tomatoes in the Netherlands and for leguminous vegetables and edible nuts in India.

### **Concluding remarks**

This section has focused on the trade patterns of goods of India and the Netherlands. India is relatively strong in sectors of primary products and products that are unskilled-labour intensive and natural-resource intensive. The sectors with the highest comparative advantages in Netherlands are all classified as primary products. Both countries experienced an increase in the export shares of technology intensive products and human-capital intensive products and a decrease in the export shares of primary products and unskilled-labour intensive products. Yet the export shares of the former two are still considerably higher in the Netherlands.

The role of India on the world market and its impact on the Netherlands is currently small. The share of India in world exports equals 1.1% and the share of Indian products in Dutch imports equals 0.6% in 2005. However, as a result of high economic growth, exports from India are now increasing almost twice as fast as world trade. The emergence of India and the increase of India's exports associated with that is beneficial for Dutch consumers through lower consumer prices (see Box on page 41). For Dutch firms it may result in increased competition as well as in a larger market for their products. The extent to which it will lead to increased competition for Dutch firms depends on several factors including the overlap in sectors with a high RCA, the extent to which the goods are traded over large distances, and the nature of the high RCA.

The RCA analysis revealed that the overlap of strong sectors is limited to 12 product groups which belong to the primary and the chemical sector. Because some of the primary product groups can include very diverse products, the actual overlap within these groups is likely to be small. The Dutch import-to-export ratios for the product groups in which both countries are strong are generally not very high. This suggests that the Netherlands have a comparative advantage in the production of these products and not just in trading them. This means that there can be some competition between Dutch and Indian firms in these sectors to the extent that these sectors are sufficiently global in nature. An analysis of the geographic scope reveals that about 66.5% of total Indian exports is transported to countries that are further than 4,000 kilometres away from India. For the overlapping strong sectors, this value is about 55%. Most of the exports are thus transported over larger distances, indicating that competition between Dutch and Indian firms is possible, but probably limited to a relatively small number of products.

## 3.2 Impact on international trade in services

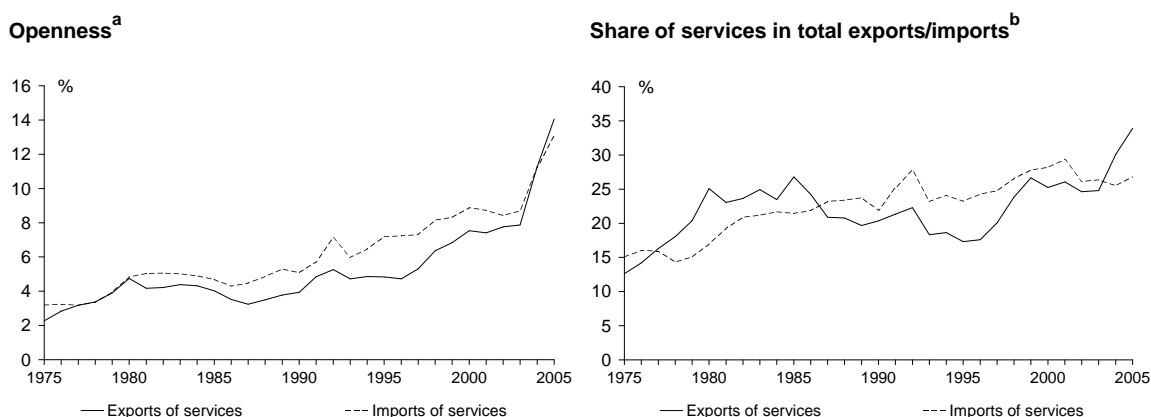
The strong performance of India's services sector is a key element of the country's rapid economic development since 1980. This section looks into India's special position as an exporter of services. We first look into India's trade in services generally and subsequently elaborate on the trade between India and the Netherlands in particular.

### 3.2.1 India's trade in services

Considering India's trade in services there are two stylised facts that stand out. First, the openness of the services sector as measured by the share of exports and imports in total services sector value added has increased considerably, especially after 1990 and with a clear acceleration from 2003 onwards (see Figure 3.7, left graph). This increase had initially domestic causes and was triggered by the policy changes of the 1980s and the policy reforms of the 1990s (see also Chapter 2). In the 1990s, output growth also accelerated because of the opening up of India's services sector to the rest of the world. Second, the share of services in total trade (exports and imports) in goods and services has been increasing and was in 2005 equal to 34% for exports and 27% for imports (right panel of Figure 3.7).<sup>25</sup> For comparison, the share of services in total exports and imports of goods and services in the Netherlands was in 2006 equal to, respectively, 20% and 22%.

India's services exports are dominated by the category 'computer and information services' (see Table 3.4). In 2005, it equalled almost 24 billion dollar (39% of India's total services exports). Computer and information services has increased by 30% per annum in the years 2001-2005, on par with growth of total exports of services. In this period, 'Other business

**Figure 3.7** India's international trade in services, 1975-2005



<sup>a</sup> Ratio of exports/imports to services sector value added.

<sup>b</sup> Goods and services.

Source: UN, Service Trade Statistics database (October 2007).

<sup>25</sup> The development of the import share is less volatile than of the export share. The volatility of the export share is dominated by fluctuations in goods trade rather than services trade.

**Table 3.4 India's international trade in services by sector, 2000–2005**

	2000	2001	2002	2003	2004	2005	Yearly growth 2001–2005
	Million dollars						%
<b>Export</b>							
Transportation	2,046	2,161	2,536	3,207	4,683	6,277	25
Travel	3,497	3,137	3,312	5,037	6,666	7,789	17
Communications services	1,138	752	812	990	1,384	2,182	14
Construction services	536	144	178	458	491	916	11
Insurance services	270	288	369	419	870	1,042	31
Financial services	347	292	676	299	512	1,704	37
Computer and information services <sup>a</sup>	6,341	7,556	9,600	12,800	17,700	23,600	30
Royalties and license fees	60	22	23	32	71	129	17
Other business services	334	519	807	1,296	5,167	12,874	108
Personal, cultural, recreational services					105	128	22
Government services	651	518	293	240	401	305	– 14
Not specified	1,048	1,751	2,157	2,090	5,199	3,664	28
Total exports	16,268	17,140	20,763	26,868	43,249	60,610	30
<b>Import</b>							
Transportation	3,558	3,467	3,272	2,328	4,539	7,394	16
Travel	2,804	3,014	3,341	3,602	5,249	6,421	18
Communications services	127	370	965	772	738	808	45
Construction services	166	517	1,326	738	716	853	39
Insurance services	223	280	350	363	722	985	35
Financial services	1,973	1,264	1,388	700	832	1,307	– 8
Computer and information services <sup>a</sup>	591	672	737	476	800	1,338	18
Royalties and license fees	235	361	352	444	712	729	25
Other business services	1,022	1,501	1,812	2,550	7,318	10,403	59
Personal, cultural, recreational services					102	97	– 5
Government services	319	283	228	212	411	480	9
Not specified	3,558	2,087	3,349	4,539	5,684	7,530	16
Total imports	14,576	13,816	17,120	16,724	27,823	38,345	21

<sup>a</sup> India Software services.

Source: UN, Service Trade Statistics database (October 2007) and Reserve Bank of India concerning data on software services .

services' (OBS) has been the fastest growing category, with a rise of 108% per year. As a result, OBS was 21% of total services exports in 2005, compared with only 2% in 2000. The share has probably risen further after 2005. OBS includes trade-related services (such as call centres and back-office activities for foreign financial and non-financial companies) and consultancy.

Exports of financial services and insurance services have also increased at an above-average rate, albeit from an initially low level.

'Other business services' (OBS) also dominate India's imports. In 2005, OBS imports amounted to 10 billion dollar – not much less than India's exports of OBS. With a value rise of

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## India's stellar IT industry

India's information and technology industry (IT) is among the world's most successful. In 2006, its revenue totalled 48 billion dollar, a 30% increase over the previous year and a tenfold increase over ten years ago. Value added in the IT industry is expected to be 7% of total GDP in 2007 (1% in 1999). Most of this stems from software development and the supply of IT related services. These include software testing, running helpdesks, and carrying out administrative tasks that are outsourced by western firms such as invoicing, maintaining salary records, and processing claims and medical prescriptions.

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### India's IT industry in figures

Year	Export value in million dollar	Number of firms	Revenue per employee in dollar
1980	4	21	16 000
1984	25	35	18 741
1990	105	700	16 215
2000	5 287	816	32 635
2004	12 200	3 170	35 362

Source: Dossani (2005), combining a variety of sources.

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Indian IT was born in 1968 in a hostile policy environment, with the establishment of *Tata Consultancy Services* (TCS). Through the 1970s, the Indian government did not even consider software development an 'industry', effectively denying software exporters access to bank credit. Import tariffs on software and hardware were 100% and 135%, respectively. In retrospect, the industry's later breakthrough seems utterly improbable. Its spectacular performance is primarily the result of creative solutions on the part of Indian and Western entrepreneurs and has subsequently been fostered by policy reform in India and technological breakthroughs that have transformed the industry worldwide.

In the early 1970s, American firms were looking for cheaper ways to develop custom software (tailor-made applications for specific users). Offshoring this kind of work to India (as well as to Ireland and Israel) was attractive because of the local availability of low-cost programmers with a decent knowledge of English. Economic policy in India at the time was interventionist and protectionist. In 1973, foreign ownership of operations on Indian soil was restricted to 40%. Many foreign operations closed, among which *IBM*. But if software development could not go East, programmers could go West. In 1974 mainframe producer *Burroughs* started hiring Indian professionals from TCS for their operations in the United States. Others companies soon followed suit.

Meanwhile in India, lack of access to bank credit advantaged large, existing firms with financial resources of their own. One of these firms was *Wipro*, that ventured into IT in 1980. *Infosys*, another now legendary Indian software firm, was established in 1981. Many of these were based in Mumbai, the country's commercial capital. The inflow of managerial and specialised technical skills was restricted to Indian engineers returning home from abroad (many stayed in the USA). The Indian IT industry at this stage consisted mainly of recruitment offices.

The adoption of the so-called UW-standard in the mid-1980s (workstation-based programming using standardised operating systems) made software development independent of the hardware platform. Importantly, it enabled Indian firms to shift from supplying programmers to supplying software programs. In 1984, the New Computer Policy brought along a host of institutional changes. Tariffs on software and hardware imports were lowered (to a still high 60%). Software exports were 'delicensed' (which means, among other things, access to bank finance). Foreign firms were allowed to fully own software-exporting establishments. Software parks were to be created, offering subsidised infrastructure. In 1985, all export revenue was exempted from income tax. Firms, both domestic and foreign, now entered the market in large numbers (see table above). They were particularly successful in custom software development. The growing needs for adequate infrastructural facilities (electricity supply, telecommunications

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### India's stellar IT industry (*continued*)

bandwidth), affordable real estate, and engineering graduates prompted a growing number of IT firms to move their operations to Bangalore, where the first software park was established and where many trans-national IT corporations now have their Indian headquarters. The regional concentration of the IT industry created favourable conditions for realising agglomeration economies such as knowledge spill-overs.

The IT industry in India is faced with lack of venture capital and a limited, albeit growing, domestic market. According to some analysts, the dependence on outsourcing limits the synergy between domestic and foreign markets. These restrictions led to market domination by large conglomerates that diversified into software development. However, the adoption of best practices in the fields of foreign ownership, protection of intellectual property, venture capital, and telecommunication policy by the end of the 1990s is expected to foster continued growth and innovation in India's IT sector. The advent of the internet has further facilitated the maintenance of software that is remotely installed and used. Development of software products (software for general use, replicated and distributed in its original form) has so far been relatively unsuccessful, but its share in software exports is rising, moving the industry up the value chain. The main challenge ahead is the availability of skilled IT professionals. Whether protection has supported or hindered the IT industry at its earliest stage is still being debated. But it seems clear that India's government has failed at delivering what is broadly regarded as a public good: proper education. Of 62 countries surveyed by the World Bank in 1998, India ranked 42<sup>nd</sup> with 0.3 scientists and technicians per 1000 people, far below China at 25<sup>th</sup> place (1.3 per thousand). Little technical research is carried out at India's universities and linkages between universities and commerce are weak. IT professionals are in short supply in India and their salaries are rising fast, such that universities have difficulty in recruiting professors and graduate students and therefore in safeguarding the future supply of IT workers as well.

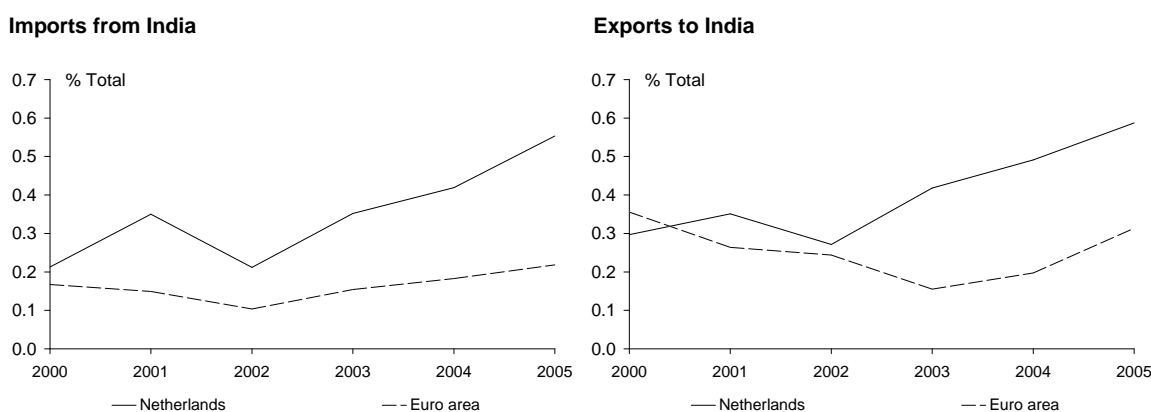
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59% per annum in the years 2001–2005, imports of other business services were also increasing most strongly (but substantially less than OBS exports). Communication, construction and insurance services also showed above average growth rates, but were still minor in 2005.

### 3.2.2 Dutch-Indian services trade in perspective

The share of Dutch services trade with India has risen rapidly since 2000 (Figure 3.8). In 2005, 0.6% of total services imports was coming from India and 0.6% of Dutch services exports was

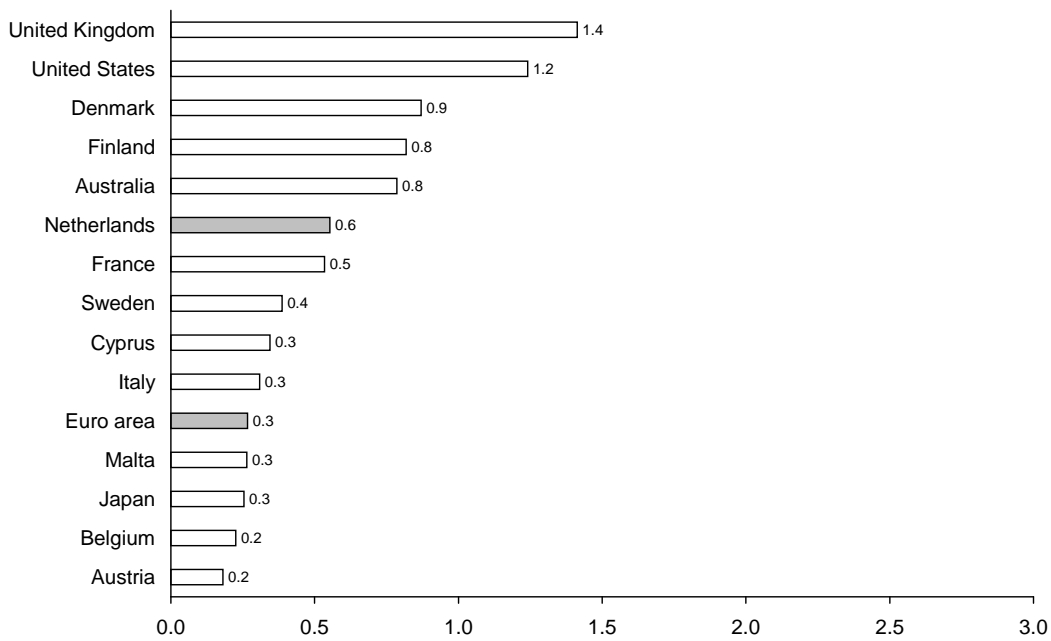
**Figure 3.8 Dutch foreign trade in services with India, 2000–2005**



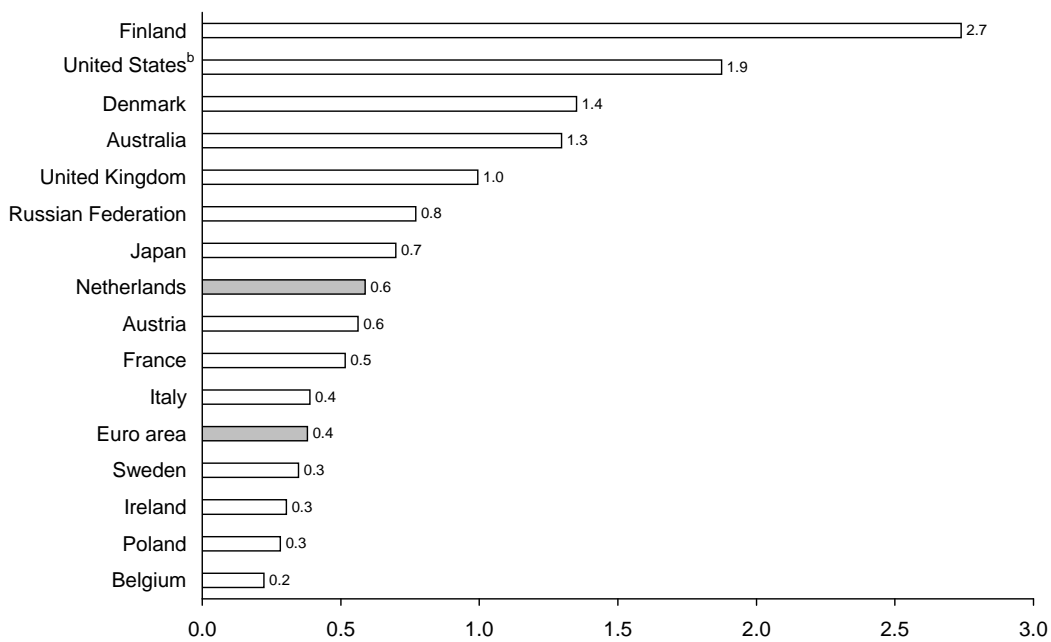
Source: UN, Service Trade Statistics database (October 2007).

**Figure 3.9 Import and export share of India, services<sup>a</sup>, 2005**

**Import share (import from India as a percentage of total services imports)**



**Export share (export to India as a percentage of total services exports)**



<sup>a</sup> Developing countries not included because of a lack of data.

<sup>b</sup> Only including 'Transportation', 'Insurance' and 'Royalties and license fees'.

Source: UN, Service Trade Statistics database (October 2007).



**Table 3.5 Top ten services trading partners of India, million dollars, 2005**

Exporters to India			Importers from India		
Ranking	Country	Value	Ranking	Country	Value
1	United Kingdom	2022.2	1	United States	3909.2
2	Japan	772.9	2	United Kingdom	2273.6
3	United States <sup>b</sup>	696.9	3	France	566.8
4	France	599.2	4	Netherlands	468.3
5	Denmark	575.6	5	Japan	342.3
6	Netherlands	541.5	6	Denmark	330.0
7	Finland	466.3	7	Australia	302.0
8	Australia	426.0	8	Italy	280.3
9	Italy	351.3	9	Sweden	137.2
10	Austria	284.0	10	Finland	124.5

<sup>a</sup> No data for most developing countries.

<sup>b</sup> Only including 'Transportation', 'Insurance' and 'Royalties and license fees'.

Source: UN, Service Trade Statistics database (October 2007).

going to India. Despite these small numbers, the Netherlands rank among the top-10 service trading partners of India (Table 3.5).<sup>26</sup> India is a more important trading partner for the Netherlands than it is for the euro area as a whole (Figure 3.8). Measured by trade share, only one euro area country (Finland) has stronger trade links with India (Figure 3.9). Outside the euro area, especially the United Kingdom and the United States are importing much more from India than the Netherlands do, while the United States, the United Kingdom and Japan are exporting substantially more.<sup>27</sup>

Perhaps somewhat surprisingly, the Netherlands still have a services trade surplus with India. In 2006, Dutch exports to India amounted to 0.6 billion euro, while imports from India were 0.3 billion euro.<sup>28</sup> In fact, with the exception of the United States and the United Kingdom, all other top-10 service trading partners ran a surplus in the bilateral services trade in 2005 as well. The same holds for the EU-15.

Most of the Dutch-Indian trade in services consist of 'other business services' (Figure 3.10). Transportation services rank second, in imports as well as exports. Dutch imports from India are characterised by a substantial share of computer and information services (20%).

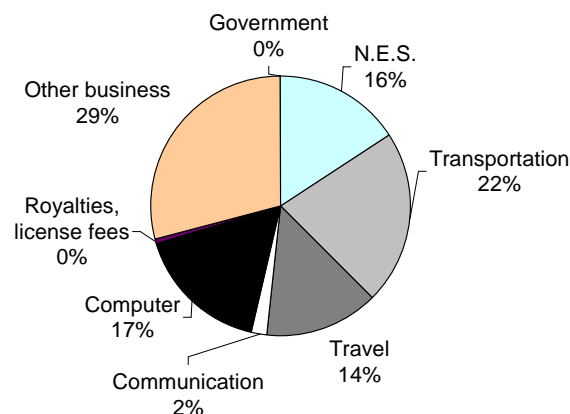
<sup>26</sup> Seen from the Netherlands, India ranks 36th as export destination and 32th as supplier of the countries for which data are available.

<sup>27</sup> Neighbouring Bhutan, exporting 45% of its services to India, is not shown in Figure 3.13. Most other developing countries do not report bilateral trade in services - including India, Pakistan and Bangladesh.

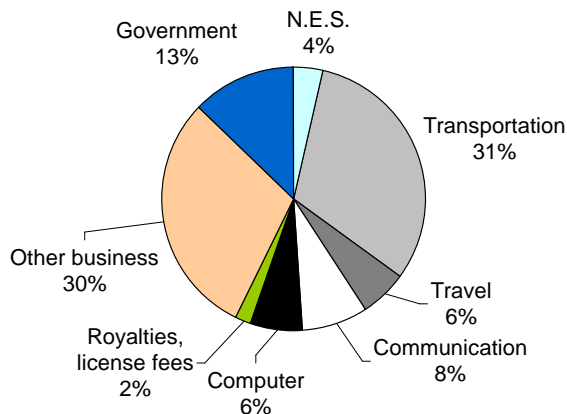
<sup>28</sup> Possibly also surprising is that we still import more services from China than from India. In 2006, services imports from China and India were 1200 million and 300 million euro, respectively. In 2005, it was 600 million and 300 million euro, respectively.

**Figure 3.10 India's services trade with the Netherlands by category, 2005**

**Import**



**Export**



Source: UN, Service Trade Statistics database (October 2007).

### 3.2.3 Revealed comparative advantage of trade in services

We now turn to a more in-depth discussion of specialisation patterns. The methodology is along the lines of the analysis presented for trade in goods in Section 3.1.2. Due to limited data-availability, the level of product-detail that was achieved in Section 3.1.2 is, however, not feasible. The analysis is restricted to eleven services trade categories that are distinguished in the Extended Balance of Payments (EBOPS) classification. Table 3.6 reports revealed comparative advantages (RCAs) for India and the Netherlands. Not surprisingly, India has a high RCA in 'computer and information services'. Perhaps more surprising is the magnitude of India's RCA in this sector: the share of computer services in India's total services export is almost nine times as large as the world average. India's comparative advantage in computer services is reflected in its penetration of the world market: in 2005 India's share was 24% of worldwide exports in this category. Also its trade surplus is substantial, as can be seen from the import-to-export ratio which is only 0.1 (the last column in Table 3.6).

The second largest category is 'communication services' with an RCA of 1.6. However, in this category, India's share of the world market is only 4.4%. In spite of its large share in India's exports and its explosive growth in recent years, the category 'other business services' (OBS) has an RCA of about one. The reason is that OBS is a large exporting category for many countries. However, taking the rapid growth of Indian OBS exports into account, it can be expected that India's revealed comparative advantage in this category will rise in the future.

The Netherlands clearly have a different pattern of specialisation than India (bottom part of Table 3.6). The category 'royalties and license fees' has the highest Dutch RCA (1.9), closely followed by 'communication services' and 'other business services'. For transportation, the second most important category, the Netherlands do not have a revealed comparative advantage with an RCA of about one.

**Table 3.6 Export specialisation patterns for India and the Netherlands, 2005**

<b>India</b>				
Category	Indian RCA	Exports of category as a percentage of		Import-to-export ratio
		Total Indian exports	World export in sector	
1 Transportation	0.5	10.4	1.3	1.2
2 Travel	0.5	12.9	1.4	0.8
3 Communications services	1.6	3.6	4.4	0.4
4 Construction services	0.8	1.5	2.2	0.9
5 Insurance services	0.8	1.7	2.4	0.9
6 Financial services	0.4	2.8	1.1	0.8
7 Computer and information services	8.7	38.9	24.3	0.1
8 Royalties and license fees	0.0	0.2	0.1	5.7
9 Other business services	1.0	21.2	2.7	0.8
10 Personal, cultural, and recreational services	0.2	0.2	0.5	0.8
11 Government services, n.e.s.	0.2	0.5	0.5	1.6
Total services	1.0	100.0	2.8	0.6
<b>Netherlands</b>				
Category	Dutch RCA	Exports of category as a percentage of		Import-to-export ratio
		Total Dutch exports	World export in sector	
1 Transportation	1.0	23.3	4.4	0.7
2 Travel	0.4	11.4	1.9	1.5
3 Communications services	1.8	4.1	7.7	0.8
4 Construction services	1.5	3.0	6.5	0.5
5 Insurance services	0.2	0.5	1.0	1.8
6 Financial services	0.2	1.2	0.7	1.5
7 Computer and information services	0.9	4.0	3.8	1.0
8 Royalties and license fees	1.9	11.1	7.9	0.8
9 Other business services	1.8	38.3	7.5	0.9
10 Personal, cultural, and recreational services	0.8	1.0	3.5	1.0
11 Government services, n.e.s.	0.8	2.1	3.4	0.5
Total services	1.0	100.0	4.2	0.9

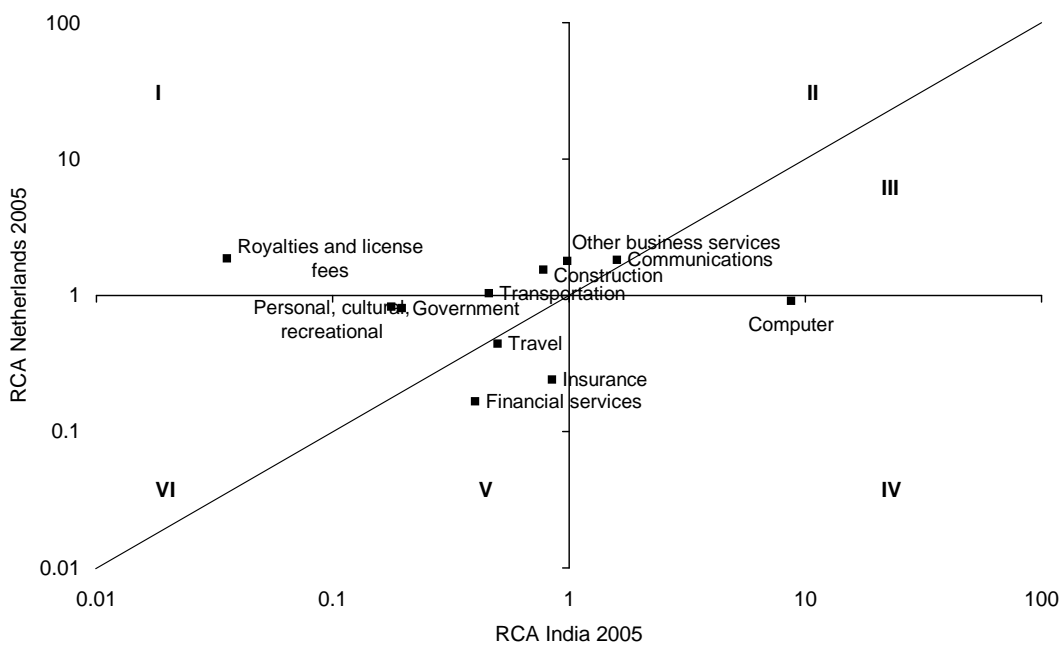
Source: own calculations based on UN, Service Trade Statistics database (October 2007) and Reserve Bank of India concerning data on software services.

Figure 3.11 describes the relative position of India and the Netherlands in terms of their comparative advantage. The figure is analogous to Figure 3.6. In plane I, we find all sectors in which the Netherlands have a comparative advantage and India has a comparative disadvantage. Here, the category ‘Royalties and license fees’ stands out. This category can be seen as an indicator of knowledge transfers as it measures rewards for the use of intellectual property. However, the strong Dutch position in this sector is also partly due to a favourable tax treatment for foreign companies,<sup>29</sup> such that the Dutch comparative advantage in this sector is somewhat

<sup>29</sup> For example, the rock groups Rolling Stones and U2 collect their royalties via the Netherlands.

overstated. 'Construction services' are also located in plane I. Plane II only contains one sector, viz. communication services. For this sector, both India and the Netherlands have a comparative advantage, although the Dutch RCA exceeds India's. Plane IV only contains computer and information services. Here, India has a clear comparative advantage. Planes V and VI contain the categories in which both countries have a revealed comparative disadvantage. Of these sectors, travel is responsible for the largest share in total exports – both for India (13%) and the Netherlands (11%).

**Figure 3.11 Revealed comparative advantage in services for India and the Netherlands, 2005**



Source: own calculations based on UN Service Trade Statistics database (October 2007).

Looking more in-depth into the bilateral relationships between India and the Netherlands, it is to be noted that the Netherlands import relatively few computer services from India. This reflects the relatively strong bias of India's exports of computer services to the United States.<sup>30</sup> For more details, we refer to Annex D which contains a more in-depth discussion of bilateral revealed comparative advantages in services.

### 3.3 Trends in India's foreign direct investment

Increased openness to foreign direct investment (FDI) has played a role in the take-off of the Indian economy. This section reviews the development of foreign direct investment in India,

<sup>30</sup> According to the Dutch Agency for International Business and Cooperation (EVD), about 70 percent of India's computer services exports goes to the United States.

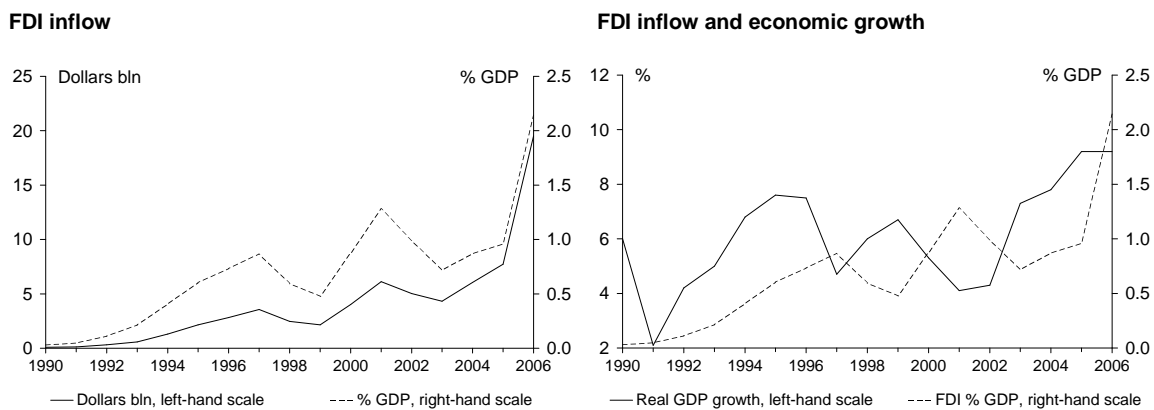
with particular attention to investments by Dutch companies. Section 3.3.1 presents an overall picture of FDI flows into India. India's outward FDI is reviewed in Section 3.3.2. Dutch FDI in India is analysed in Section 3.3.3. Section 3.3.4 elaborates on the expected future developments in foreign direct investment in India.

### 3.3.1 FDI inflow in India: development, sectoral composition and origin

#### Development

After the balance of payments crisis in 1991, India went through drastic economic reforms, integrating India into the world economy (see Chapter 2). The reforms included relaxation of restrictions on incoming investment flows (see, for example, Mohan, 2006, Kochhar et al., 2006, and Milner et al., 2007). In 2005, foreign investment in construction and real estate was fully liberalised and the maximum permitted foreign stake in the telecom sector was raised from 49% to 74%. At present, the maximum foreign participation stake is 74% in banking and 24% in private insurance. In many other sectors, foreign direct investment is allowed to a maximum of 100% under the 'automatic route', that is without prior approval.<sup>31</sup>

Figure 3.12 India's FDI inflow, 1990–2006



Source: Reserve Bank of India and IMF.

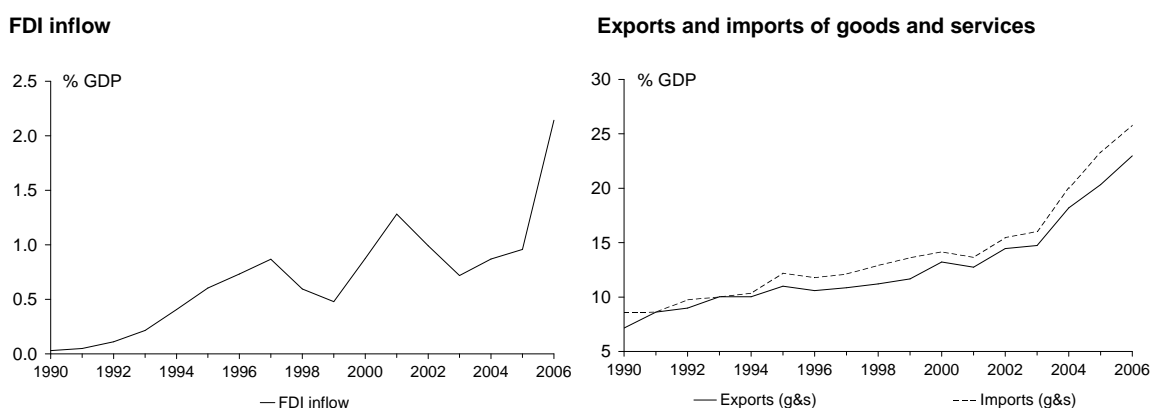
The Indian government aims to deregulate FDI further to enhance economic development (see Government of India, 2006a and 2006b for a survey). However, FDI occasionally meets opposition from society, causing plans to be mothballed or stopped. For instance, converting farm land into Special Economic Zones (see Box on page 29) for domestic and foreign companies encounters opposition in the Indian parliament, as well as from people displaced by forced land acquisition, leading to social tensions in rural areas (see Asian Development Bank, 2007). There is also opposition against foreign investment in the retail sector. This sector has remained closed to foreign firms to protect the 'mom and pop' stores. Recently there has been

<sup>31</sup> See for details Table 3.3 in OECD (2007a).

some easing of rules, prompting the American chain of superstores *Wal-Mart* to try to gain a foothold in India through a joint venture with the Indian company *Bharti*.

In the second half of the 1990s, FDI inflow to India started to increase but remained below 5 billion dollars, which is rather low. Apart from FDI restrictions, the regulated, rigid labour market and bad infrastructure deterred foreign companies to establish in India (OECD, 2007a, IMF, 2006c; World Bank, 2006). In recent years, FDI inflow trended upwards, due to easing of FDI restrictions and expanding foreign trade. In 2006 foreign direct investment inflow surged to 19.5 billion dollars, exceeding 2% GDP (Table 3.7 and Figure 3.12). According to Reserve Bank of India (2006) this pick-up reflects growing investors' interest in the Indian economy associated with strong economic fundamentals, as well as policy initiatives aimed at simplifying and liberalising entry procedures. Foreign enterprises invest in India because of the big size of the market,<sup>32</sup> the increasing purchasing power, cheap labour and the availability of modern technological knowledge, particularly in the field of IT. There are strong indications that the growing openness of India's economy after 1991 (Figure 3.13) has contributed to a higher growth of total factor productivity (for example, Milner et al., 2007, and Section 2.2.1).

**Figure 3.13** Openness of the Indian economy, 1990–2006



Sources: Reserve Bank of India and Central Statistical Organisation.

Compared to other Asian countries, such as China, India has been a latecomer to the FDI scene. In both countries, the opening up of the economy has been a gradual process (Buitelaar, 2007). China embarked on economic reforms in 1978, whereas India started its reform program and opening up of the economy only in 1991 (see Box on page 25 for a more detailed analysis on India's lift-off). China's incoming investment started to accelerate in the early 1990s, while India's inward investment took off around the turn of the century. Although India's FDI inflow is still much lower than the Chinese, it is catching up (Figure 3.14).

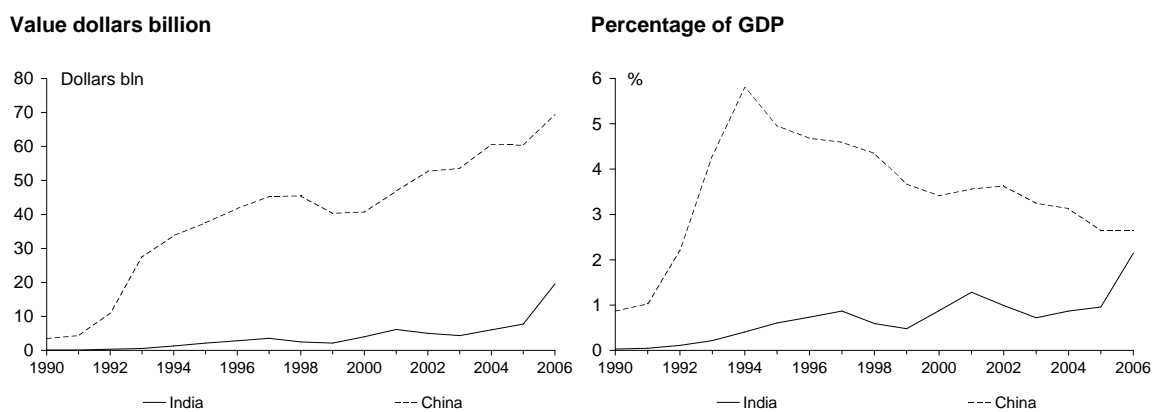
<sup>32</sup> See for instance Market-seeking FDI in India's automotive industry is booming, Box II.4 in Unctad (2007).

**Table 3.7 Global FDI inflows**

	1996–2000 <sup>a</sup>	2001	2002	2003	2004	2005	2006
Billion dollars							
India	3.0	6.1	5.0	4.3	6.1	7.7	19.5
China	42.7	46.9	52.7	53.5	60.6	60.3	69.5
Netherlands	34.0	51.9	25.1	21.1	2.1	41.4	4.4
United States	196.4	167.0	84.4	64.0	133.2	109.8	183.6
United Kingdom	67.8	52.7	24.1	16.8	56.0	193.7	139.6
France	33.2	50.5	49.1	42.5	32.6	81.0	81.1
Germany	59.6	26.4	53.6	32.4	– 9.2	35.8	42.9
Ireland	11.6	9.7	29.4	22.8	– 10.6	– 31.1	12.8
% GDP							
India	0.7	1.3	1.0	0.7	0.9	1.0	2.1
China	4.2	3.5	3.6	3.3	3.1	2.7	2.6
Netherlands	8.5	13.0	5.7	3.9	0.3	6.5	0.7
United States	2.2	1.7	0.8	0.6	1.1	0.9	1.4
United Kingdom	4.9	3.7	1.5	0.9	2.6	8.7	5.9
France	2.3	3.8	3.4	2.4	1.6	3.8	3.6
Germany	2.8	1.4	2.7	1.3	– 0.3	1.3	1.5
Ireland	13.3	9.2	24.0	14.5	– 5.8	– 15.5	5.8

<sup>a</sup> Annual average.

Sources: OECD (2007a table A.2), Unctad (2006), Reserve Bank of India.

**Figure 3.14 FDI inflow India and China, 1990–2006**

Source: Reserve Bank of India, Thomson Financial.

### Sectoral composition and country of origin<sup>33</sup>

In 2006, most (a third) of India's FDI inflow pertained to financial and non-financial services (Table 3.8). Over 20% of the inflow went to the electronic industry and to the telecommunication industry. Direct investment in India in services mainly consists of business services regarding IT, accounting, insurance and real estate. Presently, India is the main destination for offshoring back office work, call centres and R&D. Over 100 multinationals have established R&D facilities in India (see Unctad, 2005). The availability of skilled R&D personnel is one of the most important reasons for locating R&D in India. *General Electric* outsources 30% of its R&D to India and *Microsoft* is highly active (Financial Times, 2007).

**Table 3.8 Sectoral composition of FDI equity inflow in India, 2006 (April-December)**

	Value Billion dollars	Share %
Financial and non-financial services	3.20	34.5
Electric and electronic equipment, including computer software	1.44	15.5
Construction	0.76	8.2
Telecommunication	0.49	5.3
Real estate	0.45	4.8
Transport	0.37	4.0
Energy	0.19	2.1
Hotel, tourism	0.17	1.8
Cement	0.21	2.3
Pharmacy	0.16	1.7
Other sectors	1.84	19.9
Total	9.27	100.0

Source: Government of India (2006b).

Over the period 2004–2006, only seven countries accounted for 80% of India's FDI inflow (see Table 3.9). Mauritius, with a share of almost a half, was the main investor. India and Mauritius have close relations, rooted in their cultural ties (the majority of the population of Mauritius is of Indian origin). Moreover, Mauritius has low rates of taxation and a treaty with India on double tax avoidance. This favourable taxation regime has encouraged Indian firms to practice 'round tripping' investment through Mauritius and other tax havens to take advantage of the tax benefits enjoyed by overseas investors (see Unctad, 2005, and Hay, 2006). With a share of 18%, the United Kingdom was the second investor in 2006, outpacing the United States.<sup>34</sup> The Netherlands were in 2006 among the major investors in India.

<sup>33</sup> Data on the composition in FDI in India by sector and country of origin are available only for the equity component of FDI, which is the main part. As a consequence, intra-company loans and reinvested earnings are not taken in consideration in Table 3.8 and Table 3.9.

<sup>34</sup> In the two previous years, however, the United States by far outpaced the United Kingdom.



**Table 3.9 Country of origin of FDI equity inflow into India**

	2004	2005	2006 <sup>a</sup>	2004	2005	2006 <sup>a</sup>
	Billion dollars			% Share		
Mauritius	1.17	1.76	4.23	31.2	52.5	45.7
United States	0.76	0.36	0.61	20.2	10.7	6.6
United Kingdom	0.17	0.20	1.66	4.5	6.0	17.9
Netherlands	0.58	0.07	0.49	15.4	2.1	5.3
Singapore	0.18	0.16	0.54	4.9	4.8	5.9
Germany	0.18	0.05	.	4.9	1.5	.
Japan	0.14	0.10	.	3.6	3.0	.
Other	0.57	0.65	1.74	20.2	19.4	18.6
Total	3.75	3.35	9.27	100.0	100.0	100.0

<sup>a</sup> April-December.

Source: Government of India (2006b).

### 3.3.2 India's outward investment<sup>35</sup>

Nowadays, also India is investing abroad. Along with the growing openness of the economy, Indian corporations have been going global, with sometimes stunning takeovers in advanced economies. Due to high economic growth in recent years, Indian companies have strengthened their balance sheets, enabling them to expand by means of foreign acquisitions. In 2005, India's FDI outflow amounted to 2.5 billion dollars and jumped to almost 10 billion dollar in 2006 (Table 3.10). Its outward FDI stock reached 13 billion dollars at the end of 2006.

The Indian government considers investment of Indian companies abroad as an important way to strengthen their competitiveness. Improvements in the regulatory framework have played an important role in the surge of Indian investment abroad. India has signed many bilateral investment treaties and treaties to avoid double taxation, raising the confidence with which Indian firms invest in partner countries.

**Table 3.10 Outward FDI of India**

	1993–2000	2001	2002	2003	2004	2005	2006
	Billion dollars						
Flow	0.1	1.4	1.7	1.9	2.2	2.5	9.7
Stock	0.8	2.6	4.0	5.8	7.1	10.0	13.0

Source: Unctad (2007) Annex Table B.1 and Table B.2.

<sup>35</sup> The information in this section draws heavily on Unctad (2004), Unctad (2006) Box II.1, III.8 and VI.8, Unctad (2007), Hay (2006), Gopinath (2007) and Financial Times (2007).

India's outward investment in software and IT services has grown rapidly. ICT companies such as *Infosys*, *Tata Consultancy* and *Wipro* have made sizeable investments abroad and have globalised their R&D activities. *Infosys* has 30 foreign affiliates and 50,000 employees worldwide for ICT consulting and services. Indian call centres operate in West-Virginia and *Tata Consultancy* has affiliates as far afield as the United States, Mexico and China. India's pharmaceuticals firms, such as *Ranbaxy* and *Dr.Reddy's*, have subsidiaries in Europe, Africa and the Americas for serving customers and carrying out R&D. Indian banks have expanded operations overseas and had 113 overseas branch offices in 2006, spread across 27 countries.

Furthermore, to secure key natural resources, India – like China – has intensified efforts to acquire oil assets in resource rich countries. State-owned *Oil and Natural Gas Corporation* (ONGC) has oil and gas exploration projects in 15 countries, among others in Russia, Iran, Kazakhstan and African countries. A consortium comprising *ONGC* and the Sudanese state-owned oil company invested 400 million dollars in a Sudanese oil field in 2005. Indian aluminium producer *Hindalco* took over Canadian *Novelis* at 6 billion dollars.

With a share of 20%, Russia was the main recipient of India's FDI.<sup>36</sup> This was due to investment in oil and gas exploration and production. The United States were the second largest receiver with a share of 16%. Two tax havens, Bermuda and Virgin Islands accounted together for 11%, followed by Mauritius (8%), Sudan (6.5%) and the United Kingdom (5.5%).

Direct investment of India in the Netherlands is tiny. For many years, the inflow did not exceed some tens of millions of dollars. However, in early 2007, *Tata Steel*, part of India's *Tata Group*, bought the Anglo-Dutch steel producer *Corus Group* for 12 billion dollars.<sup>37</sup>

### 3.3.3 Direct investment of Dutch companies in India

The rapid growth of the Indian economy has encouraged Dutch enterprises to invest in India (see also Annex E). At the turn of the century, Dutch FDI in India fluctuated at around 140 million euro annually, while it picked up to almost 200 million euro annually in 2003–2006 (see Figure 3.15 and Table 3.11). With 287 million euro in 2006 (0.8% of the total FDI outflow), Dutch FDI in India was the highest in history. Some 80% of Dutch direct investment flows concern the industrial sector, mainly mining and quarrying, oil, chemicals, metals and electronics. This by far surpasses investment in services. Investment in banking, insurance and other services<sup>38</sup> sum up to only 50 million euro on average in recent years.

The relatively low FDI inflow indicates that there is no large relocation of Dutch production to India. Investment in mining, oil and chemistry concerns production which is capital and knowledge intensive and does not use much labour. The presence of this type of Dutch investment in India indicates that overall low Indian labour costs do not play an important role

<sup>36</sup> Based on cumulated Indian FDI outflow in the years 1996–2005.

<sup>37</sup> A special case is *Mittal Steel*, a company registered in the Netherlands with an owner and many of its top managers being Indian. In 2006, *Mittal Steel* took over the Luxembourg-based steel maker *Arcelor*.

<sup>38</sup> Mainly ICT, accounting and R&D.

in the decision to invest in India.<sup>39</sup> Neither does the small amount of investment in banking, insurance and other services (50 million euro on average annually) point to a substantial relocation of Dutch service providers to India. Low labour costs may play a role in decisions to have R&D centres in India. Shell and Phillips (see also Annex E) have created such centres, not only because of low wages, but also to tap into the large pool of highly skilled English speaking experts.

Table 3.11 and Figure 3.15 present data on the stock of Dutch direct investment in India. With some build-up in recent years, reflecting the growing importance of India for Dutch companies, the stock reached 1.5 billion euro in 2006. About 60% is invested in mining and quarrying, oil and chemicals. A fifth of the total (320 million euro) is invested in banking, insurance and other services.

**Table 3.11 Sectoral composition of direct investment from the Netherlands to India**

	1993– 1998 <sup>a</sup>	1999– 2000 <sup>a</sup>	2001	2002	2003	2004	2005	2006
Flows, million euros								
Mining and quarrying, oil, chemicals, metals and electrical engineering	18	56	77	153	218	192	51	201
Other manufacturing and construction	5	9	– 5	– 13	– 6	2	– 8	14
Total industry	23	65	71	140	212	194	42	215
Trade, catering, transport, storage and communication	4	5	2	– 3	17	10	– 36	– 4
Banking, insurance and other services	20	69	70	15	3	33	38	76
Total services	24	74	72	12	20	43	2	73
Total	47	138	143	152	232	237	44	287
Stocks, million euros								
Mining and quarrying, oil and chemicals	54	164	216	314	317	672	713	909
Metals and electrical engineering	36	55	60	76	71	90	113	122
Other manufacturing and construction	10	27	45	27	14	15	22	34
Total industry	100	246	320	417	402	776	848	1064
Trade, catering, transport, storage and communication	5	34	48	38	94	88	90	123
Banking, insurance and other services	58	219	323	295	184	202	297	320
Total services	63	253	372	333	278	290	387	443
Total	162	499	692	750	680	1067	1234	1507

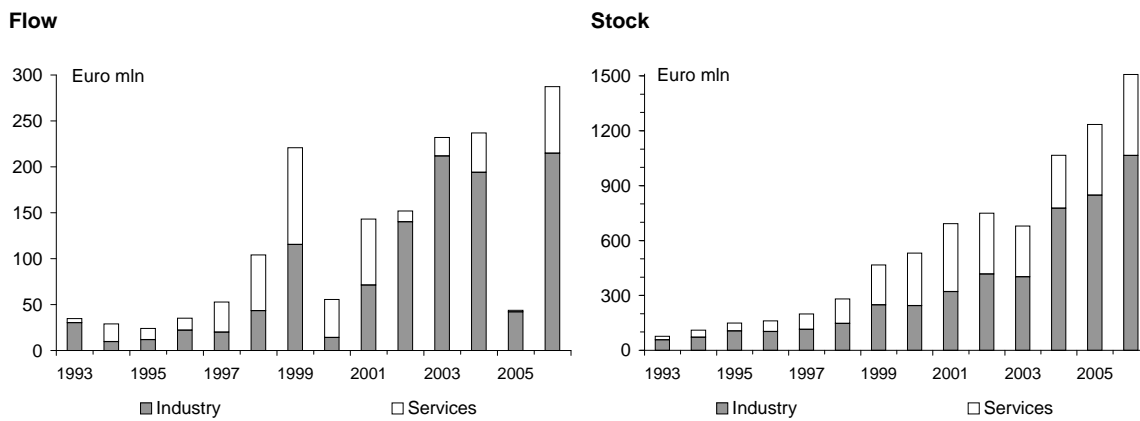
<sup>a</sup> Annual average.

Due to rounding the elements do not always add up to the total.

Source: De Nederlandsche Bank.

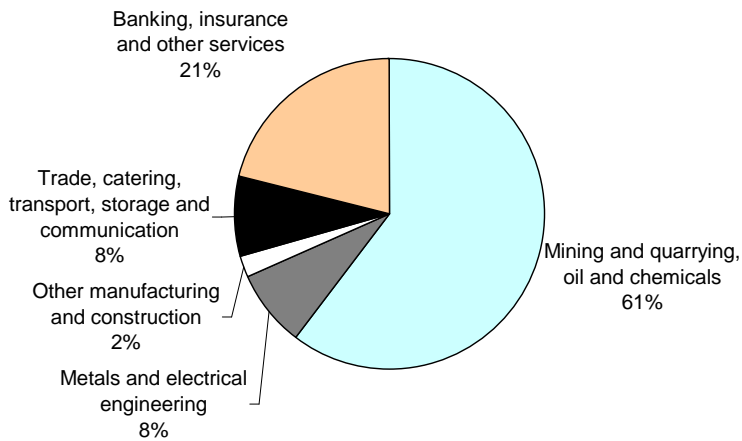
<sup>39</sup> This indication is confirmed by annual reports and public announcements of Dutch manufacturing multinationals. See also Annex E.

**Figure 3.15 Direct investment of the Netherlands in India**



Source: De Nederlandsche Bank.

**Figure 3.16 Direct investment from the Netherlands to India by sector, stocks, 2006**



Source: De Nederlandsche Bank.

Table 3.12 puts the Dutch FDI stock in India into perspective. Only 0.3% of the total Dutch FDI stock is invested in India. Over 60% of this stock is within the European Union and almost 13% in the United States. The share of Dutch direct investment in the rest of Asia is 5%, of which 0.4% is in China. The share of Dutch investment in the EU has risen in the last few years, especially in the new member states. The share in the United States has almost been halved within the past decade.

**Table 3.12 Foreign direct investment<sup>a</sup> of the Netherlands**

	1995	2000	2005	2006	1995	2000	2005	2006
	Billion euros				% Share			
EU-27	61.1	174.4	329.2	338.1	48.6	53.1	61.7	62.7
of which new member states	1.9	9.2	19.1	21.9	1.5	2.8	3.6	4.1
United States	31.3	84.5	78.5	68.9	24.9	25.8	14.7	12.8
Latin America	3.9	11.7	16.5	15.9	3.1	3.6	3.1	3.0
Asia	8.5	20.7	28.4	30.3	6.7	6.3	5.3	5.6
of which Asian Tigers <sup>b</sup>	3.3	9.2	15.8	16.7	2.7	2.8	3.0	3.1
of which Japan	0.9	1.2	1.1	1.5	0.7	0.4	0.2	0.3
of which China	0.4	1.8	1.9	2.2	0.3	0.5	0.4	0.4
of which India	0.1	0.5	1.2	1.5	0.1	0.2	0.2	0.3
Rest of the world	20.9	36.9	81.4	85.9	16.6	11.2	15.2	15.9
Total	125.7	328.3	534.0	539.2	100.0	100.0	100.0	100.0

<sup>a</sup> Stocks, ultimo year.

<sup>b</sup> Singapore, Taiwan, Malaysia, South-Korea.

Source: De Nederlandsche Bank.

### 3.3.4 India's foreign direct investment in the near future

As mentioned in Section 3.3.1, restrictions on inward flows of investment to India have been eased in recent years, which has contributed to the current surge in incoming foreign investment. If high economic growth continues, for instance along the lines of the Globalisation scenario presented in Chapter 4, the growing size of the consumer market will encourage foreign firms to invest more. Furthermore, India would probably continue to benefit from the business process offshoring tendency, pushing up the FDI inflow.<sup>40</sup> Besides, India has a commitment to the rule of law and, in contrast with China, protects intellectual property. In the near future, India might lift the caps on FDI in banking, insurance and telecom. This would undoubtedly attract investment from abroad. For Dutch banks and insurance companies, the opening of financial service markets would boost their expansion in India.

Altogether, the long-term prospects for India to attract a growing flow of foreign investment look promising. But there is no guarantee that this will be realised. Although liberalisation has been carried further over the past few years, restrictions and limits on foreign participation still remain. Similarly, the poor infrastructure quality and the regulated labour market are impediments to investment from abroad. Rigid employment protection acts as a serious obstacle. Realisation of more Special Economic Zones (see also Box on page 29), with better infrastructure and less bureaucracy, would be a step forward. The same holds for the opening of

<sup>40</sup> Offshoring is shifting of activities to unaffiliated or affiliated firms abroad (Gorter et al., 2005, Euroframe 2005, OECD, 2007c).

the retail market. Moves to liberalise the labour market, to open the retail market and to create more zones are currently discussed but meet severe opposition.

Outward investment of India is expected to grow in the future. Key drivers for Indian firms to venture abroad include competitiveness improvements, market expansion, operating near customers and acquirement of technology, brand names and resources. Currently, Indian companies have very large investment plans. They consider the recent big international deals of *Tata* and *Mittal* as examples to be followed. Similarly, in order to secure energy provision, India's investment in natural resources and raw materials exploration will expand in Africa and other areas.

### **3.4 Impact of globalisation on Dutch wage distribution and employment**

Popular belief in both Europe and the United States is that globalisation – and in particular competition from low-wage countries – is a threat for employees in advanced countries. The recent rapid developments in China and India combined with the size of their economies are followed with particular concerns by many. A recent OECD poll shows that only 37% considers globalisation as positive, whereas 46% views it as negative (OECD, 2007e).<sup>41</sup> Even when globalisation benefits the average citizen, it is possible that these benefits are not shared equally in society. This section looks somewhat further into the possible impacts of globalisation on wage inequality and the employment structure of advanced economies. We first discuss the dominant views in the existing literature on the relative importance of globalisation in affecting the labour market. Subsequently, we look in somewhat more detail into recent developments on the Dutch labour market. An in-depth analysis of the specific impact of India is beyond the scope of this study. The impact of globalisation on the Dutch income distribution will be the subject of more extensive CPB research in the near future.

In the current literature, there are four main suspects for explaining the increases in wage inequality witnessed in most OECD countries. These are (i) globalisation, (ii) biased technological progress, (iii) reduced supply of (the quality of) high-skilled workers and (iv) labour market institutions (see, for example, Nahuis and De Groot, 2003). The first links up to the previously expressed fears that globalisation mainly goes at the expense of jobs at the bottom end of the labour market and as such puts pressure on equality. This can be understood based on a simple Heckscher-Ohlin model with two production factors (high-skilled and low-skilled workers). If in such a stylised model a country with both high-skilled and low-skilled workers (the North) starts to trade with a country with low-skilled workers only (the South), the

<sup>41</sup> The Dutch attitude towards globalisation in general is more positive than in many other countries. A survey by the European Commission shows that the Netherlands are one of the few EU member countries where more interviewees consider globalisation a good opportunity for national companies rather than a threat to employment (European Commission, 2006).

North will specialise in high-skill intensive products and the South in low-skill intensive products. In the North, this puts upward pressure on the wages of high-skilled workers, thus increasing inequality. The second explanation calls on, for example, the advent of information and communication technology that might be in favour of especially the high-skilled. For example, Katz and Murphy (1992) and Autor et al. (2006) explain how technological progress is a substitute for routine tasks that demand low skills, while it is complementary to the work of high-skilled workers that perform complex tasks, thus increasing the productivity of the latter. This would result in a lower price for low-skilled labour (which has to compete with new technologies), and a higher price of high-skilled labour (which has gained in productivity). Nahuis and De Groot (2003) find that both the skill premium and the supply of skilled workers have risen simultaneously in advanced countries during the past decades, and conclude that this is only possible if the demand for skilled workers has increased even stronger. Skill biased technological progress thus results in higher wages of skilled workers, and thus in more

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### **The direct impact of trade with India on Dutch employment**

Many popular discussions on globalisation seem to rest on an implicit assumption that the number of jobs is exogenously given and that a rise in employment in one country (India) unavoidably leads to a reduction in another country (the Netherlands). In the longer term, however, the number of Dutch jobs is determined by labour supply, the tax burden, and labour market institutions. Having stressed that, it is useful to have an impression of the direct impact of trade with India on Dutch employment. Three effects can be distinguished: the number of Dutch jobs involved in exports to India, the number of Dutch jobs involved in re-exporting goods imported from India, and the number of jobs 'lost' due to imports from India (that is, the number of workers that would be required to produce the goods currently imported from India). Input-output information can be used to take into account intermediate deliveries needed to produce the final export products (see Arnoldus, 2003). As a result, exports of goods to India do not only lead to employment in the manufacturing sector, but also in the services sector, while the exports of services to India also lead to employment in other sectors.

In 2006, exports to India accounted for around 12 thousand Dutch jobs. Most of those jobs can be found in the sectors metal industry and services. The employment impact of re-exporting goods imported from India is substantially less important, viz. around 1 thousand Dutch jobs (which is clearly less than the approximately 8 thousand Dutch jobs related to the re-exports of goods imported from China; see Suyker and De Groot, 2006). Thus, exports to India and re-exports of goods from India provide around 13 thousand jobs (around ¼% of total employment). Around 10 thousand Dutch workers would be needed to produce the same nominal amount of goods that are currently imported from India and that are not re-exported, but that are used or consumed in the Netherlands. Most of them would be required in the textile and footwear industry and in the electrical equipment sector. However, as Indian import prices are lower, producing the same amount in nominal terms would imply (i) producing less in physical terms or (ii) to have Dutch wages for those workers comparable to those of Indian workers, i.e. considerably less than the normal Dutch wage rate. Moreover, some of the Indian products cannot be produced here, even when they belong to a product group with production in the Netherlands.

The figures presented above have the advantage that jobs involved in exports are highlighted, avoiding a biased focus on the impact of imports only. Nevertheless, these figures should only be seen as a rough illustration given the caveats. Despite the potential relevance of trade, the more crucial factors for the determination of employment are the size of the working-age population, the tax burden and labour market institutions.

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inequality. A reduction in the relative supply of skills (in terms of quantity or quality) is a possible supply side explanation for increased inequality. Looking at the Netherlands, however, a relatively strong increase in the supply of skilled labour in the past decades has largely neutralised the effects of increasing skill intensity of the economy, resulting in a modest increase of the skill premium. Nowadays, the number of high educated workers is increasing at a relatively low rate. Reduced supply of skilled labour is likely to increase the skill premium and, again, to raise inequality. Finally, the effects of labour market institutions on the wage distribution can be substantial (Alderson and Nielsen, 2002; De Groot et al., 2006a and 2006b, Gottschalk and Smeeding, 1997). The way wages are negotiated, minimum wages, unemployment benefits, unionisation, and other institutional changes are known to be important determinants of wage inequality. The present study does not include further research to labour market institutions. Taken together, the dominant view in the current literature is that the contribution of globalisation is limited.

When we look at historical developments in the Netherlands, we see that between 1996 and 2006, total Dutch imports grew by 104% in value. Imports from India increased by 185%, and imports from China by 1071%. During this period, wage inequality stayed almost constant in the Netherlands (Figure 3.17). A vast amount of different indicators for inequality exists. This study uses the Gini- and the Theil-coefficient, both well known measures of inequality.<sup>42</sup> There has been quite some discussion on trends in wage inequality in the Netherlands recently. It is important to keep in mind that inequality has multiple dimensions. Most important are the individual versus the household level and pre-tax wage versus disposable income. For the present study, pre-tax wage inequality at the level of individual employees is the most appropriate indicator, since it is not affected by changes in the tax regime or a changing number of workers per household. Even this indicator, however, must be applied with care. If, for example, some low wage earners leave the social security system to enter the labour market, the measure used for inequality will show increased wage inequality, even if the relative income position of those already employed remained unchanged.

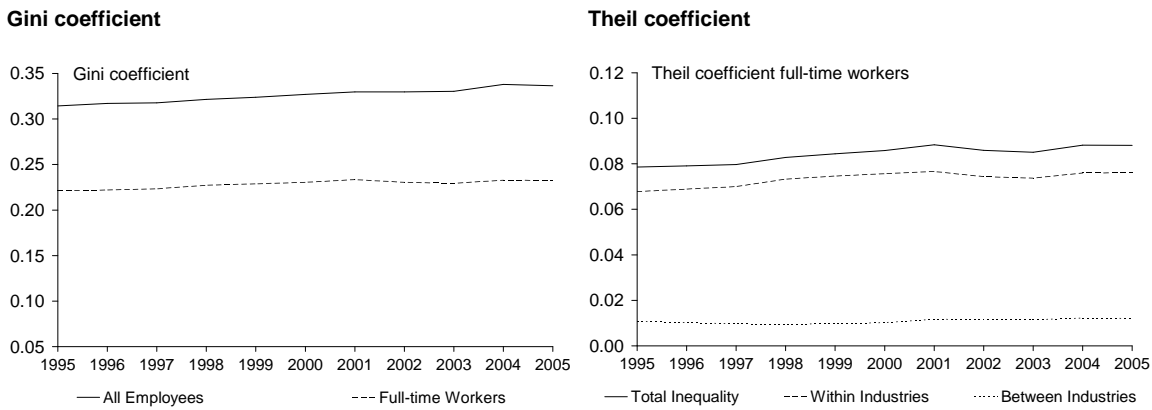
Wage inequality among all Dutch employees increased somewhat (as Figure 3.17 shows). However, when we look at full-time working employees only, it appears that wage inequality has changed very little. This points at a potential role of changing working habits in terms of increased part-time work in explaining developments in wage inequality. Previous studies on wage inequality in the Netherlands also indicate that inequality has been rather stable (Irrgang and Hoerberichts, 2006; Suyker and De Groot, 2006; SCP, 2007, Van den Brakel-Hofmans, 2007). The right-hand side of Figure 3.17 shows total inequality decomposed in between- and

<sup>42</sup> The Gini coefficient puts relatively much weight on the middle of the wage distribution, while the Theil coefficient puts a relatively high weight on the tails. When one person earns all income, both coefficients are equal to 1, whereas they both equal 0 when all employees have the same incomes.



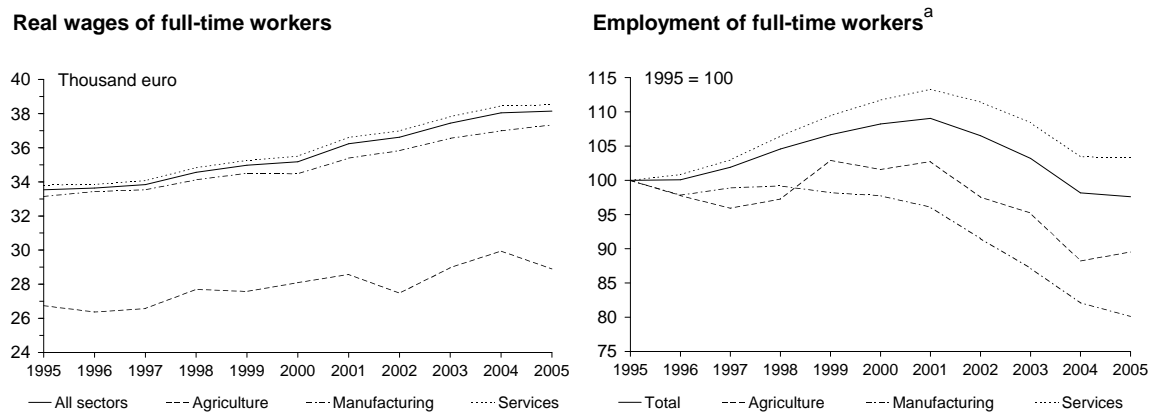
within-industry inequality. Although between-industry inequality has increased at a slightly higher rate than within-industry inequality, the general pattern of both indicators is similar. Within industry inequality accounts for the major part of total inequality.

**Figure 3.17 Wage inequality in the Netherlands, 1995-2005**



Comparative research into wage inequality in advanced countries indicates that, during the past two decades, wage inequality increased in most OECD countries (OECD, 2007e; Gottschalk and Smeeding, 1997). The Netherlands, however, appears to be one of the few exceptions to the general trend. There is some variety in studies that rank countries based on wage inequality, but the Netherlands are generally viewed as a country with a relatively egalitarian distribution and only a slight increase of inequality (see, for instance, Förster and Mira d’Ercole, 2005; Burniaux

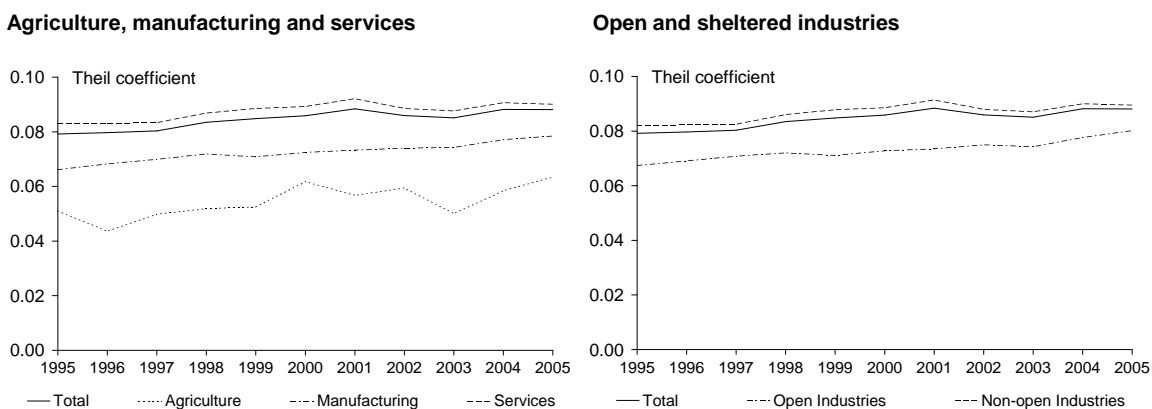
**Figure 3.18 Real wages and employment by sector, 1995-2005**



et al., 2006).<sup>43</sup> The findings of the present study are consistent with previous research in this respect. Figure 3.18 shows the development of real wages and employment in three main sectors. It is clearly visible that especially employment in the manufacturing industries has decreased during the last decade (see also Annex A, Table A.4). Since the wage distribution in the manufacturing industry is historically more equal than it is in services, this process could easily result in increased wage inequality in the total economy driven by a composition effect. Labour-substituting technologies have been applied more frequently in the manufacturing industries. The industrial production (measured in the amount of goods produced) has increased at about the same rate as the production of services. This process has resulted in both a higher relative price of services (especially services where labour is difficult to substitute with capital), and a higher share of service jobs.

In 2006, openness (defined as imports plus exports as a percentage of production) was 123 in agriculture, 141 in manufacturing, and only 21 in services. Figure 3.19 shows wage inequality of full-time working employees. Open industries – defined as those industries where the sum of imports and exports exceeds the production in that industry in the Netherlands – are as expected almost exclusively agricultural and manufacturing industries, whereas almost all services industries are in the non-open industries group. This makes it difficult to assess whether developments in inequality are driven by changes in the openness of industries (a proxy for globalisation) or more autonomous factors that result in decreasing agricultural and manufacturing employment in developed economies (such as increased demand for services and relatively strong increases in labour productivity in the manufacturing sector<sup>44</sup>). The most likely

**Figure 3.19 Inequality by sector and openness industry, 1995-2005**



Source: own calculations based on CBS Employment and Wage Survey (downloaded from CBS Statline, September 2007).

<sup>43</sup> OECD (2007b) reports the same for disposable income but reports a clear increase in wage dispersion measured as the 9th to 1st decile ratio.

<sup>44</sup> We refer to the literature on Baumol's disease of stagnant services for an elaboration on these forces (for example, Baumol, 1967, Echevarria, 1997, and Kongsamut et al., 2001).

**Table 3.13 Skill intensity of work in different industries and the aggregate economy**

	1996 %share	2006	Change in the number of employees per industry, 1996–2006							
			Agriculture		Manufacturing		Services		Total	
			Thd	% Share	Thd	% Share	Thd	% Share	Thd	% Share
Unskilled	6	7	3	2.3	12	2.4	59	0.2	74	0.4
Low skilled	26	24	– 19	– 2.1	– 45	– 3.8	109	– 1.6	45	– 2.2
Medium skilled	41	39	– 30	– 3.7	– 33	– 1.4	248	– 1.3	185	– 1.6
High skilled	27	30	6	3.5	10	2.7	392	2.7	408	3.3
Total			– 40		– 56		808		712	

Source: own computations based on CBS Labour Force Survey (downloaded from Statline, September 2007).

explanations, however, are unrelated to globalisation. See Annex F for a more in-depth discussion and analysis of different explanations for changes in wage inequality.

Table 3.13 looks at the evolution of employment of different skill types. It reveals that the number of unskilled jobs has increased somewhat during the last decade. These jobs are occupied by people with no or only very little education<sup>45</sup>. At the same time, an ongoing trend of increasing skill intensity within the economy has resulted in a lower share of low and medium skilled jobs, and an increased share of high-skilled jobs. Obviously, an increased number of both unskilled and high skilled jobs relative to jobs with average skill intensities, could easily result in increased wage inequality.

There are some facts in Table 3.13 that deserve further attention. The shifts in skill intensity are not distributed equally among the different industries. Within the agricultural and the manufacturing industries, especially low-skilled and medium-skilled jobs have disappeared (both in absolute terms and relative to the total economy), while the number of unskilled and high-skilled jobs increased. At the same time, the number of low-skilled and medium-skilled jobs (and workers) increased somewhat in the services sector, although their share in the total number of service workers decreased. Thus, the number of low-skilled and medium-skilled jobs has decreased much stronger in open industries than in the more sheltered industries.

Unfortunately, there is no microeconomic evidence that reveals the types of jobs that were created and destroyed. Since Table 3.13 includes only employed workers, it is – in theory at least – possible that there is a strong rise in unemployment of low educated workers. In such a case, globalisation or other labour market forces could have a negative impact that remains unobserved. However, overall unemployment has declined and there is no clear skill related pattern in Dutch unemployment (see, for example, Nickell and Bell, 1996).

<sup>45</sup> Even though Table 3.14 presents the skill intensity of jobs, educational levels were also included in the study.

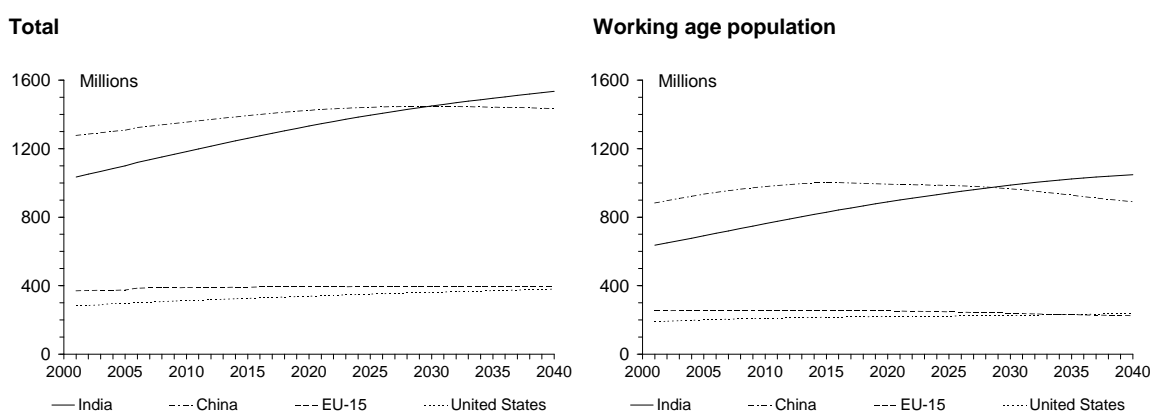


## 4 Long-term scenarios on India and the European economies

The analyses in previous chapters have revealed that in the very recent past, substantial changes have been taking place in the position of India in the world economy. Also internal changes have been huge, the effects of which are likely to be felt for decades to come. It is beyond doubt that the relative position of India in the world economy will become stronger, if only because of the reasonable projections of relatively high growth rates of population and per capita income. The impacts of these developments are impossible to predict with great precision. But some developments are more likely than others. Based on reasonable assumptions on future developments, and using applied general equilibrium models to guarantee internal consistency, possible future developments can be sketched. These future developments can be differentiated, depending on assumptions regarding, for example, future global trends in worldwide integration. Such exercises aimed at sketching reasonable and internally consistent future development paths are known as scenario analyses.

This Chapter elaborates on the results of a scenario analysis outlining the possible impacts of future developments in India on the world economy at large and on the EU-15 in particular. The sources of uncertainty along which the scenarios will be differentiated are related to developments in the world economy and developments within India. Two different scenarios are constructed with CPB's WorldScan model. WorldScan is an applied general equilibrium model for the world economy (see Annex G). The scenarios presented here build on previous long-term analyses (Lejour, 2003; De Mooij and Tang, 2003) and are comparable to those used in the study on the impact of China (Suyker and De Groot, 2006).<sup>46</sup>

**Figure 4.1 Population, 2000–2040**



Source: United Nations, World Population Prospects: The 2004 Revision.

<sup>46</sup> The sectoral classification is the same as in Lejour (2003), but India and China are now separate regions while they were part of the "rest of the world" region before. This disaggregation of the "rest of the world" and other minor modifications lead to slightly different outcomes for the EU-15.

In the first scenario, globalisation continues at the current pace, while in the second one the globalisation process decelerates and the world economy settles into regional cooperation. These two scenarios result in a spectrum of possible alternative futures, each describing feasible and internally consistent views of the world economy. Both scenarios are based on the same population projection. In this projection, India overtakes China as the most populous country in 2030 (Figure 4.1). A couple of years earlier, India already becomes the country with the biggest working-age population. Moreover, in contrast with China, the United States and the EU-15, its working-age population continues to rise up to 2040, largely due to relatively late ageing of the population.

## 4.1 Globalisation scenario

In the Globalisation scenario, world trade and global economic growth are boosted by enhanced trade liberalisation, economic integration and the emphasis on the efficient functioning of markets. Additional international trade agreements result in substantial reductions in barriers to trade (tariffs and non-tariff barriers).<sup>47</sup> Furthermore, trade is facilitated by more transparent and uniform customs procedures. Innovation and international competition spur labour productivity all over the world.

As a consequence of enhanced international integration and the smooth functioning of national and international goods and services markets, productivity rises rapidly and India's economic growth is, on average, 8.4% per year up to 2020 (see Table 4.1), from around 6.8% per year in the period 2002–2005. In the next two decades, economic growth returns to a still high level of 8.2% per year. As a result, India's GDP per capita rises from 2.5% of the EU-15 level measured in exchange rates to 5% in 2020 and 14% in 2040 (see Figure 4.2). This convergence pattern is not as dramatic as for China (see Suyker and De Groot, 2006). In contrast to China, the size of the Indian economy (measured in terms of total GDP at current exchange rates) will remain smaller than that of the EU-15 by 2040 (Figure 4.3). However, India's economy is becoming substantially more important. The Indian economy will represent 5% of the world economy by 2040 measured in exchange rates and substantially more when measured in purchasing power parities. Energy demand will be strong in this scenario (see also IEA, 2007).

Measured by the average of exports and imports as a percentage of GDP, openness of the Indian economy increases by around 15 percentage points. High growth in India, China and the rest of Asia re-directs European trade flows towards the Asian continent. Total Indian exports to the EU-15 increase almost 20-fold between 2006 and 2040. The equivalent number for European exports to India is 15 times.

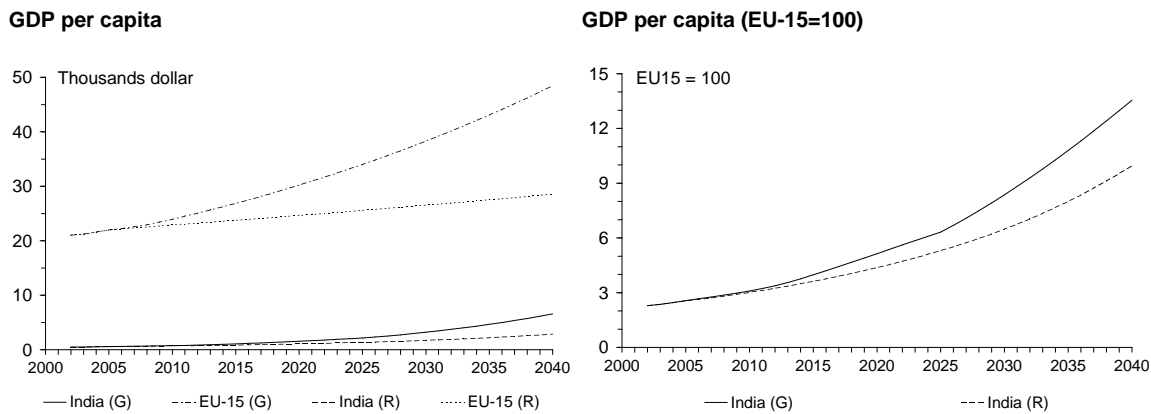
<sup>47</sup> Given the importance of services trade for the Indian economy, we first calibrate the model including non-tariff barriers (NTBs) in the following services sectors: communications, financial services and other business services. In the Globalisation scenario these NTBs are substantially reduced, but are left unchanged for the Regionalisation scenario. These NTBs were not included in Suyker and De Groot (2006).

**Table 4.1 GDP growth, annual averages 2002–2040**

	2002–2005	Regionalisation		Globalisation	
		2006–2020	2021–2040	2006–2020	2021–2040
India	6.8	5.8	5.7	8.4	8.2
EU-15	1.7	1.1	0.9	2.5	2.5
New EU members	2.8	2.4	1.9	5.0	5.7
Candidate members	3.7	3.7	3.6	7.4	7.9
Rest OECD	2.3	1.6	1.3	2.9	2.8
China	9.1	6.5	4.2	8.4	7.1
Former Soviet Union	6.1	5.0	5.8	6.0	6.6
Rest of the World	3.1	4.0	4.6	4.8	7.4
All regions	2.7	2.4	2.4	2.9	4.5

Source: WorldScan calculations.

**Figure 4.2 GDP per capita of India and the EU-15<sup>a,b</sup>, 2000–2040**



<sup>a</sup> G: Globalisation scenario, R: Regionalisation scenario.

<sup>b</sup> In prices of 2001; measured at exchange rates.

Source: WorldScan calculations.

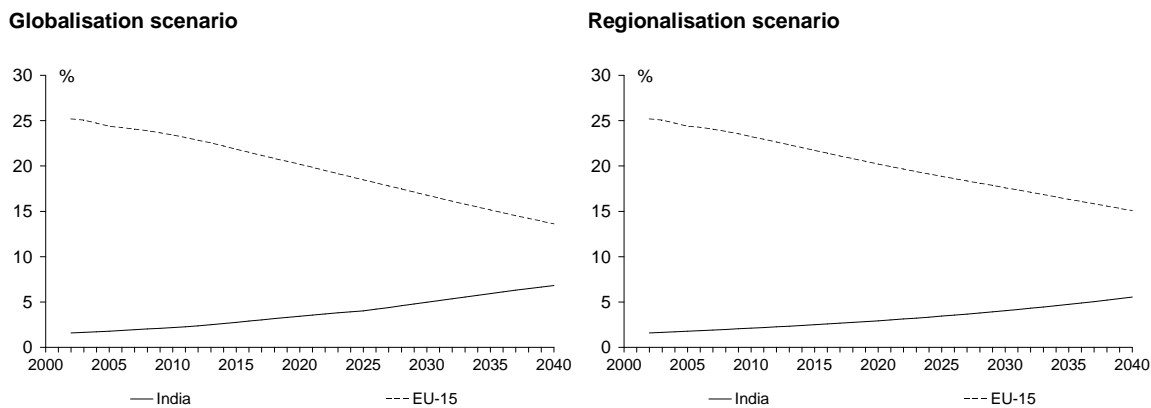
Further trade liberalisation and the move towards more private responsibilities not only boost output growth of India, but also that of the EU-15. In the globalisation scenario, EU-15 output growth is 2.5% per year in the period 2006–2040. This is accompanied by a wider income dispersion. The ratio of unskilled to skilled wages widens from an EU-15 average of 0.62 in 2002 to 0.52 in 2040 (see also Section 3.4). However, the unemployment rate drops as there are stronger incentives for the unemployed to find a job and as the burden for employers to attract employees falls.

## 4.2 Regionalisation scenario

In the Regionalisation scenario, world trade and global economic growth is lower than in the Globalisation scenario because of limited international cooperation, more regulation and less room for private initiatives. The world is fragmented into a number of regional trade blocks and

technology spill-overs to emerging economies are limited. Globally, there is no further reduction in trade tariffs, but there are more regional trade agreements, for instance between India, China and the rest of Asia. As a consequence of more barriers and less incentives, India's economic growth is weaker than in the Globalisation scenario. Between 2006 and 2040, India grows at 5.7% per year, which is lower than in the period 2000–2007 (see Table 4.1). However, as growth in the high-income countries is weaker as well in this scenario, the development of the relative size of the Indian economy is not substantially different.

**Figure 4.3 Shares in world GDP<sup>a,b</sup> of India and the EU-15, 2000–2040**



<sup>a</sup> IG: Globalisation scenario, RA: Regionalisation scenario

<sup>b</sup> In prices of 2001; measured at exchange rates.

Source: WorldScan calculations.

In this scenario, growth in world exports is limited, and the share of intra-EU trade remains relatively high. Openness of the Indian economy is hardly affected as it drops only with 0.8 percentage points. However, the bilateral trade between the EU-15 and India is still increasing, but at a less dramatic rate than in the Globalisation scenario (see Table 4.4).

**Table 4.2 Sectoral value added in India and EU-15, 2006 and 2040**

	2006		2040		Globalisation	
	India	EU-15	Regionalisation India	EU-15	India	EU-15
	% National income					
Agriculture and food	24.9	5.0	16.4	3.8	13.2	2.8
Energy and raw materials	6.1	2.3	10.6	2.7	14.4	3.9
Chemicals and minerals	3.0	4.1	1.3	2.9	0.5	2.7
Capital goods	4.3	9.2	2.6	6.4	1.7	5.8
Other manufacturing	6.4	5.5	4.9	4.4	3.9	3.9
Trade and transport	19.5	17.1	18.9	17.9	17.3	15.5
Business services	9.0	18.8	10.6	19.8	11.9	20.6
Other services	26.8	38.0	34.5	42.0	37.0	44.9

Source: WorldScan calculations.



**Table 4.3 Production growth by sector in India and EU-15, 2006–2040**

	Regionalisation		Globalisation	
	India	EU-15	India	EU-15
	Annual percentage changes			
Agriculture and food	4.0	0.3	5.4	0.9
Energy and raw materials	5.4	1.1	7.7	3.5
Chemicals and minerals	5.2	0.4	6.1	2.1
Capital goods	5.5	0.1	7.8	1.4
Other manufacturing	5.3	0.4	7.6	1.6
Trade and transport	5.1	0.9	6.9	2.0
Business services	5.4	1.0	7.6	2.6
Other services	5.3	1.0	7.2	2.6

Source: WorldScan calculations.

Output growth in the EU-15 is less than in the recent past, in contrast to the Globalisation scenario. This is the result of less productivity improvements and of a drop in the labour force due to restrictive immigration policies. Income dispersion is not expected to rise significantly in this scenario, while the unemployment rate of the EU-15 remains unchanged and the employment increase is rather modest. Labour reallocation is less than in the Globalisation scenario, which is largely caused by the slower development of GDP per capita which strongly drives changes in the composition of demand in the model (see Table 4.3).

### 4.3 A further comparison of the two scenarios

The two scenarios do not only differ at the macroeconomic level, but also at the sectoral level. The share of the services sector varies because of different developments in per capita income in combination with relatively high income elasticities for consumer services. Hence, the share of services sectors is larger in the Globalisation scenario than in the Regionalisation scenario (see Table 4.2). This is the case for both India and EU-15.

The most striking development present in both scenarios is the considerable increase in bilateral trade flows between EU-15 and India. It can be expected that the strong rise also holds for bilateral trade between the Netherlands and India. While the changes are much more pronounced in the Globalisation scenario, there are already significant changes when trade barriers are left at roughly the same levels as in 2006. Increased trade flows, however, are only partially responsible for the significant labour and production reallocation towards the services sectors which expected to take place in the EU-15 in the long term (Huizinga and Smid, 2004).

**Table 4.4 Bilateral trade flows between India and EU-15, by sector, 2006–2040**

	Sectoral Shares 2006  %	Regionalisation		Globalisation	
		Sectoral Shares 2040	% Annual change 2006–2040	Sectoral Shares 2040	% Annual change 2006–2040
<b>Exports from India to EU</b>					
Agriculture and food	6.7	1.2	– 0.3	1.4	7.2
Energy and raw materials	1.5	0.2	– 1.0	0.2	2.4
Chemicals and minerals	9.0	10.0	5.1	5.4	7.7
Capital goods	10.6	21.7	7.0	24.8	12.1
Other manufacturing	43.0	34.6	4.1	37.9	9.0
Trade and transport	12.0	14.8	5.5	12.3	9.5
Business services	15.4	16.7	5.0	17.5	9.9
Other services	1.7	0.8	2.4	0.6	6.3
Total	100.0	100.0	4.8	100.0	9.6
<b>Exports from EU to India</b>					
Agriculture and food	1.2	4.6	7.3	0.5	8.6
Energy and raw materials	2.0	9.8	8.0	9.3	13.2
Chemicals and minerals	9.0	6.2	2.0	16.1	10.4
Capital goods	23.2	8.7	0.2	8.7	5.4
Other manufacturing	32.1	29.7	2.9	44.4	9.5
Trade and transport	12.4	8.4	2.0	2.1	2.9
Business services	17.5	28.4	4.6	18.1	8.5
Other services	2.5	4.2	4.7	0.9	5.1
Total	100.0	100.0	3.1	100.0	8.5

Source: WorldScan calculations.

**Table 4.5 Labour allocation in the EU-15, total labour shares by sector, 2002–2040**

	2002  %	Regionalisation	Globalisation
		2040	2040
Agriculture and food	4.9	3.5	2.7
Energy and raw materials	1.1	1.3	1.9
Chemicals and minerals	4.3	2.9	2.7
Capital goods	11.2	7.7	7.0
Other manufacturing	6.1	4.9	4.3
Trade and transport	20.7	19.6	17.1
Business services	12.3	15.4	15.9
Other services	39.3	44.7	48.4
Total	100.0	100.0	100.0

Source: WorldScan calculations.

In the Regionalisation scenario, also business services (in particular, financial services and other business services) and other services, experience a significant increase. In the Globalisation scenario, the business sector is also expanding, but its export share is reduced due to the increase of chemicals and minerals exports, as well as the high share of other manufacturing exports.

In the case of India, the most remarkable export sector is ICT services, which are aggregated into the business services sector in Table 4.4. In the Regionalisation scenario, this expansion makes the export shares of business services increase. However, in the Globalisation scenario there is another significant development in Indian exports to the EU-15: the rise of manufacturing exports. In particular, capital goods and other manufacturing exports increase significantly. This significant increase is likely to require further domestic reform. Currently, the Special Economic Zones are not fully developed, while still many exportable labour-intensive manufactured goods that are reserved for small-scale enterprises. This increase in manufactured goods reduces the export share of the business services as a whole, even when the IT sector is expanding.



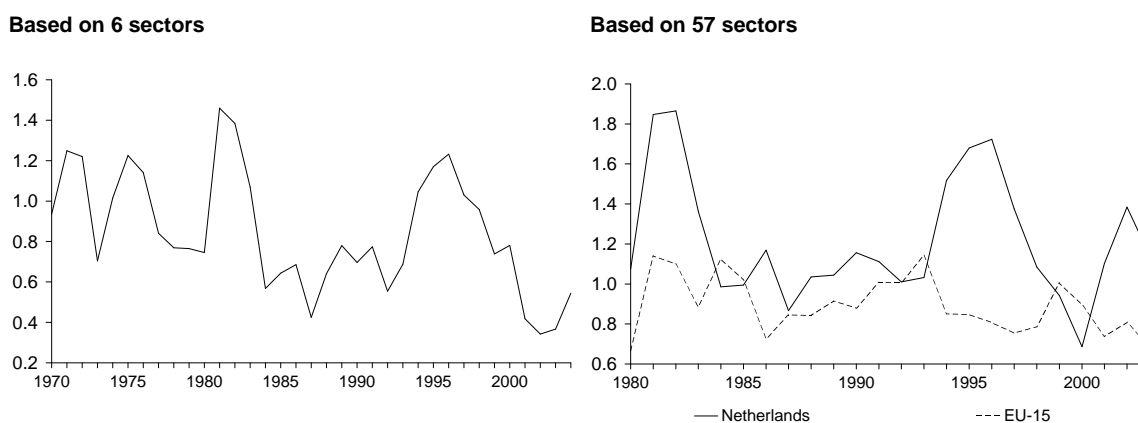
## 5 India and the Dutch economy

### 5.1 Impact, outlook and risks

India's recent impressive economic performance has had a positive net impact on the Dutch economy. Furthermore, the doubling of Indian life expectancy, the fall in the absolute number of poor Indians since 1999 and the recent acceleration in income increases are developments that are associated with the restructuring of the Indian economy and are evidently developments to be welcomed. At the same time, when we compare the stage of development of India and its integration in the world economy with that of China, the contribution of India is rather modest. Imports of cheap goods and services from India have raised somewhat the purchasing power of Dutch households. In India, new and expanding markets for Dutch products have emerged. These expanding markets have provided Dutch firms with attractive investment opportunities. Yet, current Dutch activities in India are still relatively modest. In so far as activities are taking place, the main motivation is the big and rapidly expanding Indian market and not so much cheap labour. This is consistent with the evidence of limited relocation of Dutch firms to low-cost countries in general (Ministerie van Economische Zaken, 2005; Gorter et al., 2005; Berenschot, 2004; Volberda et al., 2007).<sup>48</sup>

Increasing exports from India and other emerging countries did not have a noticeable impact on the pace of employment restructuring in the Netherlands (see Figure 5.1). Nor did this

Figure 5.1 Shift in the Dutch sectoral employment pattern, 1970–2004<sup>a</sup>



<sup>a</sup> Sum of absolute values of changes in sectoral employment shares divided by two.

Sources: Own calculations based on CBS National Accounts and OECD Structural Analysis Database.

<sup>48</sup> Approximately 84% of Dutch firms that could relocate activities, did not do so in the past 10 years (Berenschot, 2004). Most relocations were done to Central and Eastern Europe, followed by Western and Southern Europe and the dynamic Asian countries. Available evidence indicates that relocation to emerging economies was also limited for other European countries (Euroframe, 2005).

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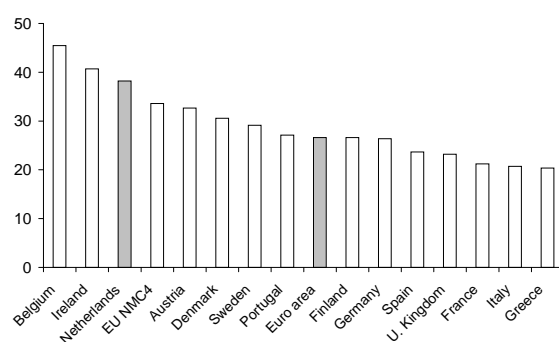
## Globalisation and the Dutch economy: a comparison with the rest of the euro area

The Netherlands are one of the most open advanced economies measured by import intensity (see figure below). In 2006, imports of goods and services constituted about 40% of total final expenditure. Only six<sup>a</sup> European OECD countries had a higher import intensity in 2005, while the Dutch import intensity exceeded that of the euro area by 12%-points. Remarkably, during the recent past when globalisation has gathered pace, Dutch openness has risen less than elsewhere. For the Netherlands, the import intensity has increased by 3%-points of total final expenditure between 1995 and 2005, while it has risen 5%-points on average for the euro area countries (see figure below).

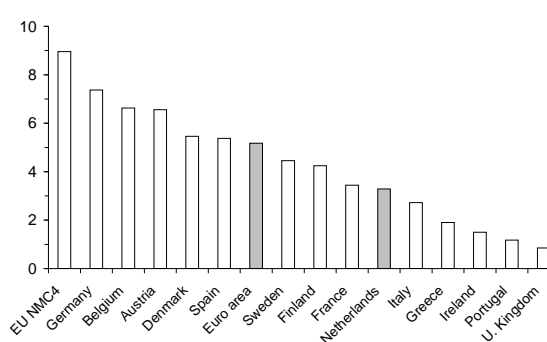
Moreover, the relatively limited recent increase in Dutch import intensity is almost fully due to exports. Imports used for exports (re-exports) have risen by 10%-points up to 34% of total exports. The use of imports as intermediate input in Dutch production processes has risen only marginally, in contrast with the rapid rise reported for the G7 (OECD, 2007b).

### Import intensity<sup>b,c</sup>

#### 2005



#### 1995-2005 change



Source: Own calculations based on OECD Annual National Accounts statistics.

<sup>a</sup> Luxembourg, Belgium, Slovak Republic, Czech Republic, Ireland and Hungary.

<sup>b</sup> Import density is defined as imports as a percentage of total final expenditure (total final expenditure is the sum of GDP and imports).

<sup>c</sup> EU NMC4: Czech Republic, Hungary, Poland and Slovak Republic.

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development lead to higher unemployment or a marked widening of Dutch wage differentials (see Section 3.4). During the past decade of rapid globalisation, Dutch employment has risen rapidly (see Section 3.4 and Box on page 89). Dutch employment from exports to India and re-exports of Indian imports is estimated at around 13 000 jobs, approximately ¼% of total employment (see Box on page 71). Concerning competition on world markets, the overlap in strengths between India and the Netherlands is limited, but not completely absent and stronger than between China and the Netherlands (see Section 3.1.2).

The Indian economy is expected to expand further. Up to 2040, exports from India to the EU-15 could increase between 5% and 10% per year, depending on the speed of international economic integration (see Chapter 4). Dutch exports to India could increase in line with EU-15 exports. Increasing trade with India and other emerging economies will continue to enhance Dutch welfare in the coming years and will continue to be associated with more intense

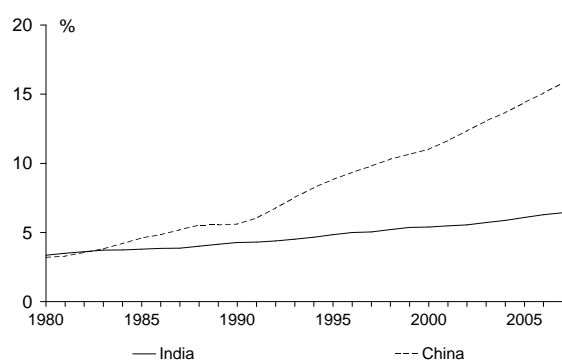
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## What about the impact of China, the other awakening Asian giant?

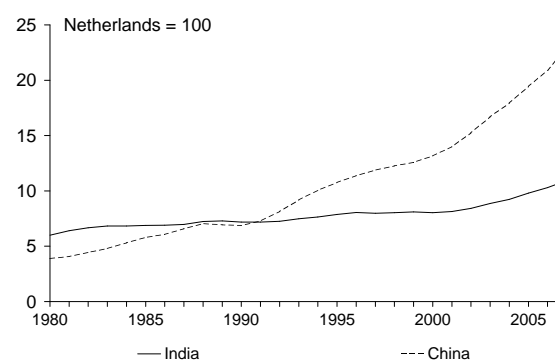
China is mentioned even more often than India in discussions on the impact of globalisation on advanced economies. The two countries are by far the world's most populous and together account for two fifth of the world population. China's economic performance has been breathtaking. In 1980, the two countries were fairly similar economically. Since then, China's share in world GDP has almost quintupled, while that of India almost doubled (see figure below). China's share in world exports of goods was 7.9% in 2005, compared with India's share of just 1.1%. China's average income per capita is now almost a quarter of Dutch income per capita, while that of India is only slightly more than a tenth of the Dutch level (based on purchasing power parities, PPPs). Other development indicators, such as life expectancy, also indicate that China is more advanced than India (Annex A, Table A.3). The rapid growth in China was accompanied with sharply rising inequality in China, while India's inequality remained broadly unchanged (IMF, 2007). Main reasons for the more favourable Chinese growth performance were that it invested more in infrastructure and pursued a more outward-oriented economic policy, with much higher FDI inflows (see Figure 3.14).

The larger openness of the Chinese economy is also reflected in Dutch foreign goods trade. China's share in Dutch goods imports has been rising very rapidly (see figure below).<sup>a</sup> The same holds for Dutch exports of goods to China. Offshoring of services to India got wide attention recently (see also Section 3.2). However, to put numbers in perspective, Dutch imports of services from China are up to now still substantially larger than those from India (1.2 billion dollars and 0.3 billion dollars in 2006, respectively).

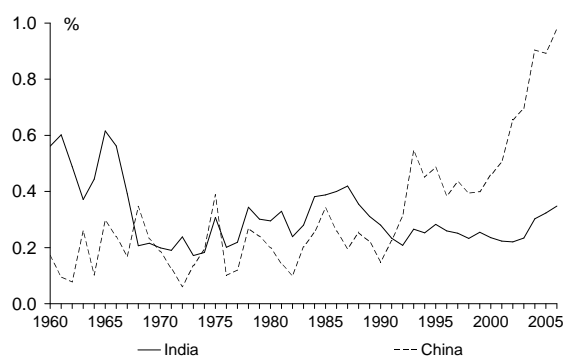
### Share in world GDP at PPPs



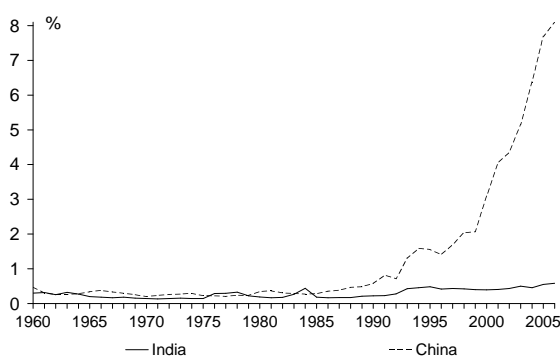
### GDP per capita at PPPs



### Share in Dutch goods exports



### Share in Dutch goods imports



Sources: IMF World Economic Outlook database Autumn 2007; OECD, Monthly statistics of international trade (October 2007).

<sup>a</sup> Trade flows can also be measured in containers. In 2006, 518 thousand containers arrived from China in the Dutch harbours, compared with only 22 thousand containers from India (Source: CBS Statline).

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competition and sectoral restructuring. Welfare improvements will not develop in an eye-catching way and negative effects (such as restructuring of specific plants) are likely to be more visible than positive ones (such as cheaper products for all Dutch consumers and new export possibilities for Dutch firms).

Most of the influences seen on the Dutch economy in recent years are likely to persist in the medium and long term. Dutch exports to India are likely to become more important, the expanding Indian market will provide Dutch enterprises with attractive foreign direct investment opportunities, some positive impact on Dutch purchasing power related to imports from India could continue, a continued limited shift in Dutch sectoral composition is likely with a very limited impact on frictional unemployment; limited downward pressure on wages of low-skilled workers may persist despite the offsetting impact of rising labour demand from non-tradable services. As the weight of India and other dynamic Asian countries in the world economy is rising, future shocks in the economies of these countries will have a stronger impact on the Dutch economy (OECD, 2007b; Molnar et al., 2007)

There is clearly no consensus among economists on the impact of the emergence of the Indian services sector as a major world player on the advanced countries. Blinder (2006, 2007) characterises this emergence in combination with technological progress as a new Industrial Revolution. He believes that ‘the confluence of rapid improvements in information and communications technology (ICT) coupled with the entry of giants like China and India into the global economy is creating a situation which, while perhaps not theoretically novel, may be historically unprecedented’. Baldwin (2006) characterises the current development as the second Great Unbundling.<sup>49</sup> Bhagwati (2007a, 2007b, 2004), however, stresses the ‘business as usual’ character of offshoring of services and the limited scale of the current offshoring.

The long-term scenarios presented in Chapter 4 and in Huizinga and Smid (2004) show for the coming decades a continuation of sectoral restructuring in advanced countries like the Netherlands, but certainly not a radical acceleration in sectoral shifts. Due to technological change, some previously non-traded services will become tradable, but many services will remain relationship-based activities for which distance matters a lot (Leamer, 2006).

In this context, it is also relevant to put the Indian education and skill level in proper perspective (see also Chapter 2). This level is still low. Of the Indian population, 39% is illiterate, compared with 10% in China and close to 0% in the Netherlands. Concerning tertiary education, the absolute numbers are huge, as always in India. However, as a percentage of the population the number of tertiary graduates is still limited according to western standards. In India, enrolment

<sup>49</sup> The first unbundling occurred in the 19th century and allowed the spatial separation of factories and consumers. The second unbundling is a slicing up of the production chain, leading to trade-in-tasks instead of trade-in-goods. See also Grossman and Rossi-Hansberg (2006).



in tertiary education was 12% of the relevant age group in 2005, much lower than the 59% in the Netherlands (World Bank, 2007b). Moreover, the quality of most tertiary education institutes is poor (OECD, 2007a, Bhagwati et al., 2004; Gereffi and Wadhwa, 2005). It will take decades to improve the education level in India (see also Box on page 54). Moreover, not all high-skilled workers will be available to work in the export sectors and already now there are substantial shortages.<sup>50</sup>

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### **What has happened with Dutch employment in the past decade when globalisation gathered pace?**

Between 1996 and 2006, the number of jobs in the Netherlands has risen by 670 thousand, a rise of 11%. Of course, not all industries experienced job rises. In industries with falling employment 169 thousand jobs were lost in total, while in the other industries 841 thousand jobs were created (for detailed sectoral information see Annex A, Table A.4).<sup>a</sup> The past decade saw a continuation of previous trends: fewer jobs in manufacturing and agriculture and more jobs in services, especially health care and financial and business services. The industry 'computer and related activities', according to some heavily competed by the Indian software industry, had the strongest rise in number jobs (+91%, 61 thousand jobs). The textile industry, markedly influenced by low-cost countries and productivity rises, had the strongest fall in jobs (-41%, 13 thousand jobs).<sup>b</sup>

Differences between sectors have many causes, among others differences in openness/tradability, differences in productivity increases, different shifts in the use of intermediate deliveries from other sectors, different impact of changes in labour and product market policies, and differences in the development of consumer preferences. It is difficult to disentangle these effects. The more so since, for instance, trade and productivity influence each other (Feenstra, 2007).

<sup>a</sup> This underestimates the labour market dynamics as there are also offsetting job gains and losses within sectors.

<sup>b</sup> The textile industry has been declining for many decades (CBS, 2004). In 2006, the number of jobs in the textile industry was 19 thousand (full-time equivalents), only a fraction of the 223 thousand in 1950.

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## **5.2 Implications for Dutch economic policy**

As regards promotion measures, the continued strong expansion of the Indian economy asks for promotion of trade in goods and services by the Dutch Ministries of Economic Affairs and Foreign Affairs aimed at supporting Dutch companies in competing in the huge, complicated, but also promising Indian market. Provision of trade information is at least partly a public good, would lower transaction costs and would therefore strengthen the position of the Netherlands as a trading nation (WRR, 2003).

Furthermore, Indian multinationals are emerging and will start searching for attractive regions to locate their main European offices, which may generate positive external effects (Berenschot, 2007). Also in attracting foreign direct investment from India, the Netherlands Foreign Investment Agency (NFIA) can play an important facilitating and intermediary role.

<sup>50</sup> In this context Kochhar et al. (2006) mention the Bangalore bug (the Indian variant of the Dutch disease). High wages in the ICT sector in Bangalore and elsewhere in India may hamper a shift in India from the agricultural sector to the manufacturing sector as supervisors of low-skilled workers are expensive.

Concerning trade policy, the European Commission and the Dutch authorities could focus on the opening-up of the Indian market (in the interest of both the European as well as the Indian economy), while monitoring respect of ILO-prescriptions on among others work conditions and child labour. Lifting of restrictions on foreign investment in the financial sector would have favourable effects. A bilateral trade and investment agreement is discussed at the moment. Such an agreement could be useful (Gasiorek et al., 2007), but a multilateral agreement in the Doha-round would be even more desirable and effective.

Concerning other economic policy measures, it has to be kept in mind that the impact of the emergence of India has been limited so far. The same holds, although to a lesser extent, for globalisation in general. It is important to underline that further globalisation, including the emergence of India, is likely to enhance Dutch as well as Indian welfare.<sup>51</sup>

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#### **Globalisation adjustment funds have mixed records**

This year, the European Union has started a new 500 million euro European Globalisation Adjustment Fund, designed to assist workers made redundant as a result of changing global trade patterns (European Commission, 2007). Member states may receive 50% of the cost of action plans focused on finding jobs by the displaced workers. Only active employment measures (job-search assistance, training, mobility allowances) can be funded. In 2007 only a fraction of the available 500 million euro will be used. In September, only around 10% of the funds available had been allocated.

The United States have had such a target programme for trade-displaced workers for already 40 years (the Trade Adjustment Assistance Programme with outlays of almost 1 billion dollar). Political economy reasons may play a role in the sense that such measures can be seen as compensations that facilitate reaping the fruits of trade liberalisation and further integration.

In practice, it is often hard to measure the exact cause of lay-offs and other reductions in employment levels. Causes may intermingle and the proximate reason may not be the real cause. As a consequence, estimates of trade-induced job displacements range from 0 to 20% of all permanent layoffs (European Commission, 2005). The OECD (2005c) concludes that such targeted programmes may make sense when an entire sector is affected and is located in an already depressed region. However, such measures have a mixed record and can become a barrier to the necessary adjustments. This can be avoided by having clear time-limitations to such measures. Nevertheless, reliance on general labour market programmes and the standard unemployment insurance systems is in most cases clearly preferable.

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No major acceleration in firm restructuring and shifts in the sectoral composition are foreseen in the long-term scenarios presented in Chapter 4. It is crucial to refrain from trying to halt unavoidable adjustments stemming from globalisation. Concerning offshoring of service activities, OECD (2007c) mentions as reactions that public authorities should avoid: cancelling or requiring repayment of government aid to firms that shift operations offshore; excluding firms that shift operations offshore from government contracts; taxing the offshoring-related imports of companies that fail to comply with environmental rules.

<sup>51</sup> According to model simulations of the European Commission, exploiting the opportunities offered by the present globalisation phase could bring additional income gains of over 5000 euro annually, in 2004 prices, for every EU household (Denis et al., 2006). In the light of another study (Badinger, 2005), however, this estimate seems to be on the high side.

Increased trade flows will only be partially responsible for future labour and production reallocation towards the services sectors in the EU-15 and in the Netherlands (see Chapter 4 and Huizinga and Smid, 2004), despite the revealed comparative advantage of India in some services. Nevertheless, as more trade with India will lead to some restructuring – possibly concentrated in specific regions – labour market policies aimed at lowering adjustment costs are relevant (OECD, 2005b; OECD, 2005c). European workers losing their job in high import-competing industries have somewhat bigger problems in finding a new job than other job losers (Heyma and Theeuwes, 2007). Thus, continued spending on retraining programmes may be warranted to smooth the adjustment.

The globalisation-induced restructuring may lead to some reappraisal of the economic role of unemployment insurance schemes. Such schemes play an important role in cushioning the impact of trade-related job displacement, thereby leading to a more even distribution of benefits and costs of international economic integration. Moreover, the unemployment insurance schemes allow job losers with the possibility to search for a new job that makes good use of their skills. These assessments are consistent with the conclusion in De Mooij (2006) that the insurance function of the welfare state renders an important condition for internationalisation ('greasing the wheels').

It is beyond doubt that globalisation sharpens competition. Rents of production factors, i.e. factor remuneration above proper market rates, will therefore fall. Remunerations are going to depend more on the comparative advantages of a country. The revealed comparative advantage analysis presented in Sections 3.1.2 and 3.2.2 shows the persistence of sectors and products for which the Netherlands have a strong position on the world market. Policies should not foster these existing comparative advantages by old-fashioned industrial policy or by defensive measures but by creating proper framework conditions.

Finally, strengthening Dutch comparative advantages demands innovation. With regard to education, there are several promising policy options to increase welfare (Cornet et al., 2006, Minne et al., 2007). Concerning R&D policy, there is less consensus and more debate. Cornet and Van de Ven (2004) conclude that more R&D would enhance Dutch welfare. Empirical research shows, however, that it is difficult to introduce policy measures that will increase R&D (Cornet et al., 2006). This holds even more for sector-specific measures. There is no convincing empirical evidence showing that governments are able 'to pick the winners'. More promising are general measures that provide incentives for young innovative firms to enhance R&D. The same holds for measures to boost the provision of risk capital. A warm welcome to high-skilled

foreigners could also boost the innovative capacity of the Dutch economy.<sup>52</sup> In this context, the rising number of Indian scientists and engineers can be seen as an opportunity.

<sup>52</sup> Moreover, as shown clearly by the impact of temporary emigration of Indian software engineers to the United States in the 1980s and 1990s (OECD, 2007a) , it can create strong and fruitful permanent links between Dutch and Indian enterprises.

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## Annex A Background statistics

This Annex provides background statistics on Dutch trade with China, India and the world (as compared to the EU-15 average), key economic indicators of the main countries considered in this study and the Dutch sectoral employment structure.

**Table A.1 Export shares of the Netherlands and EU-15 with India, China and world, 2005**

	ISIC Rev.3	Netherlands			EU-15		
		Shares in exports to:			Shares in exports to:		
		India	China	Total world	India	China	Total world
Grand total		100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, hunting, forestry and fishing	01-05	1.1	1.8	5.3	0.2	1.3	2.1
Mining and quarrying	10-14	2.0	2.2	5.8	38.2	3.5	2.8
Food products, beverages and tobacco	15-16	2.6	7.7	11.3	0.9	3.6	6.7
Textiles, textile products, leather and footwear	17-19	2.2	1.4	2.8	1.5	3.3	4.9
Wood and products of wood and cork	20	0.0	0.0	0.1	0.0	0.1	0.1
Pulp, paper, paper products, printing and publishing	21-22	4.3	2.5	2.6	3.2	2.5	3.3
Coke, refined petroleum products, nuclear fuel	23	0.2	0.2	8.2	0.5	0.2	3.6
Chemicals excluding pharmaceuticals	24ex2423	27.9	24.4	13.7	8.1	11.3	10.5
Pharmaceuticals	2423	3.5	1.9	3.8	1.7	2.4	5.8
Rubber and plastics products	25	2.1	1.2	2.1	1.1	1.5	3.0
Other non-metallic mineral products	26	0.9	0.3	0.6	0.9	0.7	1.5
Basic metals and fabricated metal products	27-28	9.5	10.9	5.5	8.9	9.8	8.3
Machinery and equipment, n.e.s.	29	16.4	17.2	5.8	13.3	24.6	11.3
Office, accounting and computing machinery	30	2.5	4.0	11.5	1.3	2.5	3.6
Electrical machinery and apparatus, n.e.s.	31	3.9	5.5	2.3	4.0	7.4	4.0
Radio, television and communication equipment	32	3.5	5.5	7.0	4.1	9.0	5.6
Medical, precision and optical Instruments	33	14.5	11.5	5.2	4.3	5.2	3.7
Transport equipment	34-35	2.2	1.2	5.2	6.3	9.8	16.6
Manufacturing nec; recycling	36-37	0.5	0.6	1.1	1.4	1.3	2.3
Electricity, gas and water supply	40-41	0.0	0.0	0.1	0.0	0.0	0.4
High technology manufactures		25.3	24.2	31.6	25.0	26.0	22.1
Medium-high technology manufactures		50.7	49.9	29.3	44.0	49.9	41.8
Medium-low technology manufactures		14.0	13.1	18.9	19.5	12.8	17.8
Low technology manufactures		10.0	12.7	20.2	11.5	11.4	18.2
ICT manufactures		13.8	11.6	22.5	13.5	15.2	11.7

Sources: Own calculations based on the SITC database (OECD, 2007); classification based on OECD (2004), STAN Bilateral Trade Database (BTD).

**Table A.2 Import shares of the Netherlands and EU-15 with India, China and world, 2005**

	ISIC Rev.3	Netherlands			EU-15		
		Shares in imports from: India	China	Total world	Shares in imports from: India	China	Total world
Grand total		100.0	100.0	100.0	100.0	100.0	100.0
Agriculture, hunting, forestry and fishing	01-05	8.1	1.1	4.3	3.7	0.8	3.2
Mining and quarrying	10-14	11.1	2.2	5.8	6.4	1.3	4.8
Food products, beverages and tobacco	15-16	4.5	1.1	7.0	4.7	1.3	7.0
Textiles, textile products, leather and footwear	17-19	23.0	9.7	4.2	35.9	20.9	6.3
Wood and products of wood and cork	20	0.4	0.1	0.1	0.2	0.0	0.2
Pulp, paper, paper products, printing and publishing	21-22	0.2	0.5	2.7	0.5	0.9	3.0
Coke, refined petroleum products, nuclear fuel	23	11.6	0.4	5.3	5.9	0.4	4.1
Chemicals excluding pharmaceuticals	24ex2423	16.2	2.3	10.3	7.8	2.6	9.6
Pharmaceuticals	2423	1.5	0.7	4.5	2.0	0.8	5.1
Rubber and plastics products	25	3.2	1.8	2.4	1.9	2.7	2.8
Other non-metallic mineral products	26	1.4	1.0	1.0	1.6	1.8	1.3
Basic metals and fabricated metal products	27-28	5.7	3.2	6.6	8.0	5.2	7.9
Machinery and equipment, n.e.s.	29	1.7	3.5	5.7	2.8	7.2	7.9
Office, accounting and computing machinery	30	0.2	38.5	13.5	0.2	19.3	6.0
Electrical machinery and apparatus, n.e.s	31	5.3	4.2	2.9	2.7	5.6	3.3
Radio, television and communication equipment	32	0.6	22.0	8.8	0.8	14.9	6.4
Medical, precision and optical Instruments	33	0.5	2.0	4.8	0.5	2.4	3.4
Transport equipment	34-35	3.0	0.7	7.7	3.5	1.6	14.3
Manufacturing nec; recycling	36-37	2.0	5.2	2.0	10.9	10.4	2.9
Electricity, gas and water supply	40-41	0.0	0.0	0.4	0.0	0.0	0.5
High technology manufactures		3.4	65.3	35.9	4.1	38.4	24.4
Medium-high technology manufactures		32.3	11.0	28.9	18.6	16.9	36.3
Medium-low technology manufactures		27.0	6.7	17.3	19.4	10.6	18.2
Low technology manufactures		37.3	17.1	17.9	58.0	34.2	21.1
ICT manufactures		1.4	64.0	26.3	1.5	36.3	15.2

Sources: Own calculations based on the SITC database (OECD, 2007); classification based on OECD (2004), STAN Bilateral Trade Database (BTD).



**Table A.3 Key statistics India, China, Euro area and the Netherlands, 2005**

	India	China	Euro area	The Netherlands
Surface (million sq. km)	3.29	9.60	2.52	0.04
Population, total (million)	1095	1305	313	16.3
Life expectancy at birth (years)	63.5	71.8	79.7	79.3
Mortality rate, under 5 (per 1,000)	74.0	27.0	4.8	5.0
Fertility rate, total (births per woman)	2.8	1.8	1.5	1.7
Agriculture, value added (% of GDP)	18.3	12.6	2.1	2.1
Industry, value added (% of GDP)	27.3	47.5	26.6	24.4
Services, value added (% of GDP)	54.4	39.9	71.3	73.6
Exports of goods and services (% of GDP)	20.5	37.5	.	71.2
Imports of goods and services (% of GDP)	24.2	31.9	.	63.0
GDP (current dollars, billion)	806	2234	9948	624
GDP per capita (in dollars at PPPs)	3	7	29	33
Urban sanitation facilities (% of urban population with access) <sup>a</sup>	59.0	69.0	100.0	100.0
Water availability (% of population with access) <sup>a</sup>	86.0	77.0	100.0	100.0
Internet users (per 1,000 people)	55	85	439	739
Fixed line and mobile phone subscribers (per 1,000 people)	128	570	1507	1436
Energy use (kg of oil equivalents per capita) <sup>a</sup>	531	1242	3978	5045

<sup>a</sup> 2004.

Sources: World Bank, World Development Indicators 2007.

**Table A.4 Dutch employment by sector, in full-time equivalent jobs**

	2006	2006	1996–2006	1996–2006	1996–2006
	Ths full-time equivalents	% Total employment	Change in ths full-time equivalent jobs	% Change by sector	% Change of total employment
Agriculture, forestry and fishing	209	3.2	– 33	– 13.7	– 0.6
Mining and quarrying	8	0.1	– 1	– 15.1	0.0
Manufacturing	832	12.7	– 105	– 11.2	– 1.8
Manufacture of food products, beverages and tobacco	118	1.8	– 19	– 13.8	– 0.3
Manufacture of textile and leather products	19	0.3	– 13	– 40.8	– 0.2
Manufacture of paper and paper products	22	0.3	– 5	– 18.3	– 0.1
Publishing and printing	76	1.2	– 20	– 21.2	– 0.3
Manufacture of petroleum products	6	0.1	– 1	– 13.8	0.0
Manufacture of basic chemicals and man- made fibres	30	0.4	– 7	– 19.0	– 0.1
Manufacture of chemical products	34	0.5	– 1	– 3.1	0.0
Manufacture of rubber and plastic products	31	0.5	0	1.5	0.0
Manufacture of basic metals	21	0.3	– 5	– 18.7	– 0.1
Manufacture of fabricated metal products	90	1.4	– 8	– 8.5	– 0.1
Manufacture of machinery and equipment n.e.s.	83	1.3	2	2.3	0.0
Manufacture of electrical and optical equipment	78	1.2	– 18	– 18.9	– 0.3
Manufacture of transport equipment	46	0.7	– 6	– 12.4	– 0.1
Other manufacturing	180	2.7	– 3	– 1.6	– 0.1
Electricity, gas and water supply	27	0.4	– 9	– 24.8	– 0.2
Construction	466	7.1	47	11.3	0.8
Construction of buildings	179	2.7	15	9.5	0.3
Civil engineering	78	1.2	2	2.4	0.0
Building installation and completion	209	3.2	30	16.7	0.5
Trade, hotels, restaurants and repair	1246	18.9	96	8.4	1.6
Trade and repair of motor vehicles/cycles	132	2.0	8	6.9	0.1
Wholesale trade (excl. motor vehicles/cycles)	429	6.5	25	6.1	0.4
Retail trade and repair (excl. motor vehicles/cycles)	489	7.4	49	11.1	0.8
Hotels and restaurants	195	3.0	14	7.7	0.2

**Table A.4 Dutch employment by sector, in full-time equivalent jobs (continued)**

	2006	2006	1996–2006	1996–2006	1996–2006
	Ths full-time equivalents	% Total employment	Change in ths full-time equivalent jobs	% Change by sector	% Change of total employment
Transport, storage and communication	400	6.1	28	7.6	0.5
Land transport	175	2.7	7	4.1	0.1
Water transport	19	0.3	-2	-8.7	0.0
Air transport	28	0.4	2	6.5	0.0
Supporting transport activities	87	1.3	17	24.2	0.3
Post and telecommunications	90	1.4	4	5.1	0.1
Financial and business activities	1392	21.2	303	27.9	5.1
Banking	142	2.2	17	13.9	0.3
Insurance and pension funding	54	0.8	7	15.4	0.1
Activities auxiliary to financial intermediation	56	0.9	7	14.3	0.1
Real estate activities	69	1.1	13	22.5	0.2
Renting of movables	23	0.4	5	29.2	0.1
Computer and related activities	128	1.9	61	90.6	1.0
Research and development	29	0.4	4	15.0	0.1
Legal and economic activities	258	3.9	61	30.8	1.0
Architectural and engineering activities	98	1.5	20	25.2	0.3
Advertising	54	0.8	10	23.6	0.2
Activities of employment agencies	304	4.6	73	31.4	1.2
Other business activities	178	2.7	26	16.9	0.4
General government	783	11.9	59	8.1	1.0
Public administration and social security	386	5.9	20	5.4	0.3
Defence activities	63	1.0	-11	-14.8	-0.2
Subsidized education	334	5.1	50	17.5	0.8
Care and other service activities	1216	18.5	286	30.8	4.8
Health and social work activities	842	12.8	255	43.3	4.3
Sewage and refuse disposal services	25	0.4	4	20.1	0.1
Recreational, cultural and sporting activities	118	1.8	15	15.1	0.3
Private households with employed persons	75	1.1	-6	-7.5	-0.1
Other service activities n.e.s.	155	2.4	18	13.1	0.3
Labour input of employed persons, in full-time equivalent jobs	6579	100.0	672	11.4	11.4

Source: CBS, National Accounts 2006, 2007.



## Annex B      SITC product groups classification

**Table B.1      The SITC- Rev.2, 1- and 2-digit product groups classification**

<b>0</b>	<b>Food and live animals</b>
00	Live animals chiefly for food
01	Meat and meat preparations
02	Dairy products and birds' eggs
03	Fish, crustaceans, molluscs, preparations thereof
04	Cereals and cereal preparations
05	Vegetables and fruit
06	Sugar, sugar preparations and honey
07	Coffee, tea, cocoa, spices, manufactures thereof
08	Feeding stuff for animals (not including unmilled cereals)
09	Miscellaneous edible products and preparations
<b>1</b>	<b>Beverages and tobacco</b>
11	Beverages
12	Tobacco and tobacco manufactures
<b>2</b>	<b>Crude materials, inedible, except fuels</b>
21	Hides, skins and furskins, raw
22	Oil seeds and oleaginous fruit
23	Crude rubber (including synthetic and reclaimed)
24	Cork and wood
25	Pulp and waste paper
26	Textile fibres (except wool tops) and their wastes
27	Crude fertilizers and crude materials (excluding coal and precious stones)
28	Metalliferous ores and metal scrap
29	Crude animal and vegetable materials, n.e.s.
<b>3</b>	<b>Mineral fuels, lubricants and related materials</b>
32	Coal, coke and briquettes
33	Petroleum, petroleum products and related materials
34	Gas, natural and manufactured
35	Electric current
<b>4</b>	<b>Animal and vegetable oils, fats and waxes</b>
41	Animal oils and fats
42	Fixed vegetable oils and fats
43	Animal-vegetable oils and fats, processed, and waxes
<b>5</b>	<b>Chemicals and related products, n.e.s.</b>
51	Organic chemicals
52	Inorganic chemicals
53	Dyeing, tanning and colouring materials
54	Medicinal and pharmaceutical products
55	Essential oils & perfume materials; toilet, polishing and cleansing preparations
56	Fertilizers, manufactured
57	Explosives and pyrotechnic products
58	Artificial resins, plastic materials, cellulose esters and ethers
59	Chemical materials and products, n.e.s.

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**Table B.1 The SITC- Rev.2, 1- and 2-digit product groups classification (continued)**

<b>6</b>	<b>Manufactured goods classified chiefly by material</b>
61	Leather, leather manufactures, n.e.s., and dressed furskins
62	Rubber manufactures, n.e.s.
63	Cork and wood manufactures (excluding furniture)
64	Paper, paperboard and articles of paper pulp, of paper or of paperboard
65	Textile yarn, fabrics, made-up articles, n.e.s., and related products
66	Non-metallic mineral manufactures, n.e.s.
67	Iron and steel
68	Non-ferrous metals
69	Manufactures of metal, n.e.s.
<b>7</b>	<b>Machinery and transport equipment</b>
71	Power generating machinery and equipment
72	Machinery specialized for particular industries
73	Metalworking machinery
74	General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.
75	Office machines and automatic data processing equipment
76	Telecommunications and sound recording and reproducing apparatus and equipment
77	Electrical machinery, apparatus & appliances, n.e.s., and electrical parts thereof
78	Road vehicles (including air-cushion vehicles)
79	Other transport equipment
<b>8</b>	<b>Miscellaneous manufactured articles</b>
81	Sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.
82	Furniture and parts thereof
83	Travel goods, handbags and similar containers
84	Articles of apparel and clothing accessories
85	Footwear
87	Professional, scientific and controlling instruments and apparatus, n.e.s.
88	Photographic apparatus, optical goods, watches and clocks
89	Miscellaneous manufactured articles, n.e.s.
<b>9</b>	<b>Commodities and transactions not classified elsewhere in the SITC</b>
91	Postal packages not classified according to kind
93	Special transactions and commodities not classified according to kind
94	Animals, live, n.e.s. (including zoo animals, dogs, cats, etc.)
95	Armoured fighting vehicles, arms of war and ammunition therefor
96	Coin (other than gold), not being legal tender
97	Gold, non-monetary

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Source: United Nations (1974).

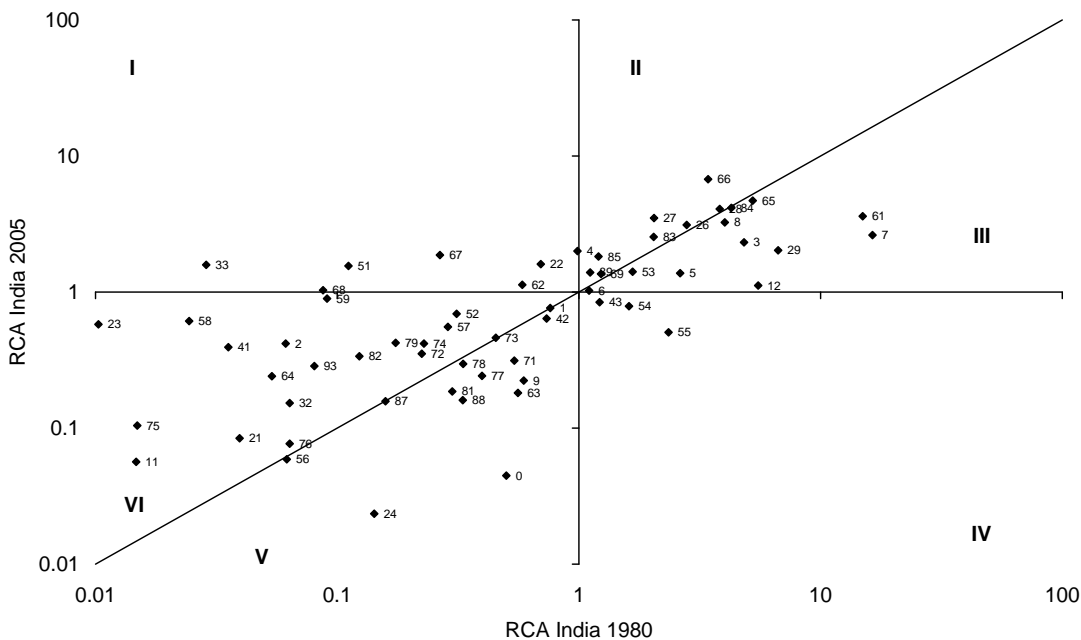
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## Annex C Goods specialisation patterns over time and geographical scope

### Revealed comparative advantage over time

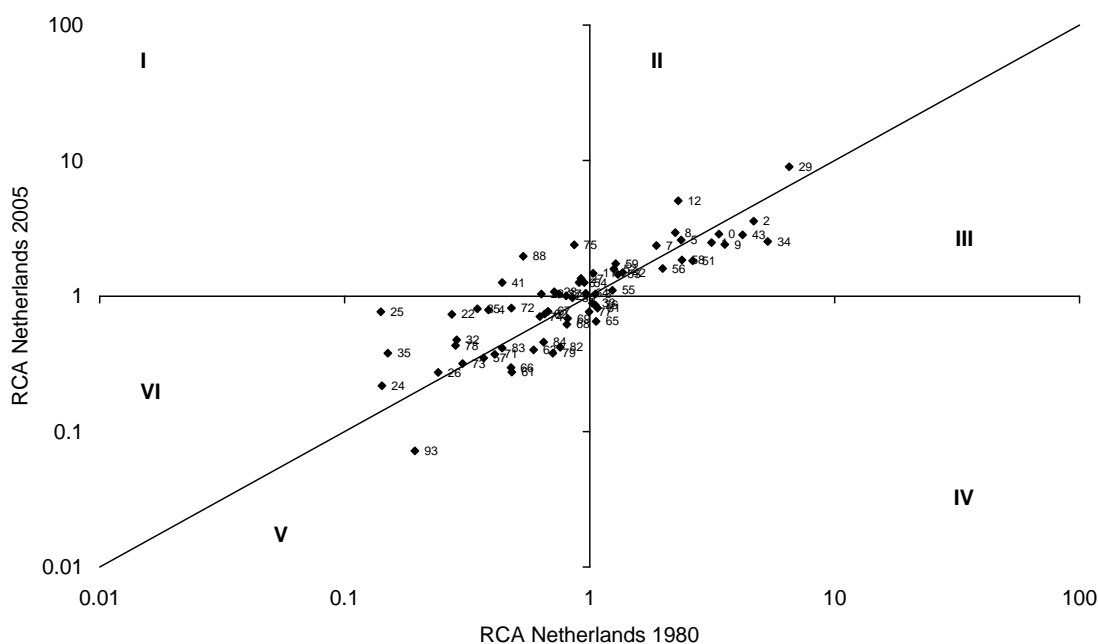
The six planes in Figure C.1 identify the extent and the direction of the change in the RCA of the sectors in India between 1980 and 2005. Plane I includes sectors that changed their RCA from weak to strong like petroleum, petroleum products and related materials (SITC 33) and organic chemicals (SITC 51). In plane II and III the sectors that were strong in 1980 and remained strong in 2005 are shown. Plane II includes sectors like non-metallic mineral manufactures (SITC 66) that increased their RCA and plane III includes sectors like tobacco and tobacco manufactures (SITC 12) that decreased their RCA. The sectors that were strong in 1980 but weak in 2005 include medicinal and pharmaceutical products (SITC 54) and essential oils and perfume materials (SITC 55). These are depicted in plane IV. Plane V and plane VI show sectors that were weak in 1980 as well as in 2005. The sectors among them that experienced a decline in their RCA are below the 45° line in plane V and the sectors that increased their RCA are above the 45° line in plane VI. Examples of sectors in plane V are live animals chiefly for food (SITC 00) and cork and wood (SITC 24); examples of sectors in plane VI are crude rubber (SITC 23) and artificial resins, plastic materials, cellulose esters and ethers (SITC 58).

Figure C.1 Revealed comparative advantages of India in 1980 and 2005



Source: Own calculations based on the OECD ITCS database (download October 2007). See Annex B for the coding of the product groups. Note: Seven products (SITC 25, 34, 35, 94, 95, 96, 97) at the lowest end of the RCA distribution have been left out for presentational clarity.

**Figure C.2 Revealed comparative advantage of the Netherlands in 1980 and 2005**



Sources: Own calculations based on the OECD ITCS database (download October 2007). See Annex B for the coding of the product groups. Note: Four products (SITC 94, 95, 96, 97) at the lowest end of the RCA distribution have been left out for presentational clarity.

### Geographic scope

The extent to which Indian exports are competing with Dutch exports partly depends on the global nature of the sectors. Products that are traded over small distances are not exposed to any competition between the Netherlands and India because of the large distance<sup>53</sup> between these countries. In order to determine the geographic scope of Indian exports the fraction of the exports that are exported to countries within 4,000 kilometres of India will be calculated for each two-digit SITC code.<sup>54</sup> The bilateral distances are calculated between the main cities of the countries using the great circle formula which provides ‘as the crow flies’ distances and accounts for the fact that the earth is a sphere.<sup>55</sup> The value of 4,000 kilometres is chosen in order to get a circle around India that captures the south of Asia and excludes Europe. The results of this analysis are shown in Table C.1 for the 12 sectors for which India and the Netherlands both have a high RCA and for the five sectors with the highest and the lowest fraction of the export that is transported within 4,000 kilometres.

<sup>53</sup> The distance between Amsterdam and New Delhi is almost 6,400 kilometres.

<sup>54</sup> The geographic scope of the export sectors can also be analysed by determining the trade-weighted distance over which the exports are transported or by performing a simple gravity analysis to determine the distance decay of exports (after controlling for the economic size of the markets of destination). These methods will also result in indicators that can be used to characterise export markets as being relatively local or global. A large trade-weighted distance over which goods are exported is indicative for a more global market. A large distance-decay parameter (in absolute terms) implies that exports quickly decline with distance which is an indication of markets being local.

<sup>55</sup> Bilateral distances are obtained from the Centre d’Etudes Prospectives et d’Information Internationales (CEPII, 2005).



**Table C.1 Share of Indian exports to countries within 4000 km, 2005**

SITC-2 (2-digit)	Product group	Factor intensity	Share %
<b>Mutually strong sectors</b>			
28	Metalliferous ores and metal scrap	Primary products	81
08	Feeding stuff for animals (not including unmilled cereals)	Primary products	53
27	Crude fertilizers and crude materials (excluding coal)	Primary products	50
05	Vegetables and fruit	Primary products	41
12	Tobacco and tobacco manufactures	Primary products	30
51	Organic chemicals	Technology intensive	29
07	Coffee, tea, cocoa, spices, manufactures thereof	Primary products	29
53	Dyeing, tanning and colouring materials	Human-capital intensive	24
59	Chemical materials and products, n.e.s.	Technology intensive	24
03	Fish, crustaceans, molluscs, preparations thereof	Primary products	22
43	Animal-vegetable oils and fats, processed, and waxes	Primary products	19
29	Crude animal and vegetable materials, n.e.s.	Primary products	18
	Total (weighted average)		45
<b>Top 5 highest fraction</b>			
94	Animals, live, n.e.s. (including zoo animals, dogs, cats etc.)	Primary products	100
35	Electric current	Primary products	99
96	Coin (other than gold), not being legal tender	Not classified	99
00	Live animals chiefly for food	Primary products	94
25	Pulp and waste paper	Primary products	90
<b>Top 5 lowest fraction</b>			
97	Gold, non-monetary	Not classified	0
85	Footwear	Unskilled-labour intensive	5
95	Armoured fighting vehicles, arms of war and ammunition therefor	Technology intensive	8
83	Travel goods, handbags and similar containers	Unskilled-labour intensive	9
82	Furniture and parts thereof	Unskilled-labour intensive	9

Table C.1 reveals that the fraction of goods that is exported to countries within a 4,000 kilometres radius from India is not very large. Of the total exports from India, about 33.5% is transported to countries within this distance. This indicates that Indian exports are generally quite global in nature.<sup>56</sup> Sectors that are particularly global are generally unskilled-labour intensive. This is expected because the region that lies within 4,000 kilometres from India consists for a large part of countries that are exporters of these products rather than importers. The results also indicate that the majority of the 12 sectors for which India and the Netherlands both have a revealed comparative advantage is more global than the average sector. The fractions for these sectors range from 17.8% to 80.9%. On average, when the export size of these sectors is considered, about 45% of the exports from these sectors is exported to countries within a range of 4,000 kilometres.

The share of exports transported within this distance is particularly low for the cluster of unskilled-labour intensive products detected in the lower right corner of Figure 3.8. The shares

<sup>56</sup> This figure may also be influenced by the fact that there are no countries south of India apart from some small islands.

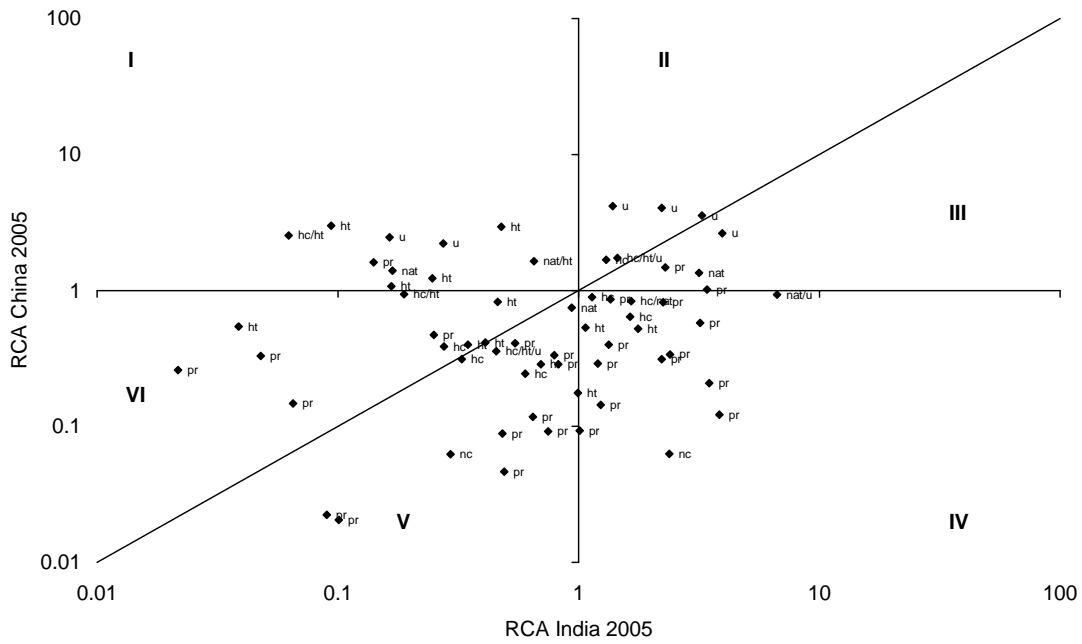
for these four product groups range from 4.8% to 23.4% with a weighted average of less than 16%. This implies that these products are exported mainly outside the region around India and that this region is importing very few of these products.<sup>57</sup> These results can be explained by the low production costs in Asian countries due to relatively low wages for unskilled-labour (see, for example, Hanzl-Weiß, 2004). Although India has a relatively strong comparative advantage in these products and the majority is transported to Europe and the United States, the impact for the Dutch economy is probably small because the Netherlands are hardly producing these goods anymore. CBS (2004) reports that the share in manufacturing value added of the textile industry dropped from 20% in 1950 to 2.3% in 2002. So it is likely that most of the impact of the shift of the production of these products to Asian countries like India already occurred in the past. Nowadays Dutch consumers benefit from this shift in the form of low prices and Dutch firms might benefit as re-exporters of these goods.

### **Indian and Chinese comparative advantages**

Another relevant issue is the extent to which the pattern of RCAs of India overlaps with that of China. In discussions about globalisation, these countries are often considered to be similar. In order to assess the similarities and differences in the strengths and weaknesses of India and China their RCAs for 2005 are compared in Figure C.3. This figure shows that India and China are fairly dissimilar. The number of sectors in which both countries show a revealed comparative advantage is less than 10. The sectors are classified according to factor intensities and some clusters can be identified. There is a cluster of unskilled-labour intensive products for which both India and China have an RCA above unity. Low wages in both countries are the most likely source of comparative advantage. Yet the majority of sectors lies in the other planes of the figure. Another cluster that can be identified consists of primary products in plane IV. India is strong in these sectors while China is not. China is strong in several technology intensive sectors while India is weak in those sectors. A possible explanation for the high RCA for China for these technology-intensive products is that many assembly activities are carried out in China. This seems to happen less in India.

<sup>57</sup> For example, the import-to-export ratios for India in 2005 for SITC 65, 83, 84 and 85 are 0.23, 0.05, 0.01 and 0.06, respectively.

**Figure C.3 Revealed comparative advantage for India and China, SITC rev. 2 (2-digit), according to factor intensity, 2005**



Sources: Own calculations based on the OECD ITCS database (download October 2007), factor intensity based on classification by Hinloopen and Van Marrewijk (2006). Notes: Five products (SITC 25, 35, 94, 95, 97) at the lowest end of the RCA distribution have been left out for presentational clarity. pr = primary products; nat = natural resource intensive; u = unskilled labour intensive; ht = technology intensive; hc = human-capital intensive; nc = not specified.



## Annex D      An analysis of bilateral Balassa indices for trade in goods and services

RCA's are useful to identify the position of a country on the world market, but reveal little about the trade between two specific countries. For this purpose, a bilateral Balassa Index (BBI) can be constructed. For exports from sector  $j$  in country  $k$  to country  $i$ , the bilateral RCA equals  $k$ 's overall RCA multiplied by an index indicating whether the share of  $j$ -type exports from  $k$  to  $i$  deviates from the share of that sector in  $k$ 's total exports:

$$BBI_{ki}^j \equiv \frac{X_k^j / X_k}{X_w^j / X_w} \frac{X_{ki}^j / X_{ki}}{X_k^j / X_k} = \frac{X_{ki}^j / X_{ki}}{X_w^j / X_w} \quad (D.1)$$

If the bilateral RCA has the same value as the overall RCA, then country  $k$ 's exports to  $i$  are proportional to  $k$ 's comparative advantage (which is measured vis-à-vis the world). If the bilateral RCA lies below the overall RCA, then country  $k$  exports less than can be expected considering its comparative advantage. The other way round, if the bilateral RCA exceeds the overall RCA, country  $k$  is exporting more than expected.

### Trade in services

Figure D.1 depicts the bilateral RCAs for services of India and the Netherlands in addition to the overall RCAs for services of the two countries (which were already depicted in Figure 3.11). Under the assumption that a country's bilateral pattern of specialisation tends to converge to its pattern of specialisation vis-à-vis the world, arrows drawn from the bilateral RCA to the overall RCA can be used to indicate the direction in which bilateral trade intensities are expected to develop. An arrow pointing to the right implies that India's exports to the Netherlands are expected to grow. An arrow pointing to the left implies that a relative decline of India's exports to the Netherlands is to be expected. Arrows pointing upwards signify that Dutch exports to India are likely to increase in relative terms, while arrows pointing downward suggest a relative reduction of Dutch exports to India.

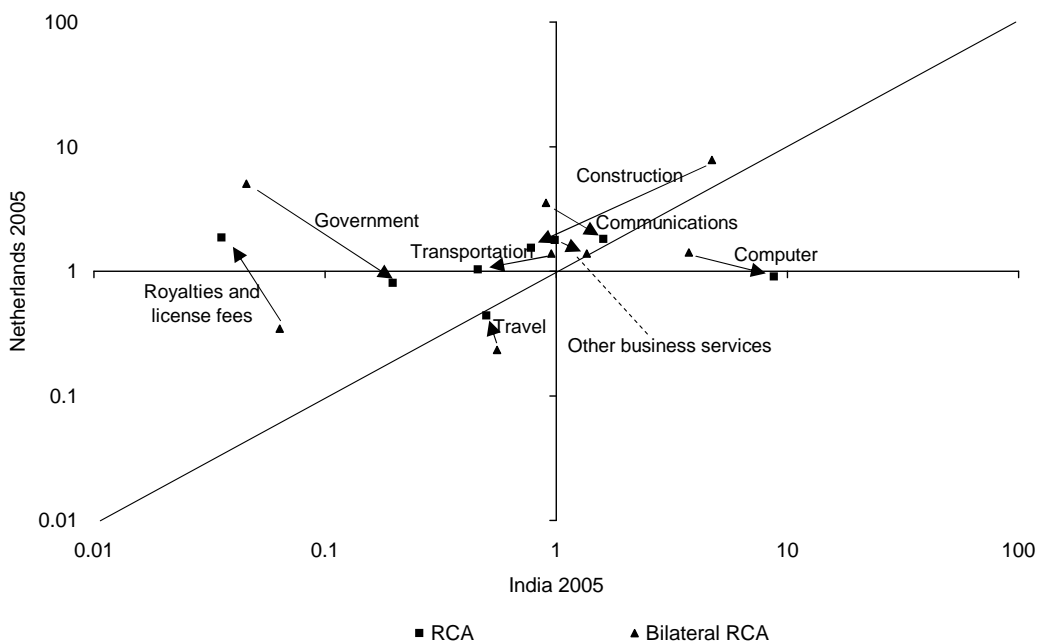
Going from left to right in Figure D.1, the first arrow is that of 'royalties and license fees'. In this category, the overall Dutch RCA exceeds the bilateral RCA, implying that the Dutch imports to India may rise rapidly. The second arrow indicates that the importance of government services is likely to decline in the future. A possible explanation for this could be that in 2005 India received more development aid from the Netherlands than other countries did on average. The Dutch position in transportation is not likely to change, while from the Indian perspective, exports to the Netherlands are exceeding India's comparative advantage. Travel services exports are below comparative advantage for the Netherlands, suggesting potential for

growth. According to Figure D.1, the Dutch comparative advantage in construction thus seems to be well exploited on the Indian market. Currently, communication services make up 8% of Dutch exports to India, while the share in imports from India is only 2% (Figure 3.10). Witnessing the direction of the arrow in Figure D.1, however, trade in communication services is likely to become more balanced in the future: Indian exports to the Netherlands growing faster than vice versa.

The distance between bilateral RCAs and overall RCAs is small for the category OBS. Given the size and the rapid growth of this sector in India, its share in India's exports to the Netherlands may increase. Considering the diversity of service covered by OBS, interpreting RCAs remains difficult for this sector.

India has a clear comparative advantage in computer and information services. However, the Dutch imports of this kind of services from India – 17% of Dutch imports from India – are small compared to the sector's share in India's total export, which amounts to 39%. This, as well as the arrow pointing to the right, suggests an underutilised potential for India's services in the Netherlands.

**Figure D.1 Bilateral revealed comparative advantage in services for India and the Netherlands, 2005<sup>a,b</sup>**



<sup>a</sup> The bilateral data on construction services stem from 2002. Data on Indian exports to the Netherlands are based on imports from India reported by the Netherlands.

<sup>b</sup> An arrow pointing to the right implies that India's exports to the Netherlands are expected to grow as trade with India matures. An arrow pointing to the left implies that a relative decline of India's exports to the Netherlands is to be expected. Arrows pointing upwards signify that Dutch exports to India are likely to increase in relative terms, while arrows pointing downward suggest a relative reduction of Dutch exports to India.

Source: own calculations based on UN Service Trade Statistics database (October 2007).

### Trade in goods

We performed a similar analysis for trade in goods. The bilateral and the overall RCAs for India and the Netherlands are depicted in Figure D.2 for one-digit SITC product groups and in Figure D.2 for two-digit SITC product groups.

Like in the analysis for trade in services, the arrows move from the bilateral RCA to the overall RCA. The arrows in Figure D.2 that are pointing to the upper-left apply to food and live animals (SITC 1), beverages and tobacco (SITC 2), crude materials, inedible, except fuels (SITC 3) and mineral fuels, lubricants and related materials (SITC 4). This indicates that India is exporting more to the Netherlands and the Netherlands are exporting less to India than expected (relative to what the countries export to the world). The opposite applies to manufactured goods (SITC 6). Both countries are exporting more to each other than expected for chemical and related products (SITC 5) and less than expected for commodities and transactions not classified elsewhere (SITC 9). The bilateral RCAs of the remaining product groups are very close to their overall RCA.

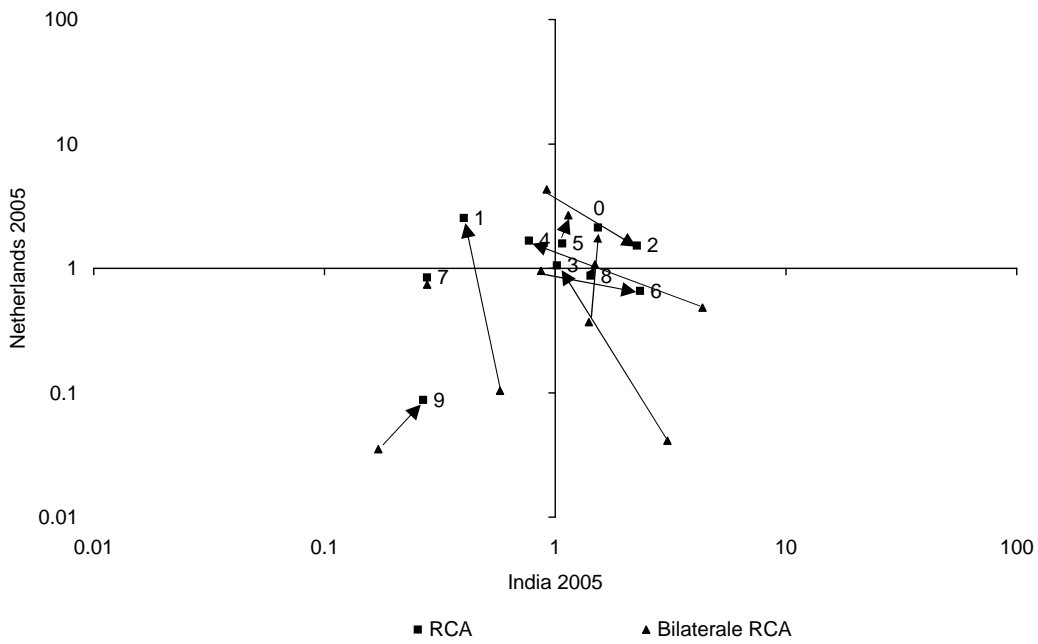
Differences between the bilateral RCAs and the overall RCAs are also caused by differences of the tradability of the product groups. Because the distance between India and the Netherlands is relatively large, product groups with a low (high) tradability will tend to have a lower (higher) bilateral RCA compared to the overall RCA.

The one-digit SITC products groups are very aggregated. To allow for a better interpretation of these results, Figure D.2 provides the bilateral and overall RCAs for two-digit product groups. In order to limit the amount of observations in this figure, the results are only shown for the overlapping 12 product groups for which India and the Netherlands both have a comparative advantage.

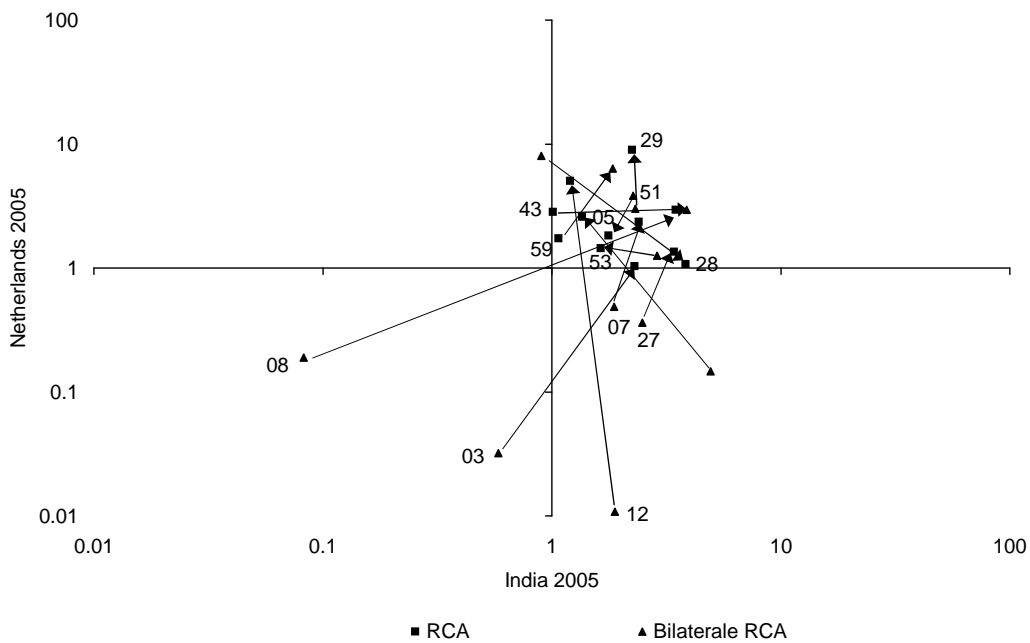
An interesting observation is that most of the arrows tend to points upward and to the right, indicating that both countries are exporting less to each other than expected based on the overall RCA. This result can be expected because when a country has a comparative advantage in a particular sector, it usually imports less from this sector, but there are exceptions such as vegetables and fruit (SITC 05), for which the overall RCA lies to the upper-left of the bilateral RCA. This means that even though the Netherlands has a comparative advantage in this sector, India is still exporting relatively much to the Netherlands. This is consistent with the idea that the products within this sector can be very diverse. Since the production of some products is only possible in certain regions of the world due to climate differences, India is likely to produce different products than the Netherlands. The chemical sectors (SITC 51, 53, 59) also seem to deviate from the general pattern. It is possible that this is also caused by a diverse package of products that belongs to this products. Another possibility is that one country is re-exporting chemical products from the other country. The import-to-export ratios for these sectors are relatively low for the Netherlands, but relatively high for India.

**Figure D.2** Bilateral revealed comparative advantage in goods for India and the Netherlands, SITC rev. 2 (1- and 2-digit) 2005<sup>a</sup>

**SITC 1 digit**



**SITC 2 digit**



<sup>a</sup> An arrow pointing to the right implies that India's exports to the Netherlands are expected to grow as trade with India matures. An arrow pointing to the left implies that a relative decline of India's exports to the Netherlands is to be expected. Arrows pointing upwards signify that Dutch exports to India are likely to increase in relative terms, while arrows pointing downward suggest a relative reduction of Dutch exports to India.

Source: own calculations based on the OECD ITCS database (download October 2007).



## Annex E Dutch multinationals operating in India

In this Annex, we review the activities of Dutch multinational companies in India. It is based on publicly available information laid down in annual reports and press releases published by enterprises, as well as on newspaper reports.

### Non-financial companies

In mining, quarrying and chemical industry, *Shell*, *Akzo Nobel* and *Fugro* operate in India. *Shell* considers India as a high-growth market and benefits from India's rapidly growing need for energy. In 2004, the company received a licence to build 2,000 petrol stations in the country. *Shell* holds a majority interest in *Bharat Petroleum*, which produces and sells lubricants for the Indian market. In Hazira seaport, a *Shell* terminal processes natural gas into liquid natural gas. In 2006 the company signed an agreement to deliver liquid natural gas to the Indian state-owned oil company *Gujarat State Petroleum*. Besides, *Shell* signed a contract with state-owned oil company ONGC for the exploration and extraction of oil and natural gas. In 2006, *Shell* arranged a new technology centre in Bangalore for high talented R&D workers. The main division of *Akzo Nobel* in India is *Intervet*, which produces medicines, vaccines and food supplements for cattle breeding. In 2007, *Akzo Nobel* opened a new colour development lab in India for car coating products. Engineering firm *Fugro* provides geotechnical services for oil and gas exploration worldwide. The company participates in deep-water seismic surveys to determine the presence of gas hydrates offshore of India. *Fugro* has several 100% subsidiaries in Mumbai.

In electronics, *Philips* operates in India. *Philips* considers India as an important consumer sales market and a major centre for production and research. In the Philips Innovation Centre in Bangalore, 1,000 employees work at developing and applying new technology for the Philips global divisions. Philips Lighting is extending its activities in India (and China) to street lighting and sets up distribution centres in cooperation with local suppliers. The growing prosperity of the Indian population is boosting sales of consumer electronics. In 2006, *Philips* had sales of 750 million dollars in India, corresponding to 3% of total group sales. The challenge is to develop cheap products low income households can afford. However, hundreds of millions of Indians do not have electricity to use Philips products, even when they could afford them. Moreover, distribution of consumer electronics is problematic. In order to protect family businesses, the government is reluctant to allow superstore chains in retail trade. The 'mom and pop stores', however, do not have TV sets on the shelves, rendering distribution of expensive consumer goods difficult. Philips employs 5,000 employees in India. To take focus on core business, Philips sold its optical disk activities in Eindhoven to the Indian company *Moser Baer* in 2007.

Investment of Dutch companies in the food industry in India is small. Differences in consumer preferences between regions and competition from local food producers complicate business. *Heineken* regards India as a market with a high growth potential. For the moment, however, the Indian market for beer is characterised by fierce competition of local breweries, making it hard to gain market share. There are strict regulations of transport of beer across the country, but deregulation is gaining momentum. *Heineken* has a 32% stake in the Indian brewery *Aurangabad*. In cooperation with another Indian brewery, *Heineken* aims to build a new brewery in Hyderabad. *Hindustan Lever* in Mumbai is the major enterprise of *Unilever* in India, with a strong market position in food products, cleaning products and products for personal care. In 2006 *Unilever* disposed of its tea plantations in India. *Numico* operates in India on a modest scale. Due to incurring losses, the company sold its activities in baby food in 2006.

### **Financial companies**

India is a market with huge growth prospects for financial services. Expanding companies and a growing prosperous middle class will boost demand for banking services and insurance products. For that reason, Dutch financial service providers are presently starting up and expanding activities. However, there are restrictions on the level of participation of foreign service providers. Concerning banks, the maximum foreign participation is 74% and in the insurance sector it is 26%.

*ABN Amro* has 67 branch offices in Asia, of which 23 in India. The bank views India, just like China, as a rapidly growing and profitable market.<sup>58</sup> *ABN Amro* provides corporate financing, export financing and asset management to corporate and small enterprise business. Affluent private clients are serviced through a dedicated point of contact regarding consumer credit, credit cards, saving and investment. The bank is an important player in micro finance in eight states in India. *ABN Amro Central Enterprise Services (ACES)* in Mumbai, with 4,000 employees, carries out business services and ICT services on behalf of *ABN Amro* business units worldwide. *Rabo India Finance*, with establishments in Mumbai and New Delhi, is a 100% subsidiary of *Rabobank International*. It provides services in business strategy, mergers and trade financing to the Indian food & agribusiness. *ING* holds a 44% stake in *ING Vysya Bank*. This bank has a dense network of branch offices in India, in particular in retail banking. Its rural offices provide credit to micro finance institutions.

The insurance sector in India is small but growing fast. *ING* has a 26% stake in life insurance company *ING Vysya Life*. This insurer has branch offices in 70 big cities in India for the sale of life insurance and a 5% market share in the Indian market for private life insurance. To

<sup>58</sup> As a result of the 2007 take-over of *ABN Amro* by the banking consortium, those activities will probably be continued by *Royal Bank of Scotland*.

establish a new life insurance company in India, *Fortis* entered last year into a joint venture with the Indian banks *Industrial and Development Bank of India* (IDBI) and *Federal Bank*. This company will offer a full range of life insurance and saving products to the Indian market. The nationwide network of both banks, numbering 650 offices, will be used for the distribution of the products. This year, *Aegon* is starting the sale of products of life insurance and asset management through a joint venture in which it holds a 26% stake. Due to growing prosperity of the Indian population, *Aegon* expects further growth.

Some Dutch service investments in India in ICT, call centres and accounting, are probably partly motivated by low wages of Indian experts in these fields. The combination of available skilled personnel and low wages may have played a part in the set up of *ABN Amro Central Enterprise Services* (ACES).

Finally, it has to be noted that Dutch companies subcontract work, such as software development and back office paper work, to India, without setting up an affiliate or office in India. This market of business process outsourcing in India has soared for many years. Initially, subcontracting to low wage countries concerned low wage, standardised work. At present outsourcing of high-skilled labour is also becoming apparent.



## **Annex F      Wage inequality: globalisation, skills or technology?**

Section 3.4 discussed the development of wage inequality in the Netherlands and other OECD countries from a macroeconomic perspective. No discernible increase in wage inequality in the Netherlands was found, which is in line with previous research. In contrast to the Dutch case, evidence for most other OECD countries shows that the wage distribution has become less equal. This Annex will look somewhat further into the empirics of the effect of globalisation on wage inequality. The CPB will do more extensive research on this in the near future.

We first look at several dimensions of sectoral labour market developments and how they are associated with openness. More specifically, we look at skill intensity, the ratio of low and medium educated jobs (Middle) to unskilled and high-skilled jobs (Tails), and employment. Table 3.13 revealed that, in the 1996–2006 period, the number of unskilled and high-skilled jobs increased, while the number of low-skilled and medium-skilled jobs decreased substantially. The simultaneous change of industry openness, sectoral composition of the economy, and skill intensity, made it difficult to separate the effects of different variables. A dataset based on the CBS Labour Force Survey, with data on the number of employees per industry and skill level, has been used for a simple regression analysis to identify some first associations in the data. Table F.1 shows the results of a pooled regression analysis based on observations for 40 sectors over the period 1996–2006 explaining skill intensity, the ratio of low and medium educated jobs (Middle) to unskilled and high-skilled jobs (Tails), and employment as a function of openness and a set of dummies. Dummies have been included to control for overall trends over time and for industry-specific effects that are constant over time. Skill intensity is positively although not significantly related to openness. Also the ratio of low-skilled and medium-skilled jobs to unskilled and high-skilled jobs is not significantly associated with openness. Employment and openness are significantly negative correlated. Also Figure 3.19 showed a relatively strong decrease of employment in open industries. Open industries, however, appeared to be mainly agriculture and industry. It is to be noted that by including year and industry dummies, employment variation is only explained from industry-specific variation of openness over time. However, causality can be in both directions. It is, for example, possible that industries with a high capability to substitute labour for capital – thus reducing their labour costs – are more successful on the world market and thus more open.

**Table F.1 Sectoral labour market developments and openness (1996–2006)<sup>a</sup>**

	Dependent variables:		
	Log(Skill Intensity)	Log(Middle/Tails)	Log(Employment)
Log(openness)	0.011 (1.9)	– 0.099 (– 0.7)	– 0.119 (– 2.2)
Year dummies	yes	yes	yes
Industry dummies	yes	yes	yes
Adjusted R <sup>2</sup>	0.958	0.835	0.976

T-statistics (in absolute values) are reported between parentheses. Analysis is based on 40 cross-sectional units (the sectors) and 11 time periods (the years 1996–2006).

<sup>a</sup> Openness is defined as the sum of imports and exports divided by production.

The second regression analysis applied in this study aims to explain pre-tax real wage growth of specific groups on the labour market as a function of gender, position in the macroeconomic wage distribution, trade with emerging economies, the Asian tigers and advanced countries, and skill intensity. A large pool of CBS macro data<sup>59</sup> containing information on the wages for full time workers of different ages, educational background, and gender for 40 different industries during the period 1995–2005 has been used to estimate the models. This results in a dataset of 4400 groups that are characterised by age, gender, educational background, industry and year. For these groups, we explain average real hourly wage growth of members of the group as a function of the position of the group in the macroeconomic wage distribution (measured as percentile in the macro distribution of each respective year), trade with emerging economies, the Asian tigers and advanced countries (measured as import and export volumes), and skill intensity (measured as average years of schooling). Regressions results are summarised in Table E.2. For more details, we refer to Groot and De Groot (forthcoming).

The first model only tests whether inequality has changed between 1995 and 2005. The logarithm of the percentile of the wage distribution indicates the position of the different groups (which are the units of observation) in the macroeconomic wage distribution. Positive and significant estimates for this variable indicate that wages have grown faster at the right-hand side of the wage distribution. This would imply increasing wage inequality. It appears that wage inequality of female workers has increased at a faster rate than for their male colleagues. When dummies for non-observed characteristics are included, the estimates increase somewhat. Model III shows that wage growth is positively related to skill intensity. No clear effect from trade is discernible. The last model adds interaction effects to test for a relationship between international trade and wage inequality. In this way, effects of international trade on average

<sup>59</sup> Wages, gender and age are from the CBS Employment and Wage Survey, skill intensities of jobs (per industry per year) from the CBS Labour Force Survey, and imports and exports (per industry per year) from the OECD ITCS database.

**Table F.2 Wage growth in the Netherlands**

	I	II	III	IV
<b>Dependent variable: dlog(wage)</b>				
Log(Percentile in income distribution) <sup>a</sup> male	0.0015 (5.3)	0.0033 (7.5)	0.0011 (1.5)	0.0180 (2.3)
Log(Percentile in income distribution) <sup>a</sup> female	0.0058 (11.9)	0.0064 (6.4)	0.0061 (3.8)	0.0240 (3.0)
Female dummy		0.0042 (1.4)	0.0031 0.63	0.0000 (- 0.0)
Log(Imports from Emerging economies)			- 0.0023 (- 2.0)	0.0210 (8.2)
Log(Export to Emerging economies)			0.0024 (2.4)	0.0012 (0.3)
Log(Imports from Developed economies)			0.0045 (3.4)	- 0.0100 (- 2.9)
Log(Export to Developed economies)			- 0.0013 (- 1.0)	- 0.0190 (- 5.6)
Log(Imports from Asian Tigers)			- 0.0062 (- 2.0)	0.0027 (0.3)
Log(Export to Asian Tigers)			0.0026 (1.4)	0.0039 (0.6)
Log(Skill Intensity)			0.2600 (3.4)	0.2500 (3.3)
<b>Interaction effects to test for a relation between international trade and wage inequality:</b>				
Log(Imports from Emerging economies) <sup>a</sup> log(Percentile)				- 0.0066 (- 10.1)
Log(Export to Emerging economies) <sup>a</sup> log(Percentile)				0.0003 (0.4)
Log(Imports from Developed economies) <sup>a</sup> log(Percentile)				0.0041 (4.5)
Log(Export to Developed economies) <sup>a</sup> log(Percentile)				0.0050 (5.7)
Log(Imports from Asian Tigers) <sup>a</sup> log(Percentile)				- 0.0025 (- 1.2)
Log(Export to Asian Tigers) <sup>a</sup> log(Percentile)				- 0.0003 (- 0.2)
Year dummies	no	yes	yes	yes
Industry dummies	no	yes	yes	yes
Age dummies	no	yes	yes	yes
R <sup>2</sup> -adjusted	0.0061	0.085	0.086	0.103

T-statistics (in absolute values) are reported between parentheses.

<sup>a</sup> Weighted least squares is used to correct for different group sizes of the individual observations.

Emerging Economies are China, India, Indonesia, Malaysia, Russia, Ukraine, Poland, Czech Republic, Hungary, and Turkey.

Developed Economies are Germany, France, Italy, Spain, United Kingdom, United States, Japan, and Canada.

Asian Tigers are Korea, Taiwan, Hong Kong, and Singapore.

wages can be separated from effects on wages in different parts of the wage distribution. It appears that increased imports from emerging economies are positively related to wage growth in the aggregate economy, while the interaction effect shows that this effect was in fact stronger for the left-hand side than it was for the right-hand side of the wage distribution. This clearly contradicts the view that imports from emerging economies benefit employees with high earnings over those with lower earnings. At the same time, increased trade with developed nations (both imports and exports) are more positively related with wage growth of high wage workers. The fact that no microeconomic data are available makes it very difficult to understand what has happened inside the 'black box' of the labour market. On the basis of this first analysis, however, it seems that changes in the wage distribution are mainly caused by structural labour market changes like increased participation of low-skilled workers and changing production processes. Globalisation seems to have played only a minor role in trends of the wage distribution. It is therefore less likely that further acceleration of imports from India will cause the wage distribution to become more unequal.



## Annex G Description of WorldScan model used

WorldScan, CPB's applied general equilibrium model for the world economy, is a recursively dynamic model describing the global economy. It is characterised by a large degree of regional and sectoral detail. Regions are connected through bilateral trade flows at industry level (Lejour et al., 2006). It strongly rests on neoclassical theory, it has strong microfoundations and it explicitly determines simultaneous equilibria on a large number of markets.

In the version of the model used in this study, China and India are separate regions (Table G.1), while they were part of the region 'rest of the world' in the previous long-term scenario analysis (Lejour, 2003). Furthermore, the GTAP6 database version (base year 2001) is now used, instead of GTAP5 (base year 1997). Given the complexity involved in modelling energy, energy consumption is not incorporated in the analysis. Also the effect of high growth rates in India and China on the prices of oil and raw materials are outside the scope of the analysis. Likewise, migration from Central and Eastern Europe is not included in these particular scenarios. In total, 16 sectors are distinguished (Table G.2).

**Table G.1**      **Regions in WorldScan**

1	Germany	Germany
2	France	France
3	United Kingdom	United Kingdom
4	Other EU-15	Austria, Belgium, Denmark, Finland, Greece, Ireland, Italy, Luxembourg, Portugal, Spain and Sweden
5	EU New Member States	Cyprus, Czech Republic, Hungary, Malta, Poland, Slovakia, Slovenia, Estonia, Latvia and Lithuania
6	Candidate EU Members	Bulgaria, Croatia, Romania and Turkey
7	Rest OECD	Australia, New Zealand, Japan, Korea, Canada, United States, Mexico, Switzerland and Rest of EFTA
8	Former Soviet Union	Russian Federation and Rest of Former Soviet Union
9	China + Hong Kong	China and Hong Kong
10	India	India
11	Other South and East Asia	Taiwan, Rest of East Asia, Indonesia, Malaysia, Philippines, Singapore, Thailand, Viet Nam, Rest of Southeast Asia, Bangladesh, Sri Lanka and Rest of South Asia
12	Rest of World	Rest of Oceania, All regions in Latin America and the Caribbean, Rest of Europe, Albania, Rest of Middle East and All regions in Africa

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**Table G.2 Sectors in WorldScan**

	<b>WorldScan sectors</b>	<b>GTAP sectors</b>
1	Agriculture	Paddy rice, Wheat, Other cereal grain, Vegetables and fruits, Oil seeds, Sugar cane, Plant-based fibres, Other crops, Bovine cattle, Other animal products, Raw milk, Wool, Forestry, Fishing
2	Energy	Coal, Gas, Petroleum and coal products, Electricity, Gas distribution
3	Other raw materials	Oil, Other minerals
4	Food products	Bovine meat products, Other meat products, Vegetable oils and fats, Dairy products, Processed rice, Sugar, Other food products, Beverages and tobacco products
5	Consumption goods	Textiles, Wearing apparel, Leather products, Wood products, Other manufactures
6	Paper products and publishing	Paper products and publishing
7	Chemicals and minerals	Chemicals, rubbers and plastic products, Other mineral products
8	Metals	Ferrous metals, Other metals
9	Capital goods	Metal Products, Motor vehicles and parts, Other transport equipment, Electronic equipment, Other machinery and equipment
10	Transport services	Water transport, Air transport, Other transport services
11	Construction	Construction
12	Trade services	Trade services
13	Communication	Communication
14	Financial services	Insurance, Other financial services
15	Other business services	Other business services
16	Other services	Water, Recreational and other services, Government services, Dwellings
	<b>Sectoral Aggregations</b>	
	Agriculture and food	1 + 4
	Energy and raw materials	2 + 3
	Chemicals and minerals	7
	Capital goods	9
	Other manufacturing	5 + 6 + 8
	Trade and transport	10 + 12
	Business services	14 + 15
	Other services	11 + 13 + 16

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## List of acronyms

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ASEAN	Association of South-East Asian Nations
CBS	Centraal Bureau voor de Statistiek (Statistics Netherlands)
DNB	De Nederlandsche Bank (Dutch central bank)
EBOPS	Extended Balance of Payments classification
EU	European Union
EU-15	Countries that were member of the EU before 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom
EU NMC4	Czech Republic, Hungary, Poland and Slovak Republic
EVD	Economische Voorlichtingsdienst (Dutch Agency for International Business and Cooperation)
FDI	Foreign Direct Investment
G7	Canada, France, Germany, Italy, Japan, United Kingdom, United States
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GTAP	Global Trade Analysis Project
ICT	Information and Communications Technology
ILO	International Labour Organization
IMF	International Monetary Fund
IT	Information Technology
ISIC	International Standard Industrial Classification of All Economic Activities
ITCS	International Trade and Commodity Statistics; developed jointly by OECD and UN
kWh	Kilowatt Hour
n.e.s.	Not elsewhere specified
NFIA	Netherlands Foreign Investment Agency
NTBs	Non-tariff barriers
OBS	Other business services
OECD	Organisation for Economic Co-operation and Development
ONGC	Oil and Natural Gas Corporation
RCA	Revealed comparative advantage
R&D	Research and Development
SEZ	Special Economic Zone
SITC	Standard International Trade Classification
TCS	Tata Consultancy Services
TERI	The Energy and Resources Institute
TFP	Total Factor Productivity
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
U-W	Unix workstation
WRR	Wetenschappelijke Raad voor het Regeringsbeleid (Scientific Council for Government Policy)
WTO	World Trade Organisation

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