CPB Document

No 127

13 September 2006

China and the Dutch economy

Stylised facts and prospects

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Abstract in English

China's spectacular economic performance over the past few decades has had a positive net impact on the Dutch economy. Imports of cheap Chinese products have lowered Dutch inflation. Increasing Chinese exports to Europe have strengthened the role of the Netherlands as a key European distribution centre. Strongly increasing Chinese exports did not have a noticeable impact on the pace of restructuring in the Netherlands. Nor did this development lead to higher unemployment or did it cause a marked widening of Dutch income differentials. Concerning competition on world markets, Chinese export products are more complements than substitutes for Dutch export products. The Chinese economy is expected to continue its rapid expansion. Over the next five years, Chinese exports are likely to double. Increasing trade with China 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.

Abstract in Dutch

China's spectaculaire economische groei in de afgelopen decennia heeft per saldo een positief effect gehad op de Nederlandse economie. Relatief goedkope importen hebben een drukkend effect op de inflatie gehad. De toegenomen exporten vanuit China hebben de rol van Nederland als doorvoerland naar het Europese achterland versterkt. Negatieve effecten in de vorm van economische herstructureringen blijken zeer bescheiden te zijn. Ook is er geen substantieel negatief effect waarneembaar in de vorm van hogere werkloosheid of toegenomen inkomensongelijkheid. Het exportpakket van China blijkt slechts in zeer beperkte mate te overlappen met het exportpakket van Nederland. Grote concurrentie-effecten en daaruit voortvloeiende drastische sectorale verschuivingen zijn dan ook niet te verwachten van de opkomst van China. Voor de nabije toekomst is de verwachting dat de exporten van China verder zullen toenemen, waarbij de daaruit voortvloeiende economische herstructurering in Nederland bescheiden zal zijn. Voor Nederland zal de verdere opkomst van China naar verwachting positieve effecten hebben voor de welvaart.

Een uitgebreide Nederlandse samenvatting is beschikbaar via www.cpb.nl.

Contents

Preface

The emergence of China as an important player in the global economy has provoked huge debates on the potentially drastic economic consequences for a small open economy such as the Netherlands. This Document aims to take stock of the recent developments in China and its impact on the Dutch economy. It starts of with the identification of a range of stylized facts regarding China's economic reforms and growth performance, 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 Chinese developments on the position of the Netherlands on global markets are analysed, as well as the impact on inflation rates, unemployment, sectoral restructuring and income inequality. Scenario analyses are used to identify the likely developments in the near future. The Document concludes with a policy outlook discussing the major risks and challenges that are associated with the past and future developments in China and considers the implications for Dutch policy.

This Document is part of on ongoing effort of the CPB Netherlands Bureau for Economic Policy Analysis to evaluate the impacts of globalisation on economic developments. The project on China in part stems from an explicit request for further analysis from the Ministry of Economic Affairs.

This Document was prepared by Wim Suyker and Henri de Groot based on contributions from Jessie Bakens (Section 3.1.2), Ray Barrell and Amanda Choy of the National Institute of Economic and Social Research (Section 4.2), Piet Buitelaar of De Nederlandsche Bank (Section 3.2), Hugo Rojas-Romagosa (Section 4.1) and Michel Toet (Chapter 2). Furthermore, there were contributions by Arjan Lejour (Box on page 18), Henk Kranendonk and Paul Koster (Box on page 53), and Jan Lemmen (Box on page 57). Excellent research assistance was provided by Paul Koster, Arie ten Cate, Nico van Leeuwen, Twan Verschaeren and Gerard Verweij, while Mayke Kok provided essential assistance on tables and figures. Many people contributed to this Document with constructive comments. Apart from several colleagues at the CPB, the Ministry of Economic Affairs (Directorate General of Foreign Economic Relations), the Ministry of Finance and the Ministry of Foreign Affairs, we would like to express our explicit gratitude to Casper van Ewijk, George Gelauff, Arjan Lejour and Nicolette Tiggeloove for their comments.

Coen Teulings
Director

Summary

China's spectacular economic performance during the past three decades has had a positive net impact on the Dutch economy. Imports of cheap Chinese products have lowered Dutch inflation. As a result, a characteristic consumption basket of an average Dutch household is currently around 300 euro per year (25 euro per month) cheaper. In China, new and expanding markets for Dutch products have emerged. These expanding markets have also provided Dutch firms with attractive investment opportunities. Despite these opportunities, the presence of Dutch firms in China is relatively modest, which may be related to concerns regarding intellectual property rights and restrictions on investment that are still present in especially the service sector. Increasing Chinese exports to Europe have strengthened the role of the Netherlands as a key European distribution centre. Currently, every day 1000 two-container trucks are going to or coming from the Rotterdam harbours to transport containers with Chinese products. Dutch expenditures and output may be enhanced by lower global interest rates due to strong Chinese demand for foreign government bonds prompted by its huge current account surplus. Steeply increasing Chinese exports did not have a noticeable impact on the pace of sectoral restructuring in the Netherlands. Nor did this development lead to higher unemployment or did it cause a marked widening of Dutch income differentials. Concerning competition on world markets, Chinese export products are more complements than substitutes for Dutch export products. Dutch employment associated with exports to China and re-exports of Chinese products is estimated at around 23 000 jobs, approximately ½% of total employment.

The Chinese economy will continue to expand. In the coming five years, Chinese exports are likely to double. Up to 2040, Chinese exports to the EU-15 are expected to increase between 5% and 10% per annum, depending on the speed of international economic integration and the speed and success of economic reforms in China. Increasing trade with China will further enhance Dutch welfare in the coming years and will continue to be associated with more intense competition and restructuring on some markets. Welfare improvements are unlikely to 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). The Dutch unemployment insurance scheme and retraining programmes play an important role in accommodating and smoothing the required adjustments stemming from changing production patterns induced by China.

The increasing influence of China on the world economy does not require a major reorientation of Dutch economic policy. Policies that were demanded before the emergence of China, such as for example labour market flexibility and appropriate unemployment insurance schemes and retraining programmes, can equally contribute to the accommodation of changes stemming

from China's emergence. Furthermore, the Dutch authorities can play a role in facilitating trade of Dutch firms with China. The Netherlands Foreign Investment Agency (NFIA) can play a role in getting European headquarters of main Chinese firms located in the Netherlands. Dutch trade policy has to focus on the opening-up of the Chinese service sector and on protection of international property rights in China. The role of the Netherlands as distribution centre of Chinese goods and the increasing role of China as supplier of goods to Europe is likely to boost transport and this may require a policy reaction. In the light of increasing global competition, Dutch comparative advantages can be enhanced by means of a continued focus on fostering innovation.

The Chinese economy in the past three decades

Economic reforms started at the end of the 1980s in China and have led to a spectacular economic growth of almost 10% per year since then. As a result, output increased almost ten-fold and China became the fourth largest economy in the world. Key in the reform process was a gradual reduction of the role of the government in favour of the private sector and the embracement of an export-led growth policy. This turned China into the third largest exporter, with assembly activities a major element. A growth-accounting analysis shows the important role of capital accumulation in the Chinese lift-off. Productivity increases, that were stimulated to an important extent by foreign direct investment, contributed as well. The Chinese lift-off is not idiosyncratic, but has a close resemblance with that of other Asian economies in the past. What makes the Chinese lift-off different is the enormous size of its population. After three decades of reform, income per capita is roughly comparable to middle-income developing countries and still only a fraction of that in the Netherlands.

The impact of China on Dutch foreign trade

Dutch trade with China has increased enormously. Almost 8% of Dutch imports are now coming from China; two-third of those imports is re-exported by the Netherlands to the rest of Europe. Exports to China have risen less steeply and are now 0.9% of total exports. As a percentage of GDP, Dutch exports to China are comparable to those of the rest of the EU-15.

Considering the relative strengths and weaknesses, China is currently strong in conventional low-skilled export goods such as clothing, textile, shoes and toys, but also in high-tech goods, such a computers and consumer electronics. The latter is remarkable given the current stage of development of the Chinese economy and is mainly due to its role as an assembler and the abundance of cheap labour. Dutch comparative advantages are mainly found in the world markets of several agricultural goods, such as flowers and bulbs, dairy and birds' eggs and tobacco manufactures. However, the world markets of those products are relatively small and as a result the total share of those products in Dutch exports remains limited. Petroleum products, electrical machinery and office machines have a larger share in Dutch exports, but these are

10

partly re-exported highlighting the strength of the Netherlands as a European distribution centre. Based on an in-depth revealed comparative advantage analysis, it can be concluded that the overlap between Chinese and Dutch export strengths is limited. In contrast, the overlap between Chinese strengths and strengths of the new member countries of the EU is substantial.

Foreign direct investment in China

China is a top recipient of foreign direct investment (FDI). While FDI inflows peaked in 2000 in many countries, inflows in China continued to increase and reached a record high of 60 billion dollar (some 3% of GDP) in 2004 and in 2005. Hong Kong is the biggest investor in China, followed by Korea and Japan. Investment of Dutch firms in China took off in the first half of the nineties. Dutch firms mainly invested because China is or will become a big market. Low labour costs were less important in investment decisions. In 2005, the stock of Dutch FDI in China amounted to 1.7 billion dollar. This is only 0.3% of total Dutch FDI, but this share is comparable with that of the EU-15 average. Those low shares for European countries underline the crucial role of distance in FDI decisions and the fact that FDI flows are mainly between advanced economies. However, Dutch FDI in China may increase in the coming years as China will lift its restrictions on FDI in services and as the Chinese market will continue to expand rapidly.

Consequences in the medium term of shocks to the Chinese economy

Positive inflationary shocks are not unlikely in the upcoming years since domestic energy prices are likely to gradually adjusted to higher world market prices, food prices may be raised to reduce tensions between rural and urban areas and current strong growth may lead to overheating of the economy. An inflationary shock would lead to tighter monetary policy, reducing output and import growth. This would have a negative impact on European exports to China. However, at the same time, European exporters will benefit from the deterioration in Chinese price competitiveness. Simulations with the NiGEM model indicate that on balance the impact on GDP of the euro area would be slightly positive.

While much progress has been made in strengthening the financial system in China, the Chinese banking system remains vulnerable. The impact of tensions in the banking system is investigated by simulating a rise in the real interest rates of China. This would reduce domestic demand and would lower China's imports markedly. However, the impact on euro area GDP would be small as long as there is no spillover of the problems of Chinese banks to major foreign banks.

One of the key medium-term risks in the current global economy comes from the widening of the current account imbalances in major economies. While the US deficit has reached 7% of GDP, the Chinese surplus has risen to 7% of GDP. Should such massive imbalances were to unwind, it could impose a substantial shock to global markets, in particular to the foreign exchange markets. To explore the impact, a simulation with the NiGEM model has been made

of an increased risk premium on US assets causing a depreciation of the US dollar. Depreciation of the US dollar would lead to some contraction in China and the euro area.

1   Introduction

China and the Netherlands are worlds apart, not only because of distance (physically as well as culturally), but also because of differences in the relative size of the countries in terms of population and GDP and differences in income per capita. 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 rapid development in the last decades, China is still among a large group of less developed countries in the global economy.

Nevertheless, the rapid economic development of China in combination with the sheer size of the Chinese economy has led to strong interest in the Netherlands among policymakers and the public at large.[1] The impressive dynamism of the Chinese economy turning China into an important player in the global economy has provoked intensive debates on the potentially drastic economic consequences for the world economy at large, but also for a small open economy such as the Netherlands. There are still many open questions regarding the potential impact of China on the Dutch economy. This Document aims to answer some of these questions.

Table 1.1   Key statistics China and the Netherlands

		China	Netherlands
Surface area (mln sq. km)	2003	9.60	0.04
Population, total (mln)	2003	1288	16.2
Life expectancy at birth, total (years)	2002	70.7	78.3
Mortality rate, under-5 (per 1,000)	2004	31.0	5.6
Fertility rate, total (births per woman)	2004	1.9	1.7
Agriculture, value added (% of GDP)	2004	13.1	2.4
Industry, value added (% of GDP)	2004	46.2	25.6
Services, etc., value added (% of GDP)	2004	40.7	72.0
GDP (current dollars, bln)	2005	2248	625
GDP per capita, (in dollars at PPPs)	2005	7204	30861
Improved sanitation facilities, urban (% of urban population with access)	2002	69.0	100.0
Improved water source (% of population with access)	2002	77.0	100.0
Internet users (per 1,000 people)	2004	73	614
Fixed line and mobile phone subscribers (per 1,000 people)	2004	499	1393
Energy use (kg of oil equivalent per capita)	2003	1094	4982

Sources: World Bank, World Development Indicators 2006; IMF, World Economic Outlook Spring 2006.

[1] The Dutch attitude towards China in particular and globalisation in general is more positive than in many other countries. A survey by the European Commission shows that the Netherlands is 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, 2006a).

This Document is structured as follows. It starts of with a characterisation in Chapter 2 of China's economic development since its shift in 1978 towards a more market-oriented and outward-oriented economic policy. Some lessons are also drawn from a comparison between Chinese developments with the rapid developments of Japan and Korea during the latter half of the 20th 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 China's emergence on the European economies in general and the Dutch one in particular. Apart from a description of the emergence of China as a respectable player on several global export markets, it pays attention to the impact on Dutch foreign trade, on Dutch foreign direct investment, on labour markets, on financial markets and on inflation. As such, it discusses the most important aspects of globalisation in general, applied to the specific impact of China on the Dutch economy. Chapter 4 aims to describe the impact of future developments in China on the world economy. Since both the developments as well as the associated impacts are inherently uncertain, simulations are used that are carried out with two models, viz. WorldScan and NiGEM. The first is used in order to construct two different long-term scenarios up to 2040 that explore China's future role in the world economy and characterise future economic developments, trade and sectoral specialisation patterns. The latter is used to present the most likely impact of the Chinese economic development up to 2010 on the Dutch economy and the uncertainties surrounding this central outlook. More in particular, the focus will be on the role of developments in the financial sector in China, the value of the renminbi, and trade relationships. Chapter 5 concludes with a discussion of possible Dutch policy responses towards China's emergence.

2 The Chinese economy since its policy rupture in 1978

The transformation of the Chinese economy has been stellar since the introduction in 1978 of the "opening-up" policy by party leader Deng Xiaoping. Output measured by GDP increased almost ten-fold, making China the fourth largest economy of the world based on exchange rates (see also Box on page 23 for a discussion on the measurement of the size of the Chinese economy). The number of Chinese living in absolute poverty has declined drastically. Exports rose from a meagre 10 billion US dollars in 1978 to the vast amount of 760 billion dollars in 2005, making China the largest exporter after the United States and Germany. The combination of a huge reserve of cheap labour and the potential to become the biggest consumer market of the world in the near future has attracted considerable foreign direct investment.

In this chapter, the transformation of the Chinese economy is briefly sketched and a concise analysis of Chinese economic growth is presented. Furthermore, a comparison with the rapid development of Japan and Korea during the latter half of the 20th century is made. Finally, the implications of the reform process for the Chinese economy are evaluated.

2.1 China's economic growth since 1978

Towards a market-based economy

The transformation to a market-based economy started in the late seventies with deregulation of the agricultural sector and with the "opening-up" of the Chinese economy towards the world economy. As a result of the deregulation of the agricultural sector, most prices were no longer fixed by the government and farmers could take decisions on output themselves. The "opening-up" led to the embracement of the investment and export-led growth policy that has been a success in neighbouring countries like Taiwan, Hong Kong, Japan and Korea. As a result, the level and dispersion of trade tariffs dropped substantially. Foreign investments, analysed in detail in Chapter 3.2, have played a major role in transforming the Chinese economy through incorporating western management practices and technology. After the opening up in 1978, it took China several years to regain her markets that were lost in the 1960s and 1970s (see Bakens and De Groot, 2006). The upward trend in the Chinese share in world trade stopped during the Asian Crisis in 1997/1998 (Joosten, 2004) when China temporarily lost competitiveness. Thereafter, the upward trend was reinforced. The Box on page 16 provides an overview of the main reforms during the past three decades.

The Chinese reform process has been gradual and rather consistent.[2] Many reforms were first introduced on an experimental basis in some regions, often the special economic zones, and, if successful, extended to the rest of the country. In contrast to Russia and previously communist countries in Eastern Europe, no big-bang policies such as total privatisation of state

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[2] See also Zhao (2006) and Sigurdson (2005) for a chronological survey of the opening up of the Chinese economy.

companies were implemented.[3] The pace of economic reforms accelerated in the late 1990s, which led to membership of the World Trade Organisation (WTO); see Box on page 18 for a preliminary assessment of China's accession.

The stellar export growth was accompanied by very strong import growth and required a highly robust investment growth (Table 2.1). The share of consumption in GDP declined. The current Chinese consumption to GDP ratio is much lower than that of high-income countries, but also lower than in other strongly growing emerging economies such as India and Vietnam. The implications of the resulting vast pool of savings are further explored in the next section as well as in Chapter 4.

Overview of the gradual economic reforms in China

Year	Policy change
1978	"Opening-up" policy initiated, allowing foreign trade and investment
1979	Decision to turn collective farms over to households
	Township and village enterprises (TVEs) given stronger encouragement
1980	Special economic zones created
1984	Self-proprietorships of small firms (geithu) encouraged. Statement of party leader Deng Xiaoping on this reform: "To get rich is glorious"
1986	Provisional bankruptcy law passed for state owned enterprises
1986	Compulsory schooling raised from 5 to 9 years
1990	Stock exchange started in Shenzhen
1993	Decision to establish a "socialist market economic system". Statement of party leader Deng Xiaoping on this reform: "It doesn't matter if a cat is black or white, so long as it catches mice"
1994	Company law introduced
	Renminbi begins to be convertible on current account; multiple exchange rates ended
1996	Full convertibility to current account transactions
1997	Plan to restructure state-owned enterprises begins
1999	Constitutional amendment passed that explicitly recognises private ownership
2001	China accedes to the World Trade Organisation (WTO). It applied in 1986.
2002	Communist party endorses role of the private sector, inviting entrepreneurs to join
2004	Constitution amended to guarantee private property rights
2005	Renminbi no longer pegged to US dollar; switch to dirty floating
2006	Authorities decide to allocate more resource to rural areas under the slogan "promote the construction of a new socialist countryside"

Sources: OECD (2005a) and own additions.

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[3] The IMF recently questioned whether gradualism is still fruitful and has proposed a shift to bolder reforms (Prasad and Rajun, 2006). Earlier the OECD concluded that the process of reform of individual segments has reached its limits and that the emphasis needed to shift towards comprehensive economy wide reform (OECD, 2002). The Chines authorities, however, continue to favour gradualism, reflecting their concerns about the economic, social and political risks that stronger and faster reform might pose.

Table 2.1   Chinese economy, economic indicators 1979-2004

	79-82	83-88	89-93	94-98	99-04
	Average annual percentage changes				
GDP volume	7.5	11.8	8.9	9.6	8.6
Value					
GDP	10.5	17.9	18.9	18.5	10.4
Consumption	13.0	17.9	15.7	19.2	8.1
Gov Consumption	12.9	14.5	21.3	16.4	9.6
Investment	9.0	20.8	24.9	16.6	14.7
Export	26.3	27.6	25.2	27.7	22.2
Import	18.9	36.2	24.3	16.5	26.5
Direct investment	.	59.6	80.0	21.3	4.4
CPI	.	13.0	9.2	10.3	0.6
% GDP	*Average over period*				
Consumption	51.4	51.6	48.7	46.2	45.4
Gov Consumption	14.5	13.2	12.9	11.9	12.6
Investment	27.5	30.3	30.0	34.7	39.0
Export	6.6	10.0	15.9	20.3	25.7
Import	6.7	12.0	15.6	17.5	23.5
Direct investment	0.1	0.6	2.0	5.1	3.6

Source: IMF, International Financial Statistics.

Growth accounting analysis

Growth accounting is a useful tool to provide information on the proximate causes of growth (notwithstanding the various quality problems associated with Chinese data; see Box on page 19). It allows to decompose growth of GDP per capita into its constituent factors, viz. (i) demography (defining the size of the working age population), (ii) participation (defining the size of the active population), (iii) capital accumulation, and (iv) residual factors (comprising improved quality of the labour force, structural change and multi-factor productivity). Applying the growth accounting framework to China reveals that capital accumulation, funded mostly out of a vast pool of private savings, has been the driving force behind the rapid increase in real GDP per capita in China over the past three decades (Table 2.2). Capital accumulation accounted for a third of the income growth in the period 1983-1988 and for more than a half thereafter. Income per capita was somewhat boosted by the drop in the number of children relative to the working age population, prompted by the one-child policy. On the other hand, the labour participation development had a negative impact and was driven by the expansion of education and restructuring of inefficient state enterprises, which led to early retirement and hidden unemployment. The contribution to income growth of residual factors was almost as important as that of the increase in the capital stock. Residual factors encompass sectoral change, change in educational skills and productivity increases. The shift of workers from the agricultural sector, with its low productivity, to the manufacturing sector, with a much higher

average level of productivity, has contributed most strongly to income growth in the 1980s. The increasing level of education enhanced income and output growth by around 1%-point per year. The contribution of the increase of multifactor productivity was clearly bigger, but has fallen substantially in recent years. This productivity rise was not only due to technological progress

Table 2.2   Chinese economy , growth accounting analysis 1983-2003

	1983-1988	1988-1993	1993-1998	1998-2003
Income per capita growth				
GDP per capita (=1+2+3)	10.6	7.5	8.8	7.2
Demography / working age population (a)	1.0	0.5	0.3	0.6
Participation rate (b)	0.6	0.3	− 0.6	− 0.7
Demography and participation (1)(=a+b)	1.6	0.8	− 0.3	− 0.1
Capital intensity (2)	3.3	3.4	5.1	4.5
Residual factors (3)	5.6	3.4	4.1	2.8
Of which: Sectoral change	2.2	0.8	− 0.3	0.5
Education	1.0	0.9	0.9	1.1
Multi-factor productivity	2.4	1.7	3.4	1.3

Source: OECD (2005a).

Preliminary assessment of China's WTO accession

The long negotiation process between China and the most prominent WTO members, the United States and the European Union, on the accession terms gave researchers plenty of time to study the likely impact of China's entry to the world trading system. Gilbert and Wahl (2001) survey the most influential one- and multi-country computable general equilibrium (CGE) studies until the year 2000. Most studies vary in their assessment of the cuts in China's import tariffs and changes in its trading system. However, the welfare results are consistent. China gains 9.5 to 30 billion dollar and the rest of the world could also gain about 10 to 30 billion dollar by unilateral liberalisation. Most countries gain to some extent, only some countries in South-East and South Asia could loose. These countries have similar production patterns as China, and have to cope with increased competitiveness from China.

The CPB studies of Lejour (2001) and Li and Lejour (2001) fit in this range of outcomes. They present GDP gains for China of 0.8 to 1.6%. Accession will boost manufacturing sectors in China, especially textiles and apparel, which will benefit directly from the removal of export quotas. Nearly all studies indicate massive gains for the textiles and apparel sectors. The recent upswing in China's textiles and clothing exports in 2005 confirmed this assessment at the expense of South and South-East Asian countries.

More recently, Ianchovichina and Martin (2004) presented in a special issue on China's WTO accession in the *World Bank Economic Review* economic gains of about 31 billion dollar from trade reforms in preparation for accession and additional gains of 10 billion dollar from reforms after accession, initiated by its major trading partners that also undertake liberalisation. Based on more recent insights, they conjecture that also the automobile industry will gain due to massive restructuring of that sector. Without restructuring most research results indicates a decline of the automobile industry. Nearly all studies also indicate production losses in the less competitive sectors in China: agriculture and services.

18

Foggy Chinese data

Recently, the national accounts of China have undergone a substantial revision by the National Bureau of Statistics of China (NBSC), confirming suspicions of many observers regarding the quality of Chinese data.[a] Those suspicions are fuelled by the fact that the NBS publishes official quarterly GDP figures within weeks of the end of the reporting period, significantly faster than other statistics agencies. For example, it takes the highly praised American Bureau of Economic Analysis a month to publish its first (preliminary) estimate of the quarterly GDP growth. Furthermore, Chinese growth has been hovering in the narrow range of 9-10% for many years, which is rather remarkable for a huge country in transition.

The recent revision of the national accounts of China incorporates new information from the 2005 National Economic Census. The previous economic census was taken in 1993, before the recent acceleration in economic development. After the revision, Chinese GDP in 2004 is some 17% higher than previously published estimates. As a consequence, China moves two steps up the ladder and is now the fourth largest economy in the world based on exchange rates.[b] Real GDP growth in the years 1993-2004 was revised upwards by 0.5%-point per year.

The new information also points to a different structure of the Chinese economy. The share of the service sector has been revised upward from 37% to 41% of the economy. The industrial sector has declined from 49 percent to 46 percent, and agriculture from 14% to 13%. It has also consequences for the sectoral growth pattern. Output growth of the service sector is now growing at almost the same rate as that of the manufacturing sector, while it was lagging before the revision.

At the moment, analysis of the Chinese economy is hampered by the fact that the revision of the national accounts is not yet completed.[c] The expenditure accounts still have to be revised before 2004. However, it is clear that export and investment ratios are somewhat less extreme than presented in earlier publications.

Data problems not only exist for national accounts series, but basically for all economic series, as can be expected for an economy that is rapidly transforming. Most reliable are foreign trade statistics as they are also recorded by statistical agencies in OECD countries.

[a] For example Young (2003) concluded that statistics are poor as they are based on reports filed by local officials whose tendency is to overstate the growth of output, while understating investment and births. On the other hand, Goldman Sachs found an understatement of output growth in recent years based on an alternative effort to measure growth. See Chow (2006) for a more positive assessment of the Chinese official statistics.
[b] It is the second economy when GDP is measured at purchasing power parities (PPPs).
[c] As a result, some numbers given in tables and figures in this Document do not include the impact of the recent revision.

but also due to the adoption of western management practices and the increasing role of the private sector. Productivity of private companies is estimated to be almost twice as high as of state-controlled companies (OECD, 2005a).

From this growth accounting analysis it can be concluded that the development of China is anything but a technological miracle. It mainly stems from a combination of massive investments, that are the resultant of a high return on capital accumulation, supply of funds stemming from high savings and the "opening-up" of the economy resulting in a substantial increase of foreign direct investments. The second most important role is attributed to technological progress which is likely to be driven by, again, the "opening-up" of the Chinese

economy and the increased reliance on market forces. As such, the development is not much different from experience of the former Asian Tigers, except for the fact that China seems to rely less on increases in participation.[4]

2.2   A comparison with other dynamic Asian countries

It is relevant to investigate whether the growth of the Chinese economy differs from the lift-off of the Japanese and Korean economies. A comparison between the recent Chinese development and the Japanese and Korean economies in the periods they experienced high growth is given in Table 2.3 and Figure 2.1. There are striking similarities. The Chinese real GDP growth of 9.4% per year may be high at first glance but is comparable to that of Japan and Korea during their lift-off periods.[5] The same can be said of export and investment growth.

However, there are also significant differences. First, China has experienced high growth for over a quarter of a century, while that period lasted only 15 years in Japan and twenty years in Korea. A possible explanation can be the oil crisis in the seventies that hampered growth in Japan. Second, GDP per capita is still significantly lower than that of Japan and Korea at the end of their lift-off period.[6] Only in some coastal regions of China, it is now comparable with that of Korea in the early 1980s. Third, what makes the development of China also different is the relative low share of private and government consumption in GDP. Private consumption only represents 49% of GDP compared to 58% of Japan and 73% of Korea. Finally, national champions played an important role in the lift-off periods of Korea and Japan, while foreign firms are very important in the Chinese case.

Figure 2.1   GDP volume of China, Japan and Korea

GDP volume (base year =100)   **GDP volume growth rates**

——China (T=1978)   - - - Japan (T=1955)   ······Korea (T=1960)   ——China (T=1978)   - - - Japan (T=1955)   ······Korea (T=1960)
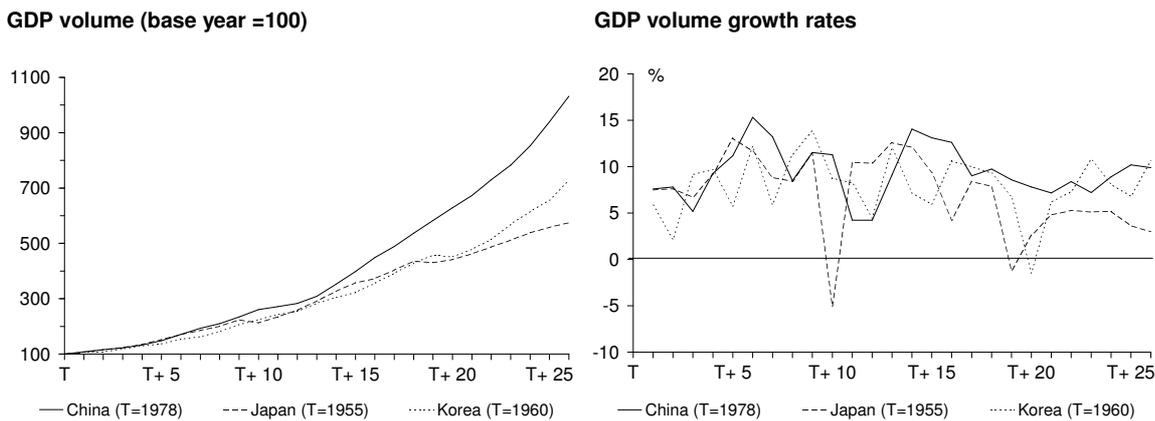
Source: IMF, International Financial Statistics (June 2006).

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[4] See Chapter 3.2.3 for the impact of FDI on China's economic growth.

[5] IMF (2006b) comes to the same conclusiion. See Chapter 2 'Asia rising: Patterns of Economic Development and Growth'.

[6] It was also significantly lower at the beginning of the lift-off period.

	China	Japan	Korea
Table 2.3	**Comparison of the Chinese "lift-off" with those of Japan and South-Korea**		
	79-04	56-70	61-81
	Average annual percentage changes		
GDP (volume)	9.4	10.2	7.8
Value			
GDP	15.5	15.6	28.8
Consumption	14.7	13.8	27.1
Government consumption	14.8	13.3	27.9
Investments	17.5	20.7	35.5
Exports	25.7	15.7	45.1
Imports	25.2	15.9	36.6
% GDP	Average over period		
Consumption	48.5	58.4	73.2
Government consumption	13.0	8.1	10.5
Investment	32.7	30.0	23.2
Exports	16.2	10.4	18.8
Imports	15.6	10.1	26.8
	mln		
Population	1162	97	32

Source: IMF, International Financial Statistics.

Nevertheless, the overall conclusion is that the Chinese lift-off is not idiosyncratic, but has a close resemblance with the emergence of the Japanese and Korean economies in the past. What makes the Chinese lift-off really different is that China's population is more than 10 times larger than that of Japan and almost 40 times larger than that of Korea. Thus, its impact on the world economy is noticeably larger.

2.3 The Chinese economy after three decades of reform

After a period of three decades of drastic reform, income per capita in China is now roughly comparable to middle-income developing countries such as Algeria and Panama. It is still only a fraction of that in the Netherlands or even the poorest EU country. Behind this average Chinese income per capita are huge differences across regions and skill types. The skilled-unskilled wage differential has risen from 1.3 to 2.1 during the last decade (Blanchard and Giavazzi, 2005). Per capita income in urban areas is more than three time that of rural areas. Thus, there is a huge incentive to migrate from the countryside to cities, even with wages of migrant workers much below average and their extremely weak safety net. Migrant workers have much less access to health care, pension programmes and unemployment benefit schemes than the rest of the urban workforce.

The share of the private sector in value added produced by non-farm businesses has reached two-third in 2003. Nevertheless, China is still considered a non-market economy by the US and the EU. The influence of the national and local governments is still huge. State enterprises play a substantial role and many Chinese "private" enterprises are controlled by local governments.

The Chinese economy is now very open taking into account its size. In some sectors, such as consumer electronics, foreign companies dominate exports completely, while they are less active in for instance the textile sector. Their share in total exports is just over half (55%), much higher than their share of the Chinese domestic market (13%). As a result, their share in GDP is more than 20%. However, due to superior productivity, they only employ 3% of the workforce (Whalley and Xin, 2006)

A triangular trade pattern has arisen. Roughly speaking, China imports intermediate goods from Asia, assembles them to consumer goods that are shipped to the United States and the EU. In return China receives capital goods from the US and the EU and, for the time being, financial assets. Due to fragmentation of production, there are strong trade flows in intermediate products (semi-finished goods and part & components) between China and the rest of Asia (Table 2.4). Given this pattern, it is justified to characterise China at the moment as assembly platform or manufacturing hub or reprocessing centre. However, as explored further in Chapter 3.1.2, the role of assembly is diminishing somewhat and the role of "home-made" exports is rising.

Table 2.4	China's trade pattern by stage of production, 2004					
	Import China			Export China		
	World	Asia	USA+EU	World	Asia	USA+EU
	%					
Primary goods	4.0	2.3	4.2	1.7	2.7	0.6
Semi-finished goods	33.8	34.9	21.9	22.9	28.9	13.8
Parts & components	34.2	38.1	29.3	21.8	24.1	25.0
Capital goods	24.2	22.0	32.7	21.0	17.9	26.0
Consumption goods	3.7	2.7	11.8	32.6	26.5	34.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Share in total foreign trade of China	100	61	32	100	46	51

Source: Own calculations based on WTO trade data.

The apparent technological sophistication of China's economy revealed by its production, exports and R&D intensity is somewhat of a puzzle. In 2004, China overtook the United States as the world's leading exporter of information technology goods (OECD, 2005b). More generally, exports of high-tech goods are relatively strong and increasing as will be analysed in more detail in Chapter 3.1.2. Its R&D expenditure is the third highest in the world, but its impact is widely debated. China's share in patent grants or applications at the US Patent and

What is the size of the Chinese economy?

In 2005, the economy of China was a quarter or three-quarter smaller than that of the euro area depending on the indicator used.[a] China's GDP is 24% smaller when measured at purchasing power parities (PPPs)[b], but it is 78% smaller based on current exchange rates. The huge difference is caused by a combination of the relatively low prices of Chinese non-tradables and by the undervaluation of the renminbi (see Box "Is the renminbi undervalued?" on page 57). Both indicators are valuable in their own right. GDP based on PPPs is an interesting and relevant measure because it provides a measure of the availability of a comparable set of goods and services to the population, controlling for price differences. As such, it is a good indicator for consumer's purchasing power. GDP based on current exchange rates is an interesting and relevant measure as it provides an indication of China's effective demand for foreign goods. While both indicators are valuable, the many headlines witnessed recently when China's GDP revision "transformed" China from the sixth largest economy to fourth largest show that some attach a relevance to the numbers that goes far beyond their clean economic meaning.

In any case, GDP per capita is economically much more interesting than total GDP as it can be used to say something about income relative to peers, and as such about the stage of development of an economy. GDP per capita based on PPPs is the superior indicator for that purpose. It shows that in 2005 the Chinese income per head of the population was only 25% of that of the euro area, indicating a substantial gap in terms of the stage of development.

[a] Calculation on the basis of the IMF World Economic Outlook database of Spring 2006.
[b] This is based on the PPP estimate applied by the IMF. However, China does not participate in the International Comparison Project (ICP) normally used for PPP estimates. As a result, this PPP used by the IMF is only one of a wide variety of estimates (OECD, 2005a).

Trademark Office and the European Patent Office is still very small (Schaaper, 2004).

A related subject to debate are the Chinese graduates from tertiary education. As always in China, the absolute numbers are huge. However, as a percentage of the population the number of tertiary graduates is still limited according to Western standards. In 2001, the proportion of the population at the typical age for graduating at the tertiary level was in China five times smaller than in the United States and the EU. The differences are even bigger for graduation rates for advanced research programmes and for the total labour force. The graduation rate for advanced research programmes was 1.3% of the 25-29 years olds in 2001 for the United States and for the EU, while it was only 0.1% for China. In the United States, 37% of the working-age population had completed a tertiary-level education in 2001, while this stood at 21% in the EU and only 5% in China.

Moreover, there are doubts about the quality of Chinese graduates. Many of the Chinese engineering graduates are not more qualified than technicians in the US and Europe (Gereffi and Wadhwa, 2005). According to a McKinsey survey, 9 out of 10 Chinese engineers are not suited to work for a multinational because of poor communications, lack of teamwork skills and an excessively theoretical approach (Farrel and Grant, 2005). Strong boosts to high-tech production are therefore not very likely in the near future. Moreover, given the vast reserve of

cheap labour, the use of tertiary graduates in the production of low-tech goods may be more welfare-enhancing for China than their employment in the production of high-tech goods.[7]

China's financial sector may still be its Achilles heel. Despite recent reforms and recapitalisation, banks remain vulnerable (Podpiera, 2006). There is a real-estate bubble in some rapidly growing regions. Bursting of this bubble will no doubt negatively affect the Chinese financial sector. Furthermore, credit risk is still not properly priced. Too many loan decisions are taken on political grounds and banks remain to have a bias towards providing loans to state enterprises.

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[7] In this context Kochar 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.

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

The high growth rates of the Chinese economy over the past two decades in combination with its sheer size and its transition towards a market economy have turned China into a respectable player on the world market. This chapter considers several aspects of globalisation and the emergence of China for the Dutch economy. Section 3.1 first considers the impact on trade relationships and specialisation patterns with a special focus on the Dutch economy. Next, Section 3.2 investigates patterns in Foreign Direct Investments. The chapter concludes with a discussion on the impact of developments in China on the Dutch labour market (Section 3.3) and on prices and financial markets (Section 3.4).

3.1 Impact on foreign trade

3.1.1 Stylised facts

The outward-oriented Chinese economy policy has caused a steep increase in trade with the Netherlands. After being flat and modest, Dutch imports from China have risen from 0.6% of total Dutch imports in 1990 to 7.7% in 2005 (Figure 3.1 and Table 3.1). This rise was steeper than elsewhere and the Netherlands have now the highest China share in imports of all EU countries (Figure 3.2). Unlike for the other EU countries, the strong rise in China's share in imports was not accompanied by a drop in the import share of other Asian countries (Table 3.1). China is now the fourth biggest supplier of import goods for the Netherlands, while it was only the 44th supplier in 1978. However, most imports from China are not consumed or used in the

Figure 3.1   Dutch foreign trade with China, 1960-2005

Imports from China
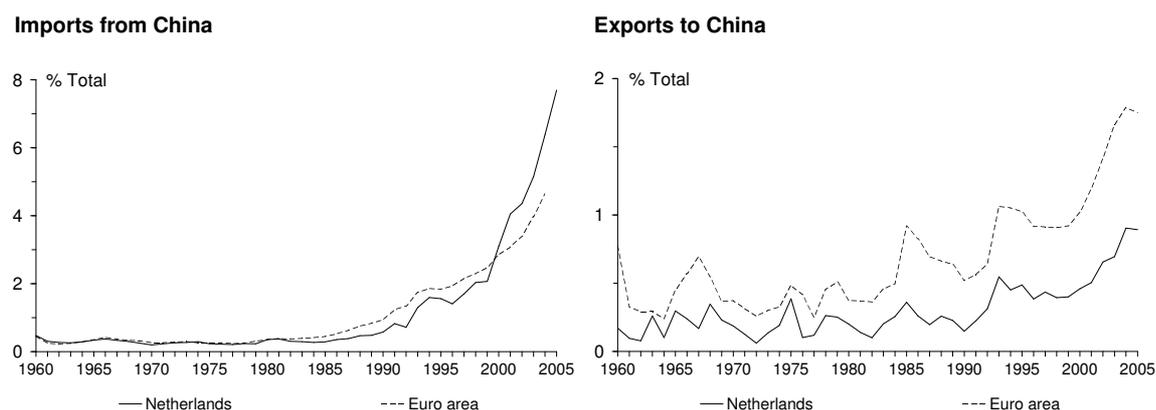
Exports to China

Source: OECD, Monthly statistics of international trade (May 2006).

Figure 3.2   Import and export share of China, 2005

Import share (import from China as a percentage of total imports of goods)
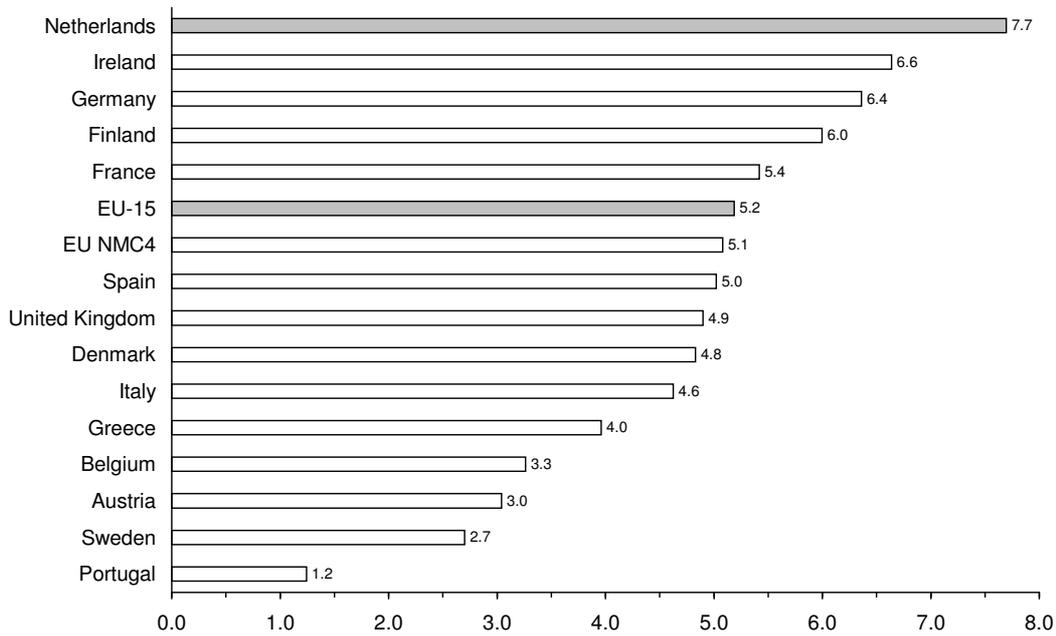

Export share (export to China as a percentage of total exports of goods)
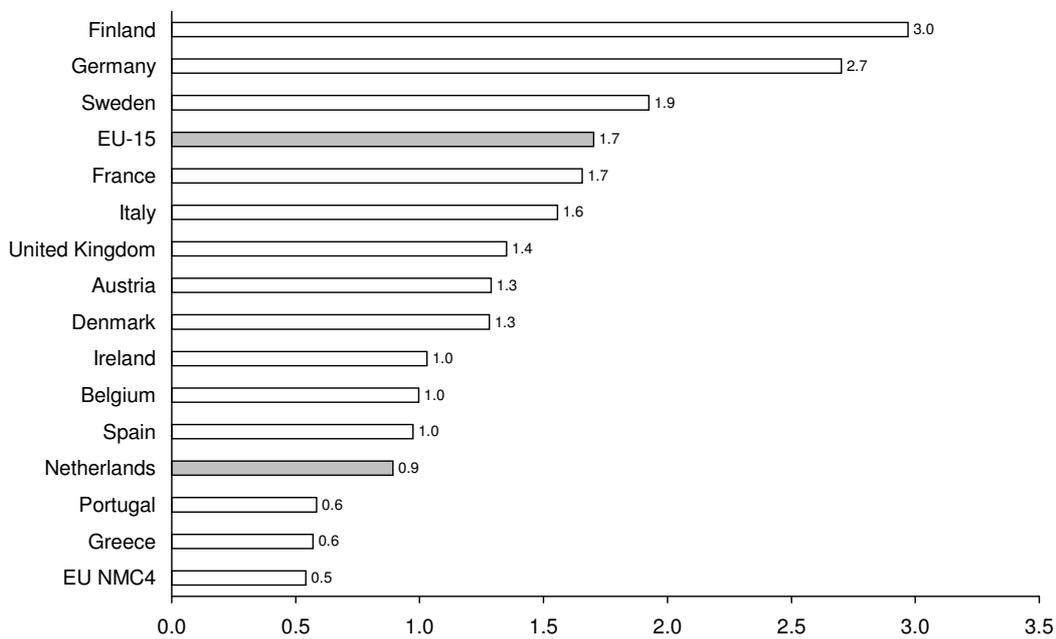
a NMC4: new member countries big 4.

Source: OECD, Monthly statistics of international trade (May 2006).

**Figure 3.3   Exports of EU-countries to China, 2005
            (Exports to China as percentage of GDP)[a]**
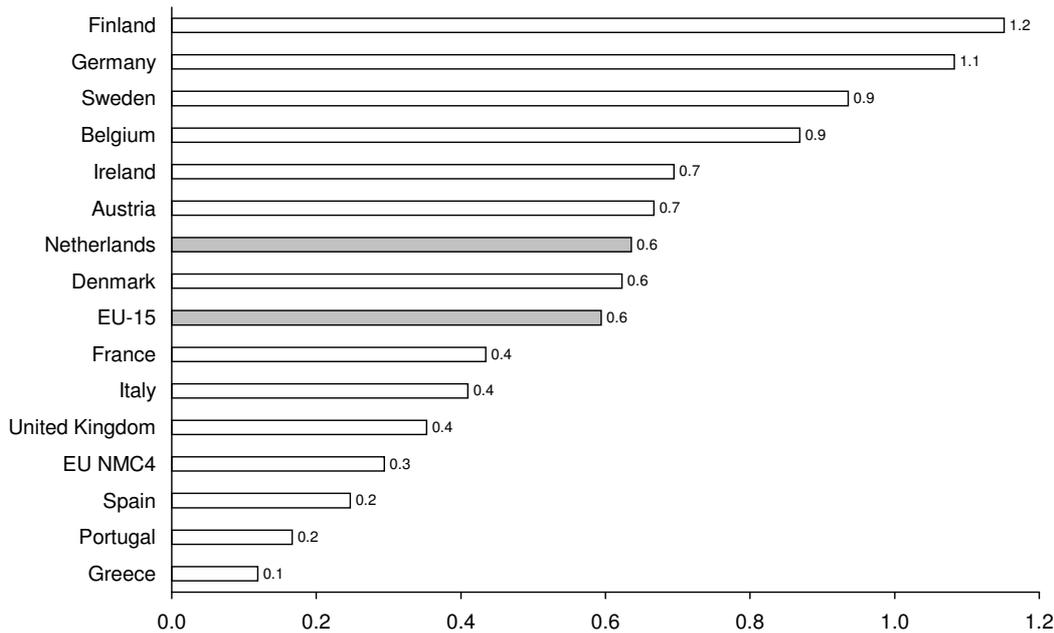
[a] Based on the exports to China as a percentage of total exports of goods and the ratio of exports and GDP.
Source: OECD, Monthly statistics of international trade (May 2006) and OECD, Economic Outlook, no. 79, May 2006.

Netherlands. Two-third of Dutch imports from China are re-exported (CBS, 2005), making the Netherlands an important European distribution centre for Chinese products.[8]

Dutch exports to China have also increased substantially, but clearly less steeply than Dutch imports from China (Figure 3.1 and Table 3.1).[9] Exports to China provide approximately 15,000 jobs in the Netherlands (see Box on page 53). As a percentage of GDP, exports to China is as important for the Netherlands as for the EU-15 as a whole (Figure 3.3). The impact of a lower share of China in Dutch total exports is offset by greater openness of the Dutch economy. The lower share of China in Dutch total exports can only partly be explained by Dutch export composition (see Box on page 28).

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[8] Re-exports are defined as imported goods for which processing in the Netherlands does not lead to a shift in the first 6 numbers of the product code (Roos and Exel, 2006). This limited change indicates that the exported good is practically the same as the imported one.

[9] In 1981, the Dutch government gave an export license for the sale of submarines to Taiwan. This led to tensions with China that may have contributed to the drop in Dutch exports to China in 1982 and the sub par rise vis-à-vis other EU-15 countries in the following years.

Table 3.1   Import and export shares, 1990 and 2005

Imports	Netherlands		EU-15		Exports	Netherlands		EU-15	
	1990	2005	1990	2005		1990	2005	1990	2005
China	0.6	7.7	0.9	5.2	China	0.1	0.9	0.5	1.7
Hong Kong	0.7	0.7	0.7	0.6	Hong Kong	0.3	0.3	0.6	0.7
Taiwan	0.9	1.4	0.8	0.7	Taiwan	0.5	0.6	0.5	0.4
Total	2.2	9.8	2.4	6.5	Total	0.9	1.8	1.5	2.8
Dynamic Asia[a]	5.6	7.6	6.4	6.0	Dynamic Asia[a]	2.3	2.5	4.1	3.6

[a] Japan and Korea and ASEAN.

Source: OECD, Monthly statistics of international trade (May 2006).

The impact of the export composition on the share of China in total exports

China is a less important export market for the Netherlands than for the other EU-15 countries. This is in sharp contrast to Finland and Germany that have strong exports to China. Sweden is the third EU-15 country with above-average exports to China. One reason for the different China export shares could be differences in export composition. A country can be strong in products that China is looking for, for instance capital goods. Export composition effects are calculated based on differences in the export composition with the EU-15 average. The Dutch export structure only explains a small part of the relatively low share of China in total exports. For Finland and Germany, the export composition has a positive effect, but is not the major factor explaining strong exports to China. Relatively strong investments of Finnish firms in China may explain strong Finnish exports to China.

The impact of the export composition on the share of China in total exports

2004	China's share in total exports, difference from EU-15 average	Of which: Export composition effect
Finland	2.4	0.8
Germany	1.1	0.3
Sweden	0.6	0.3
France	0.0	0.1
Italy	− 0.2	0.1
United Kingdom	− 0.5	0.0
Austria	− 0.5	0.1
Denmark	− 0.6	− 0.1
Netherlands	− 0.8	− 0.2
Belgium/Luxembourg	− 0.9	− 0.1
Spain	− 0.9	− 0.2
Ireland	− 1.0	− 0.1
Greece	− 1.3	− 0.1
Portugal	− 1.4	0.0

Source: Sources: OECD STAN Bilateral Trade Database and International Trade by Commodity Statistics, 2006.

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

This section aims to characterise in more detail the position of the Chinese economy on world markets for product groups and its potential impact on other countries in the world in general and Europe and the Netherlands in particular. This is done by first describing the revealed comparative advantages (RCA) of China and the Netherlands and their evolution over time.[10] This results in a characterisation of the strengths and weaknesses of the countries under consideration as well as an identification of emerging and declining product groups in export packages. Furthermore, the relative strengths and weaknesses of the various countries under consideration are compared in order to get a better hand on the potential impact of developments in China on other countries. Also the spatial scope of the markets of the goods traded is described in order to identify the potential impact of Chinese exports on distant markets, including 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 by 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 gives 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 an index w):

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

where $X_{i,t}^{j}$ equals country i's exports of product/sector j at time t, $X_{w,t}^{j}$ equals the exports of the reference group of countries product/sector 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 Balasssa index thus measures the share of product j in total exports of country i relative to the share of product j in world exports. Alternatively, 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. A RCA value above one indicates that a country exports large amounts of a certain product 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

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[10] Data only allow to do this for foreign trade in goods and not for foreign trade in services.

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 and in trade of a certain good. The second interpretation (assembly) may be relevant for China, while the last one 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 China and the Netherlands and their evolution over time can be obtained from constructing a simple Lorenz curve in which (cumulative) sectoral/product shares in exports are depicted on a national and a global level.[11] The analysis is based on a two-digit SITC[12] level allowing for a division of total trade into 80 relatively homogeneous product groups (see Bakens and De Groot, 2006, for further details). The Lorenz curves for China and the Netherlands for 1980 and 2000 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 China. The slope of the line segments of the Lorenz curve equals the RCA-index of the sector/product group in question, starting with the sector with the highest RCA at the left-bottom end in the graph and ending with the lowest RCA at the right-top end in the graph. The Figure illustrates that China, as compared to the Netherlands, has a strongly specialised export package that strongly deviates from the world average. Over time, the Chinese export basket has somewhat converged towards

Figure 3.4   Sectoral specialisation in exports, Lorenz curve of cumulative export shares, 1980 and 2000
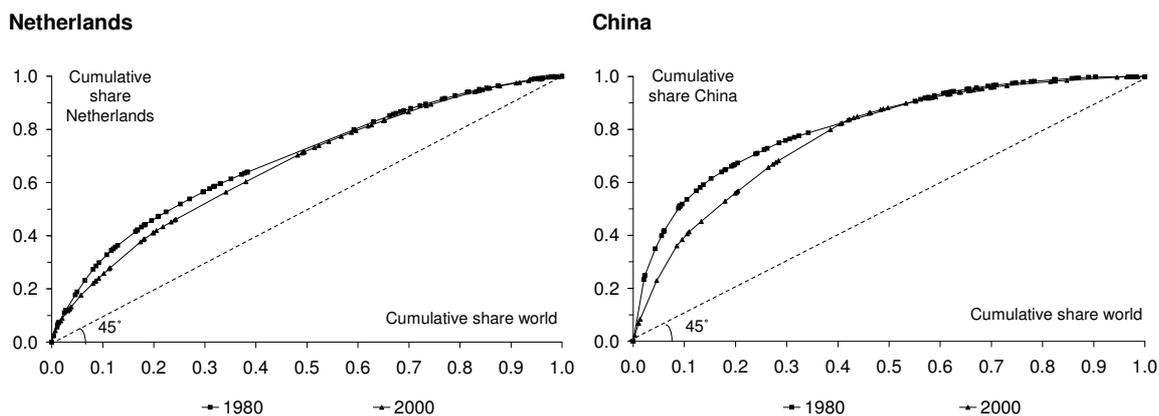
Source: Own calculations based on Feenstra and Lipsey (2005).

[11] In this analysis, the world is treated as the reference group. The data used are from the United Nations, documented in Feenstra et al. (2005) and available at http://cid.econ.ucdavis.edu/data/undata/undata.html. For the RCA analysis, China represents an aggregate of China, Hong Kong SAR, Macau SAR and other special regions of the mainland of China.
[12] Standard International Trade Classification.

the world's export basket, but still remains relatively specialised.[13] For a country with China's size, this result is quite striking. In general, large countries possess relatively balanced resource endowments and have a large home market which allows for economies of scale and thus makes it profitable to produce most industrial goods domestically (Balassa, 1965). A likely explanation for this result is that since the lions' share of world trade is between the most developed countries, the world export average (viz. the reference group used) is biased towards the export-baskets of the developed countries and is thus likely to be quite technologically sophisticated. In this sense, the deviation of China is not surprising.

The deviation of the Dutch export pattern from the global pattern is clearly smaller than that of China, but also substantial and fairly stable over time. This can be explained by the fact that the Netherlands is a small country that has no balanced resource endowment and does not produce most industrial goods itself. Furthermore, its specialisation pattern may partly be related to its role as a transit trade nation.

In order to put some more structure to the type of product 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[14] of the Dutch and Chinese exports, for products at the SITC 4-digit level for 1980 and 2000. Approximately 60% of the Dutch exports are technology or human-capital intensive. This share of especially technology-intensive products has increased since 1980 at the expense of mainly primary products. China's exports consist for approximately 40% of unskilled-labour intensive goods. The share in total exports of primary products has declined drastically (from 26% to a meagre 7%), whereas the share of technology-intensive exports has increased from 11% in 1980 to 36% in 2000. These results partly reflect 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. Still, the relatively strong position of China in the human-capital intensive and technology-intensive segment is striking, as is also emphasised by Rodrik (2006) in his paper with the illuminating title 'What's so special about China's exports?'. Potential explanations for this relatively strong position of China are (i) the FDI inflows that result in high-tech exports being dominated by foreign producers, (ii) the size of the Chinese market allowing for experimentation and the exploitation of economies of scale inherent in high-tech production (cf. Rodrik, 2006), (iii) a potential measurement problem in that China's performance may rely on the exports of high-tech goods that were assembled in China. This issue will be further explored in the remainder of this section.

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[13] See also Hinloopen and Van Marrewijk (2004) for a similar conclusion based on more disaggregate data.

[14] 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 4-digit SITC level.

Figure 3.5   Exports by factor intensity

Netherlands 1980
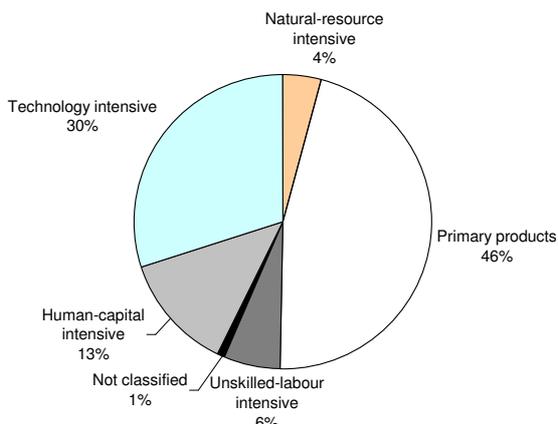
Netherlands 2000
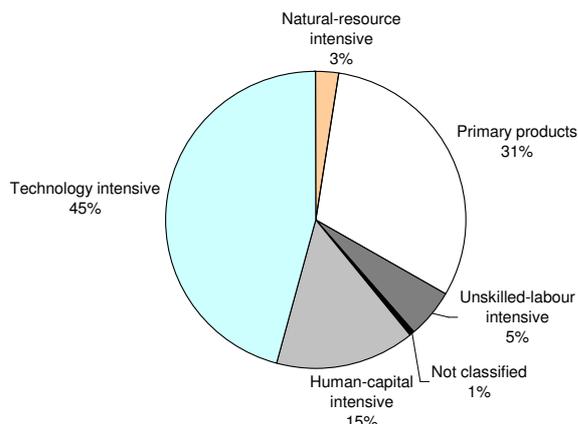
China 1980
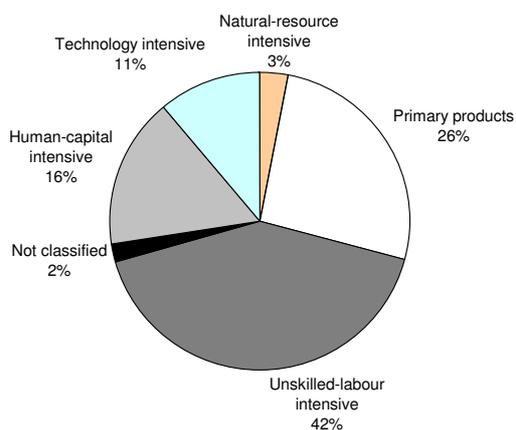
China 2000
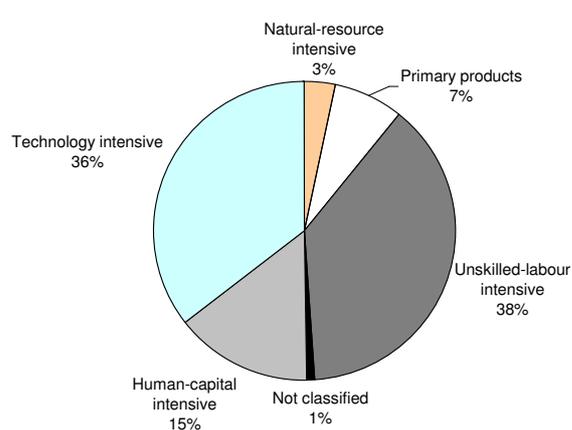
Sources: Own calculations based on Feenstra and Lipsey (2005); classification based on Hinloopen and Van Marrewijk (2006).

Identifying comparative advantages

A more detailed analysis is made of the types of products in which China, Europe and the Netherlands have a strong export position. China is strong both in its conventional products like clothing, footwear and miscellaneous manufactures and in more technologically sophisticated products like electrical machinery and telecommunication apparatus. The ten most important export products account for 73% of the total Chinese exports (see Table 3.2). This corresponds to the pattern of trade that many other scholars have found for the Chinese exports (e.g., Adams et al., 2004; Rodrik, 2006). At the world level, China's enormous production of unskilled-labour intensive production like clothes, footwear and travel goods, is evident: close to a quarter

Table 3.2   China[a] tradables with strong revealed comparative advantage and large national export shares

Top 10 export products 2000

SITC-2 (2-digit)	Product group	Factor intensity	RCA China	Percentage share of Total Chinese exports	Percentage share of World export in product	Import to export ratio
84	Apparel and clothing	Unskilled-labour	4.5	13.6	24.8	0.0
89	Manufactured articles	Technology / human-capital / unskilled-labour	3.3	13.4	18.3	0.1
77	Electrical machinery	Technology	1.1	10.5	6.3	0.8
76	Telecommunication, audio, video apparatus	Human-capital / technology	1.6	8.9	9.0	0.3
75	Office machines	Technology	1.5	8.6	8.2	0.3
85	Footwear	Unskilled-labour	6.3	5.2	34.6	0.0
65	Textile yarn	Unskilled-labour	1.6	4.6	9.0	0.6
69	Manufactured metals	Human-capital	1.5	3.1	8.5	0.2
83	Travel goods	Unskilled-labour	7.4	2.6	40.8	0.0
82	Furniture	Unskilled-labour	2.3	2.4	12.8	0.0
Total				73.0		

China top 10 RCA, 2000

SITC-2 (2-digit)	Product group	Factor intensity	RCA China	Total Chinese exports	World export in product	Import to export ratio
83	Travel goods	Unskilled-labour	7.4	2.6	40.8	0.0
85	Footwear	Unskilled-labour	6.3	5.2	34.6	0.0
57	Plastics in primary forms	Technology	5.6	0.1	30.6	0.0
81	Prefabricated buildings	Unskilled-labour	4.7	1.5	25.8	0.0
84	Apparel and clothing	Unskilled-labour	4.5	13.6	24.8	0.0
89	Manufactured articles	Technology / human-capital / unskilled-labour	3.3	13.4	18.3	0.1
82	Furniture	Unskilled-labour	2.3	2.4	12.8	0.0
88	Photo apparatus	Technology / human-capital	2.2	2.2	12.1	0.2
32	Coal	Primary products	2.1	0.7	11.3	0.0
65	Textile yarn	Unskilled-labour	1.6	4.6	9.0	0.6
Total				46.3		

[a] China is an aggregate of China, Hong Kong and Macau special administrative regions, China free trade zones.

Sources: Own calculations based on Feenstra and Lipsey (2005); Factor intensity classification based on Hinloopen and Van Marrewijk (2006).

of the total world export of clothing stems from China and 40% of the world export of travel goods. When RCA values are considered, China is strong mostly in the low-skilled, labour-intensive production of goods. The fact that China is exporting more technologically sophisticated products is mostly due to a relocation of economic activities in Eastern Asia. Gaulier et al. (2006) conclude that China is able to export sophisticated products because the most industrialised economies in Asia (Japan, South Korea, Taiwan, Singapore and Hong Kong) have moved the unskilled-labour intensive parts of their production processes of rather technologically intensive products and their concomitant trade networks to overseas export platforms in China. This has made it possible for China to upgrade its industrial capacity and to

Table 3.3   Dutch tradables with strong revealed comparative advantage and large national export shares

SITC-2 (2-digit)	Product group	Factor intensity	RCA Dutch	Total Dutch exports	World export in product	Import to export ratio
Top 10 export products 2000				Percentage share of		
33	Petroleum	Primary products	1.0	10.2	3.3	0.8
77	Electrical machinery	Technology	1.0	10.0	3.1	0.7
75	Office machines	Technology	1.6	9.8	5.2	1.2
78	Road vehicles	Human-capital	0.6	4.7	1.7	1.3
51	Organic chemicals	Technology	1.9	4.4	5.9	0.6
58	Plastics in non-primary forms	Technology	2.3	4.4	7.2	0.3
89	Manufactured articles	Technology / human-capital / unskilled-labour	1.0	3.9	3.1	0.9
76	Telecommunication, audio, video apparatus	Human-capital / technology	0.7	3.1	2.1	1.5
05	Vegetables and fruit	Primary products	2.5	2.9	8.0	0.6
29	Crude animal and vegetable materials (flowers & bulbs)	Primary products	8.1	2.4	25.5	0.2
Total				55.9		
Top 10 RCA, 2000						
29	Crude animal and vegetable materials (flowers & bulbs)	Primary products	8.1	2.4	25.5	0.2
02	Dairy and birds' eggs	Primary products	4.5	1.9	14.4	0.5
12	Tobacco manufactures	Primary products	4.4	1.3	13.9	0.3
43	Animal & vegetable fats/oils	Primary products	3.7	0.2	11.8	0.6
01	Meat	Primary products	3.2	2.2	10.2	0.3
08	Animals feeding	Primary products	2.8	0.9	8.9	0.5
05	Vegetables and fruit	Primary products	2.5	2.9	8.0	0.6
42	Vegetable fats & oils	Primary products	2.4	0.5	7.5	0.6
00	Live animals	Primary products	2.4	0.3	7.4	0.5
09	Edible products	Primary products	2.4	0.6	7.4	0.4
Total				13.2		

Sources: Own calculations based on Feenstra and Lipsey (2005), classification based on Hinloopen and Van Marrewijk (2006).

develop a comparative advantage in manufacturing. The export of assembled parts and components is not observable through net export data. However, based on the BEC-classification,[15] it can be concluded that the Chinese imports of parts and components from other Asian countries are somewhat declining, while the exports of final goods are still increasing. This indicates that, although assembling of technologically sophisticated products still lies at the heart of the economic growth of China (cf. Chen, 2005, and Gaulier et al., 2005 and 2006), the role of China as a sole assembler of technologically intensive products is decreasing somewhat in favour of more "home-made"[16] technologically intensive products (cf.

[15] Broad Economic Categories of the United Nations. For the analysis, data from the WTO is used at the SITC 5-digit level for the period 2000-2004.

[16] This "home-made" may also be done by foreign companies with R&D centres in China. See also Chapter 3.2.3.

Rodrik, 2006).[17] Table 3.3 contains a characterisation of Dutch exports.[18] It is striking to see that the products for which the Netherlands has a strong comparative advantage, like the agriculture and food cluster (SITC 00 to SITC 09), flowers and bulbs (a substantial part of SITC 29), animal and vegetable oils and fats (SITC 40 to 49) and the chemical cluster (SITC 50 to SITC 59), also account for large shares in the world export of those products, but do not account for large shares of the national export. A dominant position on the world market of these products is hence not accompanied with a dominant position in the Dutch export package, reflecting the limited role of other countries on these markets at a global scale. Electrical machinery, office machines, telecommunicating apparatus and chemical products are the products with the largest export shares. However, in 2005, almost 90% of the total Dutch exports of electrical machines and electronics consists of re-exports (CBS, 2006). The importance of re-exports for these product groups is also illustrated by the large ratio of imports to exports in Table 3.3. The high RCA values for the agriculture and food cluster, flowers and bulbs and the chemical cluster reflect the unique position of the Netherlands on the world market for these goods.

Comparative advantages over time

The analysis so far was mainly focused on the year 2000. Comparative advantages may change over time, especially for countries in rapid transition such as China. The change of China from a low-skilled, labour-intensive economy to a more sophisticated one is illustrated in Figure 3.6. The substantial deviation of several of the product groups from the 45° line reveals that the Chinese RCAs are not very persistent (note that product groups that are on the 45° line have an equal RCA in 1980 and 2000, while groups above (below) this line are characterised by an increasing (decreasing) RCA).

The six different planes that are identified in the figure essentially classify the extent as well as the direction of change during the past two decades of comparative advantages. Plane I depicts the product groups such as coal, coke and briquettes (SITC 32) and inorganic chemical (SITC 52) that changed their comparative advantage from weak to strong during these years. Plane II represents an increase in the RCA of product groups that were already strong (most notably footwear; SITC 85), while plane III depicts a decrease in the RCA of products that were strong but are still strong. The entire unskilled-labour intensive manufacturing cluster (SITC80 to SITC85), with products like furniture, travel goods, apparel and footwear belongs to the latter two groups of products. Plane IV depicts the product groups that decreased in RCA from strong to weak, among which are animals including Zoo animals (SITC 94) and the production of

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[17] Adams (2004), CEPII (2005, 2006) and also Rodrik (2006) point at the possibility that the Chinese exports of consumer electronics are in the lower-quality segment.

[18] See also Jacobs and Lankhuizen (2006) for a characterisation of Dutch exports. They find the same strong clusters in the Netherlands, which are the agriculture and food cluster, flowers and bulbs, and the chemical cluster. They also identify a strong position of the Netherlands in photo apparatus and equipment. Jacobs and Lankhuizen do not look at re-exports, resulting in the identification of a relatively small, though considerable, RCA for the Netherlands in clothing and textile as well as in office machines.

Figure 3.6   Revealed comparative advantages of China in 1980 and 2000
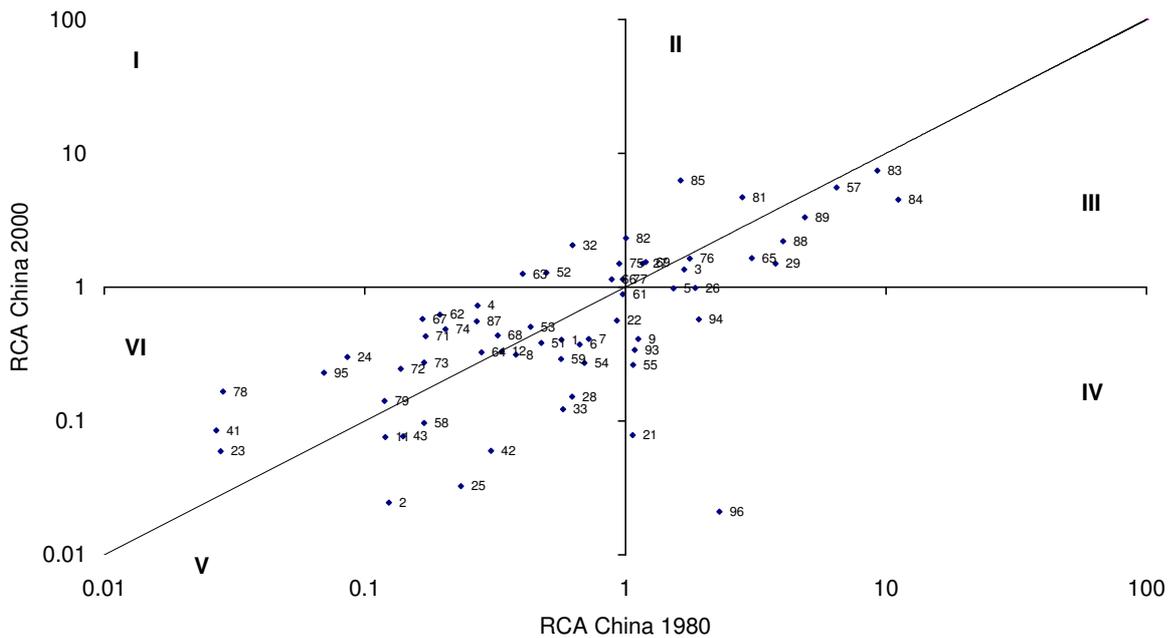
Source: Own calculations based on Feenstra and Lipsey (2005). See Annex B for the coding of the product groups. Note: Three products at the lowest end of the RCA distribution have been left out for presentational clarity.

coins not being legal tender (SITC 96). Plane V contains product groups that were weak already and declined even further such as dairy products (SITC 02) and pulp and waste paper (SITC 25), while plane VI contains the weak product groups with an increasing RCA among which are road vehicles (SITC 78). The figure also reveals the somewhat striking fact that China has an increase in comparative advantage in products of higher technological sophistication like office machines (SITC 75) and electrical machinery (SITC 77), and a decreasing but still above one RCA in telecommunication, audio and video apparatus (SITC 76) and photo apparatus (SITC 88).[19]

A similar analysis for the Netherlands illustrated the strong persistence in the comparative advantages for the Netherlands (see Bakens and De Groot, 2006, for more details). This is consistent with other research that concludes that RCAs tend to be fairly consistent over time for mature and developed economies (Balassa, 1965; Hinloopen and Van Marrewijk, 2005).

[19] See also Adams et al. (2004), Chen (2005), Gaulier et al. (2005 and 2006), Hinloopen and Van Marrewijk (2004), Rodrik (2006), Schott (2006) and Yue and Hua (2002) for similar findings on the rapidly growing importance of the Chinese exports of a group of technologically sophisticated goods. The group of technologically sophisticated goods consists with what many scholars call 'consumer electronics' (Adams et al., 2004; Gaulier et al., 2005, 2006; Hinloopen and Van Marrewijk, 2004; Rodrik, 2006; Schott, 2006), which are identified as electrical machinery, office machines and telecommunication, audio and video apparatus in this research. These electrical machinery and apparatus have a large RCA and a large share in total Chinese exports.

Identifying relative strengths and weaknesses

For sectors in which China has a strong revealed comparative advantage, China may be a potentially important trading partner as well as a source for enhanced competition from abroad for firms localised in the Netherlands.[20] But that is only part of the story. To the extent that Chinese comparative advantages overlap with those of, for example, Eastern European countries, the latter countries may be more natural trading partners implying a limited impact of China on the Netherlands. This section therefore sets out to identify the relative strengths and weaknesses of China, the Netherlands and Eastern Europe.

Figure 3.7   Revealed comparative advantage for China and the Netherlands, SITC rev. 2 (2-digit), according to factor intensity, 2000
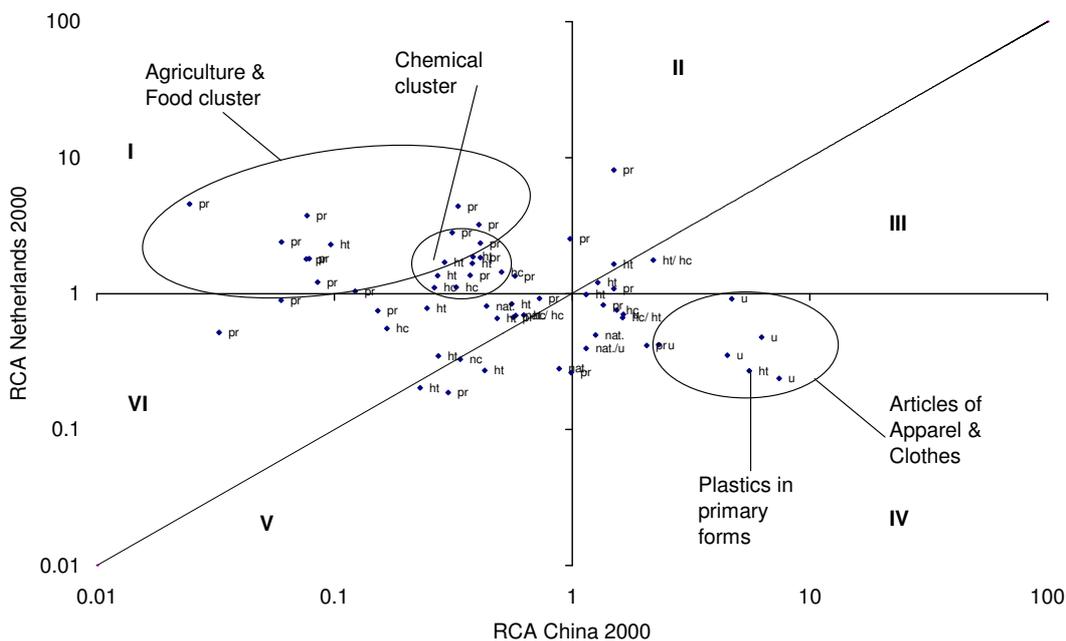

Sources: Own calculations based on Feenstra and Lipsey (2005), factor intensity based on classification by Hinloopen and Van Marrewijk (2006). Notes: Four products at the lowest end of the RCA distribution have been left out for presentational clarity. pr = primary products; nat = natural resource intensive; u = unskilled labour intensive; ht = technology intensive; hc = human-capital intensive; nc = not specified.

[20] What is additionally required for Chinese exports of a particular product to compete with Dutch production activities is that the market for the Chinese exports of that particular good is sufficiently global in nature. In order to provide some evidence on the geographic scope of the markets, the geographic destinations of the exports can be studied in more detail. This has been done by (i) determining the trade-weighted distance over which the exports are transported, (ii) determining the fraction of exports that is transported within certain pre-defined distance intervals, and (iii) by performing a simple gravity analysis to determine the distance decay of exports (after controlling for the economic size of the markets of destination). This results 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, as is a large share of exports that are transported over large distances. A large distance-decay parameter (in absolute terms) implies that exports quickly decline with distance which is an indication of markets being local. An example of a good for which the Chinese market is relatively global is plastics in primary form (SITC 57). More than 90% of those exports are transported over a distance exceeding 2,500 kilometres. In contrast, fish and coal are product groups for which about 70% of Chinese exports ends up in markets within 2,500 kilometres. For the Netherlands, the export markets are predominantly local (viz. mainly European). Some exceptions are beverages (SITC 11), photo apparatus (SITC 88) and live animals (SITC 94) for which more than 55% is exported to destinations outside Europe. Details on these analyses are available in Bakens and De Groot (2006).

Figure 3.7 depicts the revealed comparative advantages (RCAs) of the Netherlands and China for the year 2000. The Dutch dominance in the agriculture and food cluster and chemical cluster is illustrated in plane I, in which the Dutch product groups are characterised by a relatively high RCA while the Chinese RCA is low for those products. The Chinese dominance in the unskilled-labour intensive production is depicted in plane IV, in which China has a high RCA, while the Netherlands has a low RCA. The strong positions of China and the Netherlands in product groups of office machines, telecommunication, and audio and video apparatus illustrate the reliance of Dutch (re-)exports on imports from China. These results clearly indicate that, based on the current situation, the position of the strong Dutch clusters is not seriously threatened by China. For the product groups in which both countries have a strong position on the international market, the Chinese comparative advantage mainly stems from production and assemblage while the Dutch comparative advantage stems from its role as the gateway to Europe.

Figure 3.8   Change in revealed comparative advantage for China and the Netherlands, SITC rev. 2 (2-digit), between 1980 and 2000
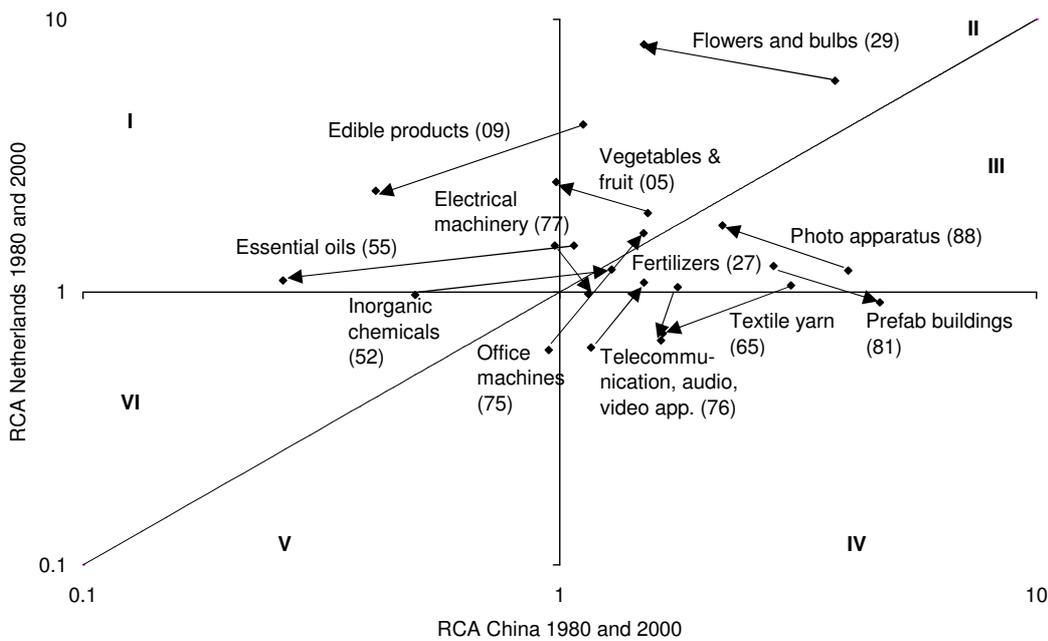
Figure 3.8 elaborates somewhat further on the previous analysis by illustrating the dynamics of Chinese and Dutch export performance over the period 1980-2000. Both countries have a strong RCA in SITC 29 (crude animal and vegetable materials). For the Netherlands this stems from exports of flowers and bulbs, while China has a particularly strong – although deteriorating – position in plants and seeds used for pharmacy. Product groups for which both China and the Netherlands have a strong position are inorganic chemicals (SITC 52), photo apparatus (SITC

88) and electrical machinery (SITC 77). The dynamic evolution of the RCA varies. Both the Netherlands as well as China have experienced an increasing RCA in inorganic chemicals. China has lost ground in exporting photo apparatus while the Dutch has gained ground, while the opposite holds for electrical machinery. These are also sectors in which re-exports by the Netherlands are limited and the comparative advantage thus seems to stem from an advantage in production instead of distribution.

The emergence of China has been accompanied with the further integration of Europe and an expansion of the European Union towards the East. Also in Eastern Europe possibilities for advantageous trade as well as potential threats for certain Dutch sectors have emerged. In order to broaden the picture, the position of the Dutch economy relative to the other old EU member states (viz. EU-15) in terms of comparative advantage is shown in Figure 3.9. This yields a fairly scattered picture. Plane I depicts the goods for which the Netherlands is strong in absolute

Figure 3.9   **Revealed comparative advantage for the Netherlands and the EU15 (excl. the Netherlands), SITC rev. 2 (2-digit), according to factor intensity, 2000**
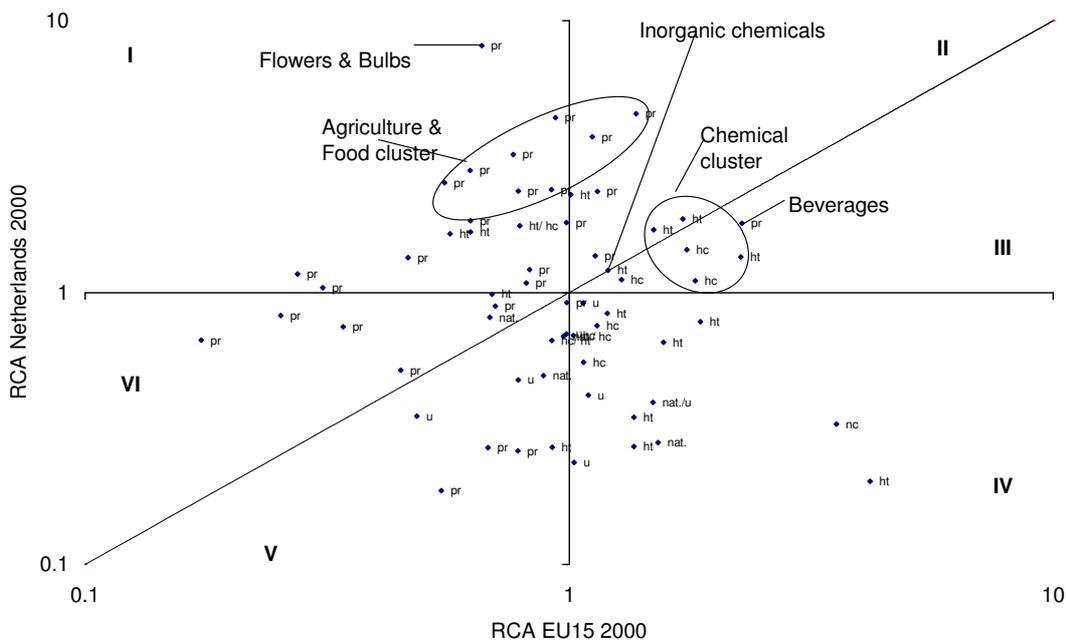

Sources: Own calculations based on Feenstra and Lipsey (2005), factor intensity based on classification by Hinloopen and Van Marrewijk (2006). Notes: One product at the lowest end of the RCA distribution has been left out for presentational clarity. pr = primary products; nat = natural resource intensive; u = unskilled labour intensive; ht = technology intensive; hc = human-capital intensive; nc = not specified.

and relative terms (relative to the rest of Europe). In this plane, the strong position of the Netherlands in the agricultural and food cluster as well as in the animal and vegetable oils, is evident. In plane IV, the products for which the position of the Netherlands is weak (in absolute and relative terms) are depicted, illustrating the relatively weak position of the Netherlands in several technologically intensive products. In planes V and VI, the groups for which neither the

Netherlands nor EU-15 have a strong position is depicted, while planes II and III depict the products for which both Europe and the Netherlands have a strong RCA (most notably the chemical cluster).

Finally, Figure 3.10 depicts the position of China relative to Eastern Europe. What stands out is the relatively strong overlap in terms of RCA for both regions. Both have a relatively strong position in coal, plastics and articles of apparel and clothes in particular and the unskilled-intensive product groups in general. These results suggest that there is only a very limited number of sectors that is likely to suffer from the emergence of China and Eastern Europe. Comparative advantages are complementary and the Netherlands is likely to gain from increased integration of these regions in the world economy. For the simple reason that Eastern Europe is so close (and notwithstanding the size of the Chinese economy), the effects that can be expected from their development is larger in the near future than the effects that can be expected from China.

Figure 3.10   Revealed comparative advantage for China and Eastern Europe, SITC rev. 2 (2-digit), according to factor intensity, 2000
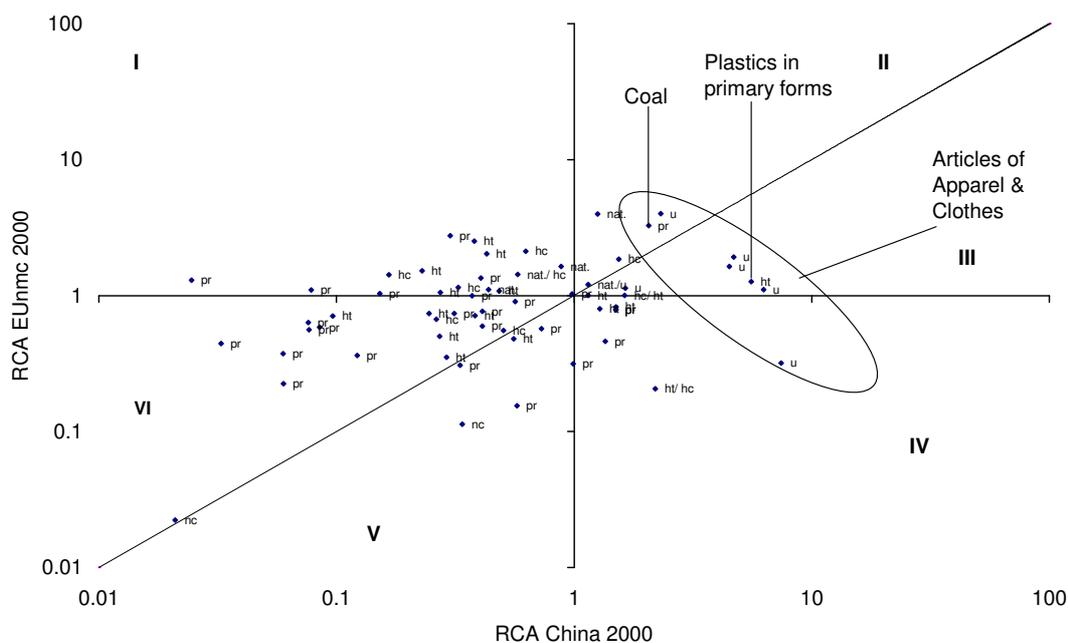

Sources: Own calculations based on Feenstra and Lipsey. (2005), factor intensity based on classification by Hinloopen and Van Marrewijk (2006). Note: pr = primary products; nat = natural resource intensive; u = unskilled labour intensive; ht = technology intensive; hc = human-capital intensive; nc = not specified.

Concluding remarks

This section has focused on the trade patterns of China and the Netherlands. China has a comparative advantage in low-skilled goods. However, over the past twenty years it experienced an impressive increase in its ability to export several types of high-tech goods. This somewhat puzzling phenomena is the result of a combination of factors, among which the

presence of several foreign firms in China, the role of China as an assembler and the scale of the Chinese economy feature prominently in existing explanations. Hence, the rapidly growing Chinese economy is built on two "pillars". On the one hand, the largest export shares and strongest RCAs are in unskilled labour intensive products like clothing and apparel. On the other hand, the second largest and rapidly growing sectors are of technologically intensive products, like consumer electronics.

The overlap between Chinese and Dutch strengths is limited. Both have a strong position in product groups of office machines, telecommunication, and audio and video apparatus illustrating the reliance of Dutch (re-)exports on imports from China and the role of the Netherlands as the gateway to Europe. The emergence of China provides opportunities to strengthen the Dutch position as Europe's gateway. Insofar as China is a potential competitor for strong sectors in the Dutch economy, the potential impact of developments in Eastern Europe is even more relevant given the strong overlap in existing comparative advantages between China and Eastern Europe and the relatively small distance (physically as well as culturally) and associated low transaction costs to Eastern European markets.

3.2   Trends and developments in foreign direct investment in China

A driving force behind China's high economic growth has been the increasing openness of its economy, especially to trade and foreign direct investment (FDI). This section presents a general survey of the development of FDI in China. In particular, attention is paid to direct investment of Dutch companies in China. It is organised as follows. After an overview of global FDI flows in the next section, an overall picture of FDI inflow into China is presented in Section 3.2.2. Section 3.2.3 deals with the effect of FDI inflow in China on economic growth. After reviewing China's outward FDI in Section 3.2.4, the focus is on direct investment of Dutch companies in China in Section 3.2.5. The Chapter concludes with the likely FDI development in the near future.

3.2.1   Recent developments in global direct investment
Flows of FDI comprise capital provided by a foreign direct investor (the parent enterprise) to an affiliate enterprise, to obtain a lasting interest and influence in that enterprise. FDI has three components: equity capital, reinvested earnings and intra-company loans from the parent enterprise to the affiliate enterprise (Unctad, 2005, p. 297 and European Commission, 2004). Equity capital is the largest component of FDI financing, with a share of 75% in global FDI inflow in the last few years. FDI regards financing a new plant or installation of capital goods ("greenfield investments"), but also the acquisition of a stake in a foreign company or the takeover of a foreign enterprise (M&A: merger and acquisition). Reasons for enterprises to settle abroad are, among others, to better serve the local sales market and to benefit from lower cost of production factors. In econometric studies on FDI, the main explaining factors are the

size of the market, labour cost, transport cost and variables for distance and government policy.[21]

In 2000, FDI inflows rose to a peak in many countries, exceeding 300 billion dollar in the United States (Table 3.4). Due to the sluggish economic development since then, FDI inflows decreased in many countries, bottoming out in 2003. In 2004, direct investment inflow recovered and the United States regained its role as the world's principal destination for direct investment. In 2005, FDI inflow internationally climbed sharply, underpinned by a favourable business climate, rising profits and economic growth.

As opposed to other countries, FDI inflow in China continued to increase after the turn of the century, hitting records at 60 billion dollar in 2004 and 2005. For comparison, FDI inflow is in Table 3.4 also expressed in terms of GDP. The last few years, FDI inflow in China is some 3% of GDP, being relatively stable and exceeding that of France and the United States.

Table 3.4	FDI inflow						
	1995-99[a]	2000	2001	2002	2003	2004	2005
	Dollars bln						
United States	143.7	321.3	167.0	80.8	67.1	133.2	109.8
China	42.1	40.7	46.9	52.7	53.5	60.6	60.3
France	29.3	43.3	50.5	49.1	42.5	31.4	63.5
Ireland	6.8	25.8	9.7	29.4	22.8	11.2	− 22.8
Netherlands	23.6	63.9	51.9	25.1	21.8	0.4	43.6
United Kingdom	48.0	118.8	52.7	24.1	16.8	56.2	164.5
Germany	22.3	198.3	26.4	53.6	29.2	− 15.1	32.6
	% GDP						
United States	1.7	3.3	1.7	0.8	0.6	1.1	0.9
China	4.6	3.4	3.5	3.6	3.3	3.1	2.7
France	2.0	3.3	3.8	3.4	2.4	1.5	3.0
Ireland	7.6	26.7	9.2	23.8	14.5	6.1	− 11.4
Netherlands	5.9	17.2	13.0	5.7	4.0	0.1	7.0
United Kingdom	3.5	8.2	3.7	1.5	0.9	2.6	7.5
Germany	1.0	10.4	1.4	2.6	1.2	− 0.6	1.2

[a] Annual average.

Sources: OECD (2006a), National Bureau of Statistics of China (2005), Unctad (2006).

[21] See Nicoletti et al. (2003) and Lim (2001) for a survey of studies on FDI in general. See Tseng and Zebregs (2003) for a survey on studies on FDI inflow in China.

3.2.2 FDI inflow in China: development, sectoral distribution and origin

Development

As described in Chapter 2, the gradual opening up of the Chinese economy to foreign trade and investment started in the eighties of the last century and gained pace in the nineties, when more regions were opened to foreign investment and ownership requirements for FDI were relaxed. At the end of the eighties, FDI inflow was 3.5 billion dollar, by the middle of the nineties it was tenfold (Figure 3.11). After stalling at the end of the century due to the Asian crisis, FDI inflow gradually rose. At the end of 2001 China joined the WTO, which marked a new era for external liberalisation. Restrictions on FDI in manufacturing were relaxed further and more cities were opened to foreign banks to conduct business. On certain conditions, foreign banks were allowed to buy equity of Chinese domestic banks, encouraging American and European banks to acquire stakes in Chinese banks in subsequent years. In 2004-2005, FDI rose to 60 billion dollar.

Direct investment in China from OECD-based enterprises has traditionally taken the form of greenfield projects. In the last few years, however, cross-border M&A is of growing importance in FDI inflow in China (OECD, 2006b). In 2005 more than 70% of FDI inflow concerned wholly foreign-owned enterprises, both in value and in number of projects, the rest being joint ventures with Chinese enterprises. About three-quarters of FDI financing in China regards equity capital.[22] The Chinese government stimulates FDI inflow by fiscal facilities, depending on the sector and the region (OECD, 2004; US-China Business Council, 2006).

Figure 3.11   FDI inflow, 1985-2005
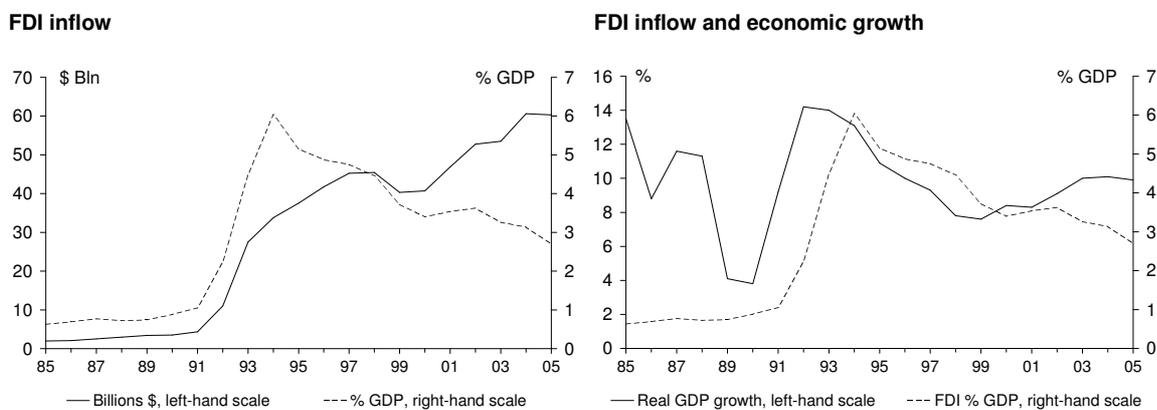
Source: National Bureau of Statistics of China (2005).

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[22] Unctad (2005) Table I.2; OECD (2006b) Table C.4; US-China Business Council (2006).

Sectoral distribution

About 70% of FDI inflow into China regards manufacturing (Table 3.5). FDI in services is small, which differs from the OECD countries, where services represent half of all FDI inflows (Unctad, 2005; OECD, 2004). The small share of services in FDI is partly due to the fact that until recently, many restrictions remained in force to the inflow of service FDI into China. According to agreements of China's joining the WTO, financial markets will be open for financial service providers from outside China at the end of 2006. The market for telecommunication will mainly be liberalised in 2007. No doubt, further opening of the service markets will attract more FDI in the service sector, such as banking and insurance. As prosperity in large sections of the population will grow, China will also become an immense market for services.

Table 3.5   Sectoral distribution of FDI inflow in China, 2005

| | Value | Share |
	Dollars bln	%
Manufacturing	42.5	70.4
Textiles	2.1	3.5
Chemicals. pharmacy	3.4	5.6
Equipment	4.0	6.6
ICT	7.7	12.8
Real estate	5.4	9.0
Wholesale and retail trade	1.0	1.7
Transport, post, telecommunication	1.8	3.0
Construction	0.9	1.5
Scientific research	0.3	0.6
Financial industry	0.2	0.4
Commercial services, leasing	3.7	6.2
Other	4.5	7.2
Total	60.3	100.0

Source: OECD (2006b) Table C.8.

Countries of origin

Table 3.6 shows the countries of origin of FDI inflow into China. With a third of FDI, Hong Kong is the biggest investor in China, followed by South Korea (10%), Japan (9%), the EU15 (7%) and the United States (6.5%). There are large direct investments from off-shore financial centres such as the Virgin Islands and the Cayman Islands, which originate of course from elsewhere. As to the high share of Hong Kong, the neighbouring position plays a part, but as important is the agreement of Hong Kong and China owing to which China has removed trade restrictions for a lot of products. Besides, foreign service providers with a plant in Hong Kong can get a preference when establishing in mainland China. FDI from Hong Kong also includes investment from the overseas Chinese diaspora. Apart from this, the figure for Hong Kong is biased upwards because some domestic Chinese enterprises lead their investment in China

through Hong Kong in order to benefit, as an "foreign" investor, from tax reductions. The size of this "round tripping" is not known. Some estimate it at 20% of the officially presented figure of Hong Kong FDI outflow to mainland China.[23]

Table 3.6	Country of origin of FDI inflow into China				
	2001	2002	2003	2004	2005[a]
	% share of total inflow				
Hong Kong	35.7	33.9	33.1	31.3	28.9
United States	9.5	10.3	7.8	6.5	5.2
Japan	9.3	7.9	9.4	9.0	11.2
Taiwan	6.4	7.5	6.3	5.1	3.5
South Korea	4.6	5.2	8.4	10.3	8.1
Singapore	4.6	4.4	3.8	3.1	3.7
Australia	0.7	0.7	1.1	1.1	.
Virgin and Cayman Islands	13.0	13.8	12.4	14.5	18.6
EU-15	8.9	7.0	7.3	7.0	.
Others	7.3	9.3	10.4	12.1	.
Total	100.0	100.0	100.0	100.0	100.0

[a] January-November.

Source: National Bureau of Statistics of China (2005) Table 18-15, US-China Business Council (2006).

3.2.3 FDI inflow and economic growth of China

FDI can affect a host country's economic growth in several ways. It may finance new investment and may also act as a vehicle for the transfer and diffusion of new technology to the subsidiary in the host country. Technology spillovers do not only accrue to the affiliates in the host countries, but may also concern indigenous firms which adopt the production practices of foreign firms and hire workers trained by foreign firms. Some earlier macroeconomic empirical studies for the Chinese economy have shown that FDI has a positive contribution to output growth. In this context, Zheng et al. (2006) present panel data estimates for GDP at both the national and regional level during the period 1985-1999. GDP is explained by labour, physical capital, human capital and FDI. In both the national and the regional estimates, FDI is statistically significant. The estimated parameter implies that FDI has contributed 2.5%-point to average annual GDP growth.

In recent years, R&D-related FDI inflow in China has become more important. The number of foreign-affiliate R&D centres reached 700 by the end of 2004, representing an accumulated investment of 4 billion dollar. Major R&D investments have been made, among others, by Motorola, IBM and Microsoft. Internationally operating enterprises have R&D centres in China owing to a combination of several reasons: 1) to tap into the large low-cost and highly skilled pool of talent at universities and research institutes, which are eager to cooperate; 2) being

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[23] See Box I.4 and Box II.8 in Unctad (2005).

inside or close to the expanding markets of China and the rest of Asia to cope with growing competition; 3) capturing new technology possibilities by being in touch with China's research frontier.[24]

Advanced production sites in China heavily depend on foreign investment, where foreign companies provide much of the needed technology. According to Sigurdson (2005) and Fu (2006), technology spillover from foreign investment to indigenous Chinese firms is limited in practice due to reluctance of foreign firms to transfer advanced technology, whereas Chinese companies often lack the ability to handle new technology properly. The results of empirical studies, based on data for Chinese enterprises, however, differ. A typical study is Cheung and Lin (2004) who find evidence of positive spillover from FDI on the number of patent applications by domestic Chinese-owned firms, enabling them to innovate on their own. Hu and Jefferson (2002), on the other hand, do not find a positive spillover effect of FDI on productivity of Chinese domestic firms in the electronics industry and the textile industry.

As already analysed in Chapter 2 and Section 3.1, wholly or partly foreign-owned enterprises play a key role in China's foreign trade. The share of these foreign invested enterprises in China's export was only 2% in 1986, in 1995 it was 32% and in 2005 58% (Figure 3.12). Imports show a similar picture.[25] Large amounts of FDI capital have been directed to high-technology sectors, resulting in foreign-owned companies to dominate China's high-technology exports. This implies that up to now, the expansion of high-tech industry in China is controlled by foreign-owned enterprises, whereas getting access to new technology is mainly in their hands as well. Wholly or partly foreign-owned enterprises are a leading force in exporting high-tech products. In 2002 these companies took up 80% of the export of high-tech products (wholly foreign-owned enterprises 55%) and two third of electromechanical products of China (Ministry of Commerce, 2005). China realises that it cannot rely solely on FDI for technological development. For this reason the government has developed national science and technology programmes, whereas Chinese companies invest abroad to get access to advanced technological knowledge as is described below.[26]

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[24] This draws partly on Sigurdson (2005) and Unctad (2005) Box IV.5 and V.4.

[25] As to import this was 5.6% in 1986, in 1995 48% and in 2005 59% (OECD 2006b, Table C9). See also Hong Kong Trade Development Council (www.tdctrade.com/main/china.htm).

[26] See Sigurdson (2005) and Sanders and Chen (2006) for a description of these programmes.

Figure 3.12   Openness of the Chinese economy and the role of foreign companies

Openness Chinese economy   **Share of foreign companies in Chinese exports and imports**
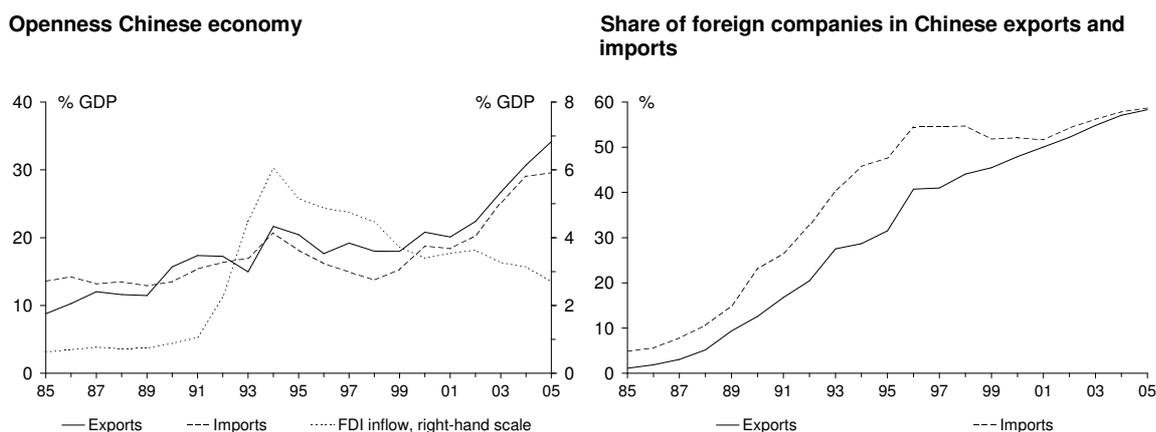
Sources: China Statistical Yearbook 2005, Ministry of Commerce (2005) and OECD (2006a).

3.2.4   China's outbound investment: searching for energy and technology

More and more, China takes determined steps in the acquisition of overseas enterprises. Figures of FDI outflow of China in various sources vary considerably. Unctad and OECD report 1.8 billion dollar in 2004, but consider this an underestimation (Table 3.7). The National Statistical Bureau of China and the Ministry of Commerce report 5.5 billion dollar for the year 2004. The latter agency reports 6.9 billion dollar for 2005, with Hong Kong and the Cayman Islands as the main destinations.[27]

Table 3.7   Estimates of total FDI outflow from China

|	2000	2001	2002	2003	2004	2005
			Dollars bln			
Unctad/OECD	0.9	6.9	2.5	− 0.2	1.8	.
National Bureau of Statistics	.	.	.	2.9	5.5	.
Ministry of Commerce	.	.	.	.	5.5	6.9

Sources: Unctad (2004) Annex table B.2; Unctad (2005). Annex table B.1.; OECD (2005a) Table 4.; National Bureau of Statistics (2005) Table 18-20. Ministry of Commerce (2006).

According to the country's "go out policy" of recent years, the Chinese government supports companies to invest outside China with specialised funds and information. There are three motivations for China to invest abroad. The first and most important motive is to secure energy sources and raw materials. The high rate of economic growth rapidly exhausts domestic energy resources. Therefore, one third of 2004 FDI outflow (5.5 billion dollar) concerned mining, whereas 14% related to manufacturing, and 15% both for transport and wholesale/retail (Figure

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[27] The amount of 6.9 billion dollar is spit up in reinvested earnings (2.9 billion dollar) and equity investment amounting 4.1 billion dollar. Of the latter, 60% referred to Asia (particularly Hong Kong), 16% to Latin America (mainly Cayman Islands, Virgin Islands and Venezuela), 6.9% to Africa, 6.7% to North America, 6.3% to Europe and 3.6% to Australia/New Zealand (Ministry of Commerce, 2006).

3.13). Of China's need for energy, 70% is covered by coal and over 20% by oil (BP, 2005). This differs considerably from western countries, where coal is less important and oil and natural gas together cover more than half the provision of energy. Up to 1993, China was self-supporting in oil. Thereafter, the country is importing oil. The last few years, China enters world wide into contracts regarding delivery of oil, natural gas and raw materials as iron ore. In order to be less dependent on import, China's state-owned oil and mining companies buy resources by taking stakes in overseas oilfields, natural gas fields and mineral reserves world wide, including Latin America, Africa and Kazakhstan. China is also willing to invest in areas

Figure 3.13   Outflow of Chinese FDI by sector, 2004
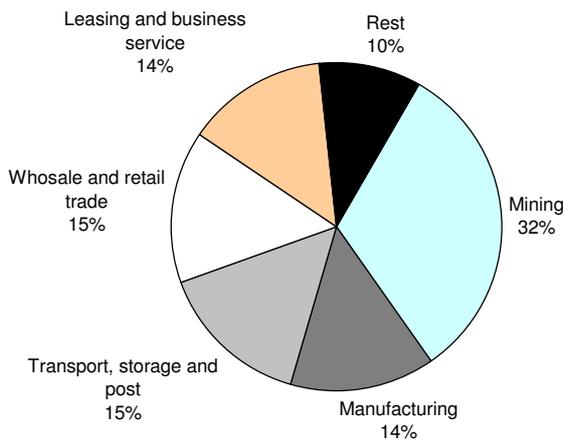
Source: Ministry of Commerce (2006).

where western countries shy away from, due to the unstable political situation or the violation of human rights, such as Sudan, Guinea, Iran and Myanmar. Economically and politically, China is increasingly linking up with the African continent. It is investing in the exploration of oil and natural gas in Nigeria, Congo, Sudan and Angola. Chinese companies construct roads and railways in these countries, install electric networks and establish schools and health care.

The second reason for Chinese enterprises to invest abroad is to get access to advanced technological knowledge and to gain a share in foreign markets. To a Chinese firm, such acquisitions offer access to advanced technology and often to market channels as well. Striking examples are the acquisition of the British carmaker MG Rover by Nanjing Automobile in 2005 and the acquisition by Lenovo of IBM personal computer manufacturing in late 2004. The latter was the largest foreign acquisition by a Chinese enterprise to date (1.25 billion dollar). A number of Chinese high-tech companies have already established listening posts in Silicon Valley and other high-tech locations to collect information on technological trends (Sigurdson, 2005).

Third, saturation of the domestic market due to lagging household consumption, eroding profit margins, has prompted companies to exploit foreign markets by setting up manufacturing plants and distributions centres abroad.

48

Outward investment of China is expected to increase in the future, backed by substantial foreign exchange reserves. In the medium term, China's FDI outflow in resources extraction will probably increase, particularly in Africa and Latin America. Besides, Chinese enterprises are inclined to invest in OECD countries to get access to advanced technology, global marketing channels and recognised brand names. This trend is likely to gather strength in the medium term. In this respect, if proper conditions are in place. the Netherlands can benefit from its favourable geographical position, as a "gateway to Europe".

**China's foreign direct investment in the Netherlands**

In a recent survey, the Ministry of Commerce of China (2006) stated that new investment of China in Europe in 2005 amounted to 257 million dollar, mainly in Germany, Britain, Russia and Kazakhstan. There was no reference to investments in the Netherlands. According to the Netherlands Foreign Investment Agency (www.nfia.nl), China developed 11 new investment projects in the Netherlands in 2005, totalling up to euro 5 million. Chinese investment projects developed in 2005 in the Netherlands include Huawei and Haier. Huawei, a Chinese telecommunication equipment manufacturer, has been selected by Dutch mobile operator Telfort to deliver and install a nationwide UMTS network in the Netherlands. To this end, Huawei has established an office in Amsterdam for R&D, sales and services. Haier, the number three appliance company world wide, opened a European distribution head office in Eindhoven, from which sales throughout Europe will be coordinated. In 2003, Hutchison Port Holdings, subsidiary of Hutchison Whampoa in Hong Kong, acquired a 98% stake in container terminal ECT in Rotterdam, which handles three-quarters of the containers that pass through the port of Rotterdam.

3.2.5 Outward direct investment of Dutch enterprises in China

The gradual opening of the Chinese economy in the 1990s encouraged Dutch enterprises to invest in China. Before 1994, Dutch investment in China was small. After the turn of the century, the outflow of Dutch direct investment into China fluctuated around 200 million euro annually; in 2005, it was 264 million euro (Table 3.8 and Figure 3.14). This is small, compared to Dutch global direct investment flow in 2005 of 96 billion euro. In some years negative figures appear, indicating disinvestment.[28] The table shows the shares of manufacturing and services in FDI. A considerable part of investment in manufacturing regards mining, oil and chemistry, sectors which are expanding capacity in China. Dutch enterprises in the food industry in China have coped with fierce competition of local suppliers for some years. This has eroded profit margins, leading to partly pulling out of China in recent years. Annex C reviews the diverging experiences of sectors of Dutch manufacturing in China in more detail. Investment in services include banking, insurance, ICT, commerce and transport. In 2005, there was a surge of investment in services. Presumably, this partly reflects investment by banks and insurance companies in anticipation of the opening-up of the Chinese market for financial services in December 2006 (See Box "Dutch banks operating in China" in Annex C).

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[28] Disinvestment includes, among others, the sale of a subsidiary company or of a stake in a company.

Figure 3.14   Direct investment of the Netherlands in China

Flow

Stock
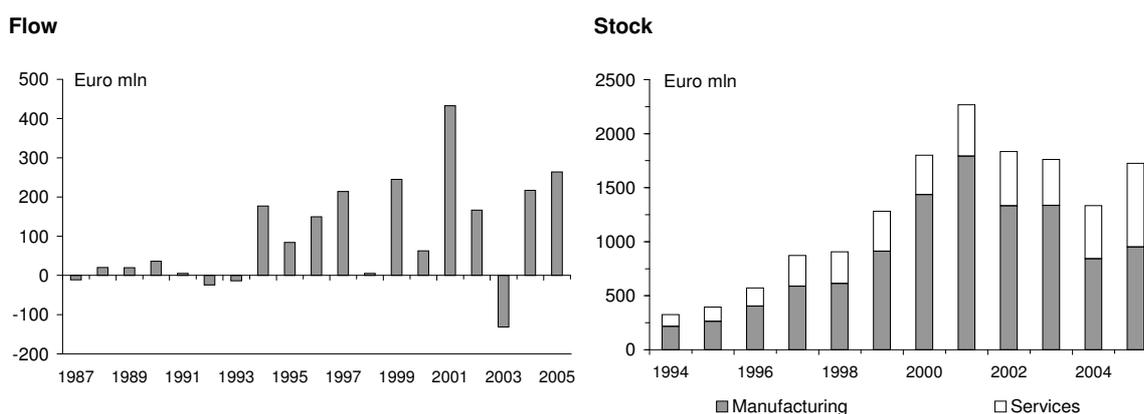
Source: De Nederlandsche Bank.

Table 3.8   Sectoral distribution of direct investment from the Netherlands to China

	1997-1998[a]	1999	2000	2001	2002	2003	2004	2005
Flows, million euro								
Manufacturing	30.0	202.0	79.0	263.0	57.0	− 153.0	230.0	26.0
Services	80.0	44.0	− 17.0	170.0	110.0	22.0	− 13.0	237.0
Total	110.0	245.0	62.0	433.0	167.0	− 131.0	217.0	264.0
Stocks, million euro								
Manufacturing	417	913	1436	1792	1333	1336	843	951
Services	197	370	364	476	502	426	490	774
Total	614	1283	18	2268	1835	1762	1333	1725

[a] Annual average.

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

Source: De Nederlandsche Bank.

Two developments stand out. First, total investment sums are small, in many years not exceeding 200 million euro. This indicates that there is no relocation of Dutch production on a large scale to China.[29] This is consistent with a more general finding of limited relocation activities.[30] It is also consistent with surveys showing that new member countries and southern Europe are much more as regions to relocate to.[31]

Second, a considerable part of Dutch investment in China regards mining, oil and chemistry, which are capital-intensive and knowledge-intensive industries. This could indicate that, overall, the low cost of labour in China does not play an important part in the decision to settle

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[29] FME Metalelektro Profiel (2006) provides interesting examples of problems Dutch firms encounter in case of outsourcing to China.

[30] See Chapter 3 "When jobs disappear and workers do not… International relocation of production and the European economy" in Euroframe (2005); Ministerie van Economische Zaken (2005), Gorter et al. (2005) and Bollen et al. (2002).

[31] According to a survey among Dutch firms, 52% of the relocations in the past 10 years concerned Central and Eastern Europe, 42% concerned Western and Southern Europe and 16% concerned China (Berenschot, 2004).

in China. Judged by annual reports, announcements and statements of Dutch manufacturing multinationals and banks, the size of the market and its high growth potential are of overriding importance for establishing in China (See Annex C).

Table 3.8 and Figure 3.14 also show the development of the stock of Dutch direct investment in China. Not until the second part of the nineties there was a build-up of some extent, amounting to 1.7 billion euro in 2005. This is small, in comparison with the stock of Dutch investment in the United States (71 billion euro) and the EU (239 billion euro) in 2005. During the period under consideration, the majority of investment concerns manufacturing. In recent years, however, the distribution changes in favour of services, particularly in 2005, owing to large investment by financial institutions.

3.2.6 FDI in the near future

China is set to remain a top recipient of FDI in the manufacturing sector. The growing size of the Chinese market will push FDI inflows to a record high. In mining, chemistry and electronics, Dutch companies such as Shell, DSM and Philips have gained a firm foothold. As prosperity in China and neighbouring countries expands, it is to be expected that these industries will continue to grow. Furthermore, China is gradually opening its services sector to foreign investors in accordance with the country's commitments under its WTO accession agreement. China is in the process of lifting restrictions on FDI in banking and finance, insurance and telecom. The country is expected to have removed restrictions on investment by foreign banks in December 2006 and on telecommunication for the greater part in 2007. By 2008, services industries will be largely open to FDI and ownership restrictions will remain only in a few industries, including education, telecommunication, life insurance and asset management (Zhao, 2006). No doubt, the opening of the service markets will attract more FDI in the service sector. As prosperity in large sections of the population will grow, China will also become an immense market for services. For Dutch banks and insurance companies, the opening up of financial service markets will fuel their expansion in China. With growing prosperity and a household saving ratio of a quarter of disposable income, the market for saving, investing and insurance products is immense.

3.3 Impact on Dutch labour markets and income distribution

In the popular press in both Europe as well as the USA, frequent claims are made that globalisation will result in huge required labour market adjustments and strong increases in income inequality. Similar claims are made in relation to the emergence of China and its increasing role in the world economy. Both with respect to labour market adjustments as well as income distribution, the bare facts suggest otherwise and point at a relatively modest impact of globalisation in general (and the emergence of China in particular).

Considering labour market adjustments, a simple look at the facts suggests that the steep increase in trade with China did not have a noticeable impact on the pace of restructuring or on unemployment. Measured by shifts in sectoral employment, this pace is fairly stable (Figure 3.15). In 2001-2004, 0.4% of the employees shifted each year from one sector to another. Those shifts were not accompanied by any noticeable rise in friction unemployment. The recent shifts are even smaller than the shift of 0.9% per year in the period 1970-2004. The reallocations in the Netherlands are somewhat bigger than in the rest of the EU-15 (Figure 3.15). This is partly caused by the smaller size of the Dutch economy, while somewhat more dynamism of the Dutch economy may also play a role. In Section 4.1, the potential impacts of developments in China are further analysed based on an application of the applied general equilibrium model WorldScan.

Figure 3.15   Shift in the Dutch sectoral employment pattern, 1970-2004[a]

Based on 6 sectors   **Based on 57 sectors**
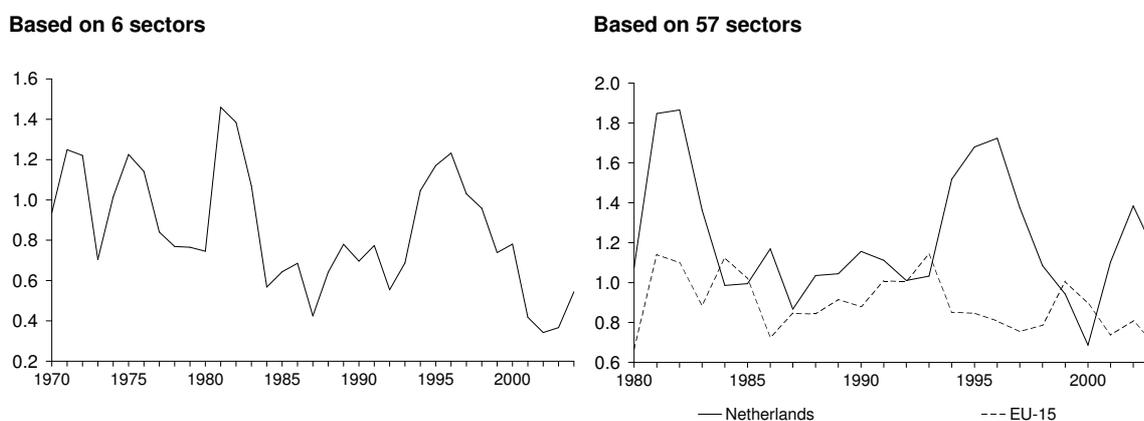
[a] Sum of absolute values of changes in sectoral employment shares divided by two.
Sources: Own calculations based on CBS National Accounts and OECD Structural Analysis Database.

The unchanged pace of changes in the Dutch sectoral pattern fits with other indications of limited outsourcing of Dutch firms to foreign countries (Berenschot, 2004, Ministerie van Economische Zaken, 2005; Gorter et al., 2005). Moreover, this limited outsourcing is mostly to other European countries, with relocation to China being much less important (see Section 3.2.5). Relocation of R&D activities deserves special attention due to the likely positive

externalities of those activities. In recent years, R&D-related FDI inflow has become more important (see Section 3.2.5). However, there is no substantial outsourcing of R&D from the Netherlands (Cornet and Rensman, 2001; Gorter et al., 2005). Dutch firms perform part of their new R&D activities abroad, but do not transfer existing R&D activities directly from the Netherlands to China (or India). Some of the new R&D activities are needed to adjust products to Chinese tastes, preferences and circumstances and therefore have to be done close to the new market.

The direct impact of trade with China on Dutch employment

It is a fallacy that the number of jobs are given and a rise in employment in one country (China) has to lead to a fall in another country (the Netherlands). In the longer term, the number of Dutch jobs is determined by the labour supply, the tax burden and labour market institutions. Nevertheless, it is useful to have an impression of the direct impact of trade with China on Dutch employment. Three effects can be distinguished: the number of Dutch jobs involved in exports to China, the numbers of Dutch jobs involved in re-exporting goods imported from China and the number of jobs 'lost' due to imports from China (i.e. the number of workers needed to produce the goods currently imported from China). Those effects are calculated for 2004. Input-output information is used to take into account intermediate deliveries needed to produce the final products (see Arnoldus, 2003). As a result, exports of goods to China do not only lead to employment in the manufacturing sectors but also in the service sectors.

In 2004, exports to China were good for around 15 thousand Dutch jobs. Most of those jobs can be found in the sectors "machinery and equipment" and in "medical, precision and optical instruments". The employment impact of re-exporting goods imported from China is somewhat less important but clearly not negligible: around 8 thousand Dutch jobs. Thus, exports to China and re-exports of goods from China provide around 23 thousand jobs, around ½% of total employment. Around 35 thousand Dutch workers would be needed to produce in nominal terms the goods that are currently imported from China and that are not re-exported but used or consumed in the Netherlands. Most of them would be required in the sector textile and footwear and in the sector office, accounting and computing machinery. However, as Chinese import prices are lower, producing the same in nominal terms would mean producing less in physical and real terms or to have Dutch wages for those workers comparable with that of Chinese workers, i.e. considerably less than the normal Dutch wage rate. Moreover, some of the Chinese products cannot be produced here, even when they belong to a product group with production in the Netherlands.

The numbers presented above have the advantage that jobs involved in exports are highlighted, avoiding a focus on the impact of imports only. As a comparison, the estimated net number of US jobs lost due to international trade is 2.4% in 2003 (Groshen et al., 2005). Nevertheless, those numbers 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.

Globalisation-induced restructuring has been limited in recent years and will probably continue in the coming years at the same pace. Nevertheless, some workers will be laid off from jobs due to internationalisation and will need re-employment. No recent data for the Netherlands are available on how fast they will be re-employed and on the wage differential between the old and the new job. European evidence indicates that for trade-displaced workers it is somewhat more difficult to find a job than for other workers that become unemployed (OECD, 2005c and

2005d). In the period 1994-2001, 52% of those displaced from high-international-competition manufacturing industries in the EU-15 countries were re-employed two years later, 5%-point below the overall average. This difference is partly due to the fact that trade-displaced workers are older, having higher job tenure and lower educational levels. In the EU-15, displaced workers re-employed in another industry experienced a limited earnings drop of 2.7%, while those re-employed in the same industry experienced a wage increase somewhat below the overall wage increase. In any case, the functioning of labour markets is the primary determinant of the ease with which shocks associated with globalisation can be accommodated by the economy.

Figure 3.16   Dutch income inequality, 1992-2004[a]
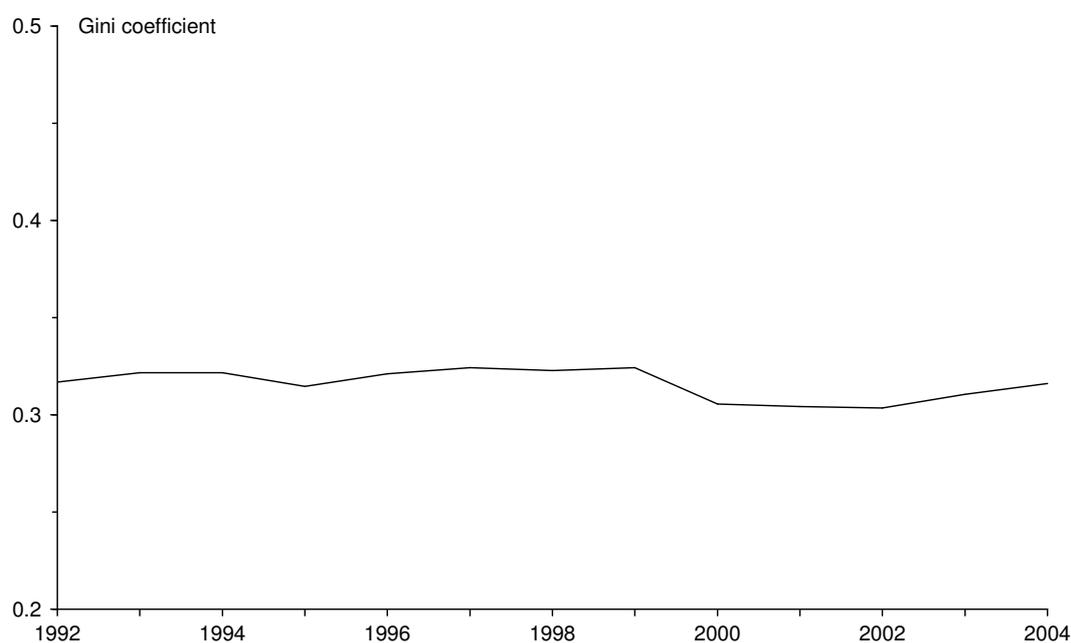
[a] The Gini coefficient is used to measure income inequality; the higher the coefficient the wider the income dispersion
Source: Irrgang and Hoeberichts (2006).

With regard to income inequality, a consensus seems to have emerged in the literature that the effect of globalisation on trends in income inequality is limited.[32] The primary suspect for explaining the observed increase in income inequality (most notably the USA) is biased technological progress, which can be interpreted as a demand factor in favour of high-skilled workers. In addition, the increased capital intensity of developed economies seems to be an important factor, caused by the complementarity between physical and human capital. Some clear empirical evidence that disputes the role of trade as an important driver of observed patterns in income inequality is that income inequality is also increasing in low- and medium

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[32] See, for example, Nahuis (2003) and Nahuis and de Groot (2003) for surveys of the literature. For a recent empirical study of Dutch returns on human capital, see Jacobs and Webbink (2006).

income countries, which is clearly at odds with existing trade theories that predict that income inequality increases in developed countries and decreases in less developed countries in response to enhanced globalisation. There is little reason to believe that the impact of China on Dutch income inequality would be different from this generally observed pattern. In any case, the actual development of income-inequality in the Netherlands over the past decade is consistent with this general conclusion (see Figure 3.16), notwithstanding the many factors that simultaneously impact on the evolution of income inequality. Förster and Mira d'Ercole (2005) and Burniaux et al. (2006) also find no change in the Dutch income inequality from the mid-1990s to 2000, while they report a moderate increase from the mid-1980s to the mid-1990s and a small increase from the mid-1970s to the mid-1980s. Taken together, the conclusion seems warranted that the recent increase in import penetration from China did not have a noticeable impact in the past on Dutch income inequality.

3.4   Impact on inflation and interest rates

Increasing imports from China have lowered Dutch inflation in recent years. The OECD estimates an dampening impact of 0.2%-points in 2001-2005 (Table 3.9).[33, 34] As a result, total consumption of Dutch households is around 300 euro per year (25 euro per month) cheaper. This is mostly due to the increased import share of low-cost Chinese products. The price level differential between China's import and domestic products is estimated at 49% in 2001-2005. The increasing import penetration in combination with this price differential have dampened inflation by 0.13%-points. Furthermore, there is the differential in price development. The more moderate development of China's export prices had a dampening effect of 0.06%-points on inflation. On top of these mechanical effects, there is the dampening effect of the fall in producer prices in the mature economies due to global competition forces. The OECD does not provide an estimate of this competition effect but it is likely to be non-negligible. Chen et al. (2004) report a 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. Furthermore, globalisation may exert downward pressure on wages in advanced economies (see Section 3.3). On the other hand, the emergence of China, in combination with the cyclical upswing in the United States, 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.

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[33] See the box "How does globalisation affect inflation?" in OECD (2006c). The OECD estimates concern the euro area. The acceptable assumption is made here that the impact for the Netherlands is broadly the same as for the euro area.

[34] The ECB estimates a sizeable dampening of euro area import price growth of around 2%-points per annum on average over the period 1996-2005. See Box 6 'Effects of the rising trade integration of low cost countries on euro area import prices' in ECB (2006b).

Table 3.9   **The impact on inflation of imports from China**

	Imports from China			Imports from other dynamic Asia		
	Import penetration effect[a]	Imported inflation effect[b]	Total effect	Import penetration effect[a]	Imported inflation effect[b]	Total effect
	%-points per year					
United States						
1991-1995	− 0.04	0.02	− 0.02	− 0.02	0.01	− 0.01
1996-2000	− 0.04	− 0.04	− 0.09	0.00	− 0.04	− 0.04
2001-2005	− 0.12	0.00	− 0.11	0.03	− 0.03	0.00
Euro area						
1991-1995	− 0.03	0.01	− 0.02	− 0.01	0.00	− 0.01
1996-2000	− 0.02	0.02	0.00	0.00	0.05	0.05
2001-2005	− 0.13	− 0.06	− 0.19	− 0.02	− 0.07	− 0.09

[a] Impact of change in import share.
[b] Impact of difference in price rises between import goods and domestic goods.
Source: OECD, 2006a, Economic Outlook, No.79, May.

The estimate of the dampening effect on Dutch inflation of trade with China 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.[35] It finds, however, a significant impact on relative prices. In the case of high-income countries, an 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%.

In recent years, China's export-led growth caused a huge surplus on the current account and an enormous build-up of international reserves (Figure 3.17). The increase in international reserves of China and the rest of Asia may have reduced global interest rates in 2005 by almost 1%-point (Hauner and Kumar, 2006). This corresponds with the "educated guess" by prominent economists and fixed-income market analysts reported by the ECB (2006a) and is somewhat bigger than the dampening in May 2005 of 0.6%-point estimated by Warnock and Warnock (2005).[36]

A lower interest rate has a noticeable impact on the Dutch economy in the medium term. According to simulations with the CPB macro-economic model SAFFIER, a drop in the Dutch

[35] See Chapter III 'How has globalization affected inflation" in IMF (2006a).
[36] The view of a dampening effect of the increase in international reserves on interest rates is broadly shared but not universally (see for instance Rudebusch et al., 2006).

Is the renminbi undervalued?

A debate has raged whether and to what extent the renminbi is undervalued. To answer this question a number of studies have tried to estimate China's real equilibrium effective exchange rate. Two approaches are applied: the macroeconomic balance approach and the purchasing power parity (PPP) approach. The macroeconomic balance approach derives an estimate of the over/undervaluation from the change in the effective exchange rate needed to bring about equilibrium in the balance of payments. This equilibrium is defined as no change in international reserves or as a current account balance equal to the structural domestic saving-investment balance. In the PPP approach, the equilibrium rate is the one that equalises the prices of an identical basket of goods and services. All studies surveyed by two IMF economists (Dunaway and Li, 2005) clearly find the renminbi to be undervalued in real effective terms (see table below). A midpoint estimate of 25% seems fair. But the estimates vary very widely and should be treated with great caution as China is undergoing spectacular structural change and the quality of Chinese data is poor.

Estimates of undervaluation of the renminbi

	Estimated undervaluation	Assessment year	
Coudert and Couharde (2005)	23%	2003	Macroeconomic balance approach
Goldstein (2004)	15-30%	2004	Macroeconomic balance approach
Goldstein and Lardy (2005)	15-25%	2005	Macroeconomic balance approach
Wang (2004)	small	2004	Macroeconomic balance approach
Frankel (2004)	36%	2000	PPP approach
Funke and Rahn (2005)	11%	2000	PPP approach
Coudert and Couharde (2005)	18-49%	2002	PPP approach
The Economist	58%	May 2006	Against the dollar; PPP approach (Big Mac)

Sources: Dunaway and Li (2005) and own additions.

In this context, the development during the 1997-98 Asian crisis is interesting as it provides an almost perfect real world test of what could happen should an appreciation occur. During this crisis the renminbi's real effective exchange rate appreciated by about 22% although the rate vis-à-vis the US dollar remained unchanged. This effective appreciation was caused by appreciation vis-à-vis the currencies of the other dynamic Asian countries while inflation was clearly less than in those countries. As a result, China's gain in export market share came to a stand still. However, this was only for about 2 years. Thereafter, low Chinese inflation reduced the real effective appreciation of the renminbi and the upward trend in China's export market share was restored.

Effective exchange rates
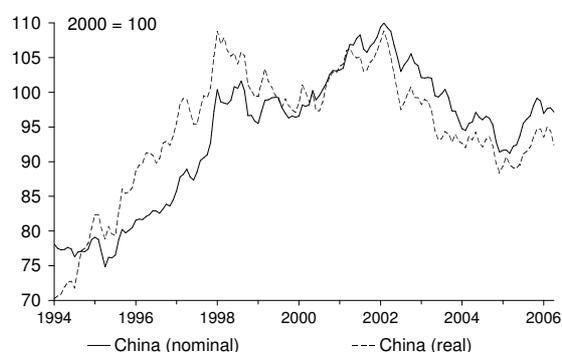
Export performance
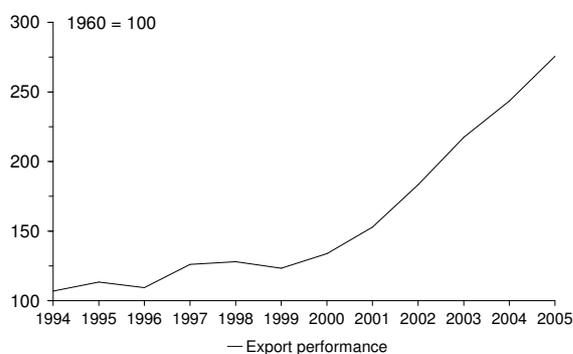
long-term interest rate by 1%-point increases Dutch real GDP by 1.2% in the fourth year after the drop and lowers the unemployment rate by 0.6%-points (Kranendonk and Verbruggen, 2006).

Figure 3.17   China's current account surplus and international reserves, 1980-2007
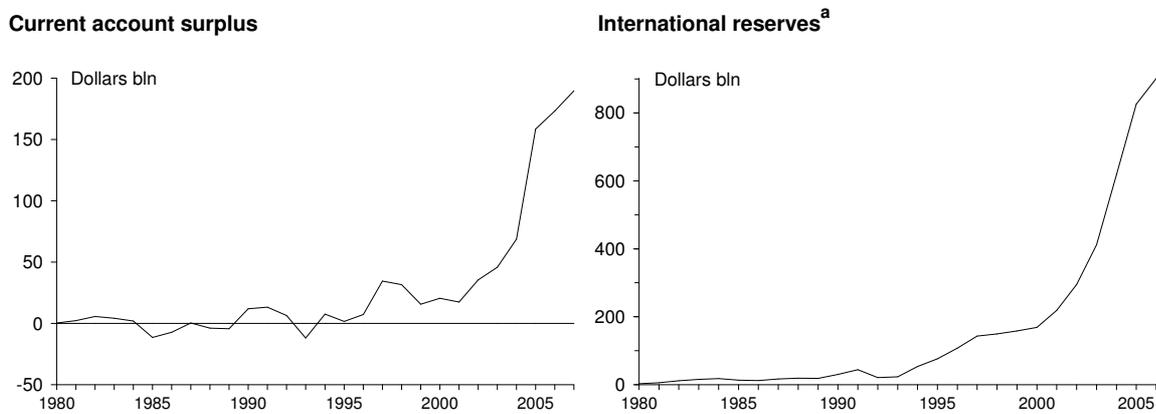
**Current account surplus**   **International reserves**[a]

4 Scenarios and simulations on China and the European economies

This chapter aims to describe the impact of future developments in China on the world economy. Both the developments as well as the associated impacts are inherently uncertain. Those uncertainties are explored with simulations with two models, viz. WorldScan and NiGEM. A first source of uncertainty relates to developments in the world economy at large. To illustrate the impact of differing developments, two scenarios are constructed with WorldScan in Section 4.1; one in which globalisation further expands and one in which the world economy disintegrates into regional communities. These have clearly distinct effects on the impact of China on the world economy which are characterised by considering economic development, trade and sectoral specialisation patterns. A second source of uncertainty relates to developments within China. Of primary interest are developments in the financial sector, the value of the renminbi, and trade relationships. These are evaluated in Section 0 with simulations using the NiGEM model.

4.1 Long-term scenarios up to 2040

This section explores China's role in the world economy up to 2040 with WorldScan scenarios. WorldScan is CPB's applied general equilibrium model for the world economy (see Annex D.1). The scenarios presented here builds on previous long-term analyses (Lejour, 2003; De Mooij and Tang, 2003). The sectoral classification is the same, but China and India 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 outcomes for the EU-15 diverging somewhat from Lejour (2003).

Figure 4.1   GDP per capita of China and the EU-15[a], 2000-2040
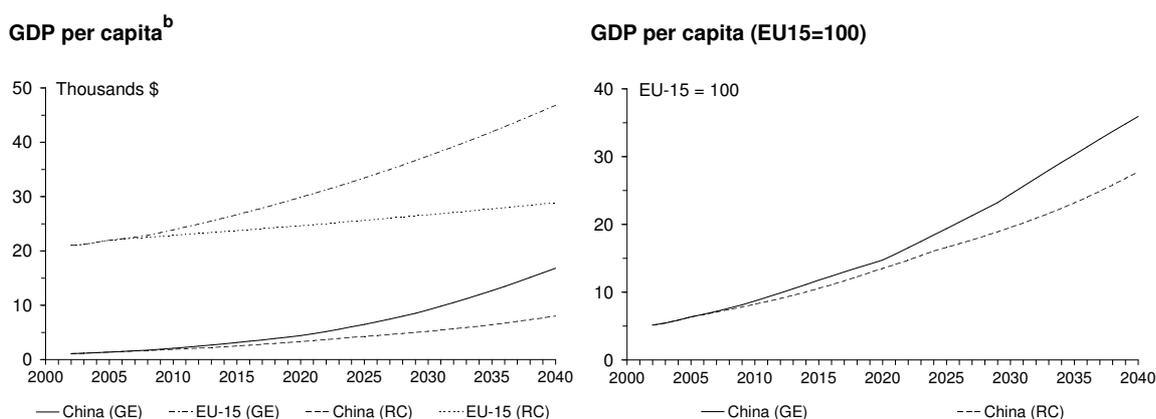
GDP per capita[b]

**GDP per capita (EU15=100)**

[a] GE: Global Economy, RC: Regional Communities.
[b] In prices of 2001; measured at exchange rates.
Source: WorldScan calculations.

Figure 4.2   Shares in world GDP[a,b] of China and the EU-15, 2000-2040
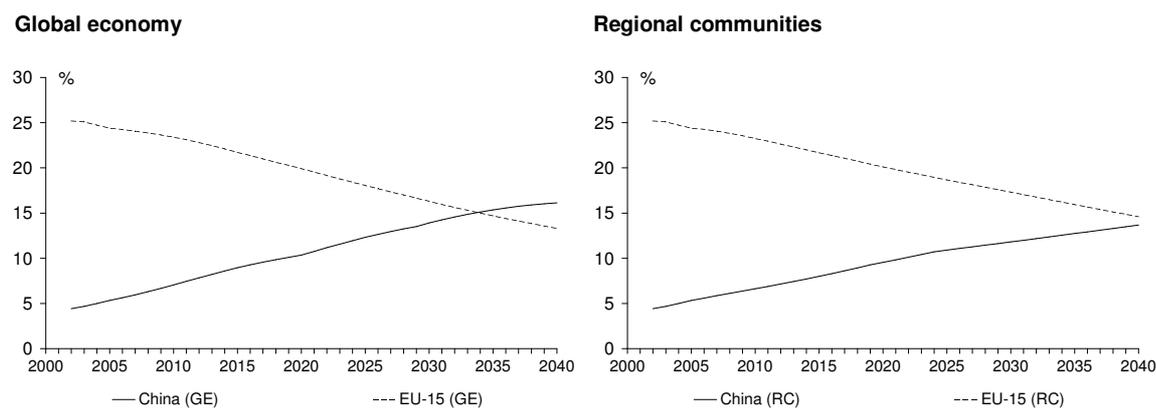
Global economy

Regional communities

[a] GE: Global Economy, RC: Regional Communities.
[b] In prices of 2001; measured at exchange rates.
Source: WorldScan calculations.

The two scenarios explored encompass the two extremes in the globalisation outcomes: the Global Economy (GE) scenario and the Regional Communities (RC) scenario. A high growth pattern for China is exogenously simulated in the GE scenario and a lower growth pattern in the RC scenario. Thus, a wide spectrum of possibilities is obtained. The scenarios do not aim to predict the future, but rather to sketch alternative futures. Both scenarios are feasible and consistent views.

In the Global Economy scenario world trade and global economic growth are boosted by trade liberalisation, economic integration and the emphasis on efficient functioning markets. Additional international trade agreements result in this scenario in significant reductions in tariffs and non-tariff barriers. 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 the smooth functioning of national and international goods and services markets, China's economic growth is remaining very high: 8.5% per year up to 2020 (Table 4.1). In the two following decades, economic growth diminishes, but remains at a high level. Due to sharp productivity increases, China's GDP per capita is rising strongly, from 5% of the EU-15 level measured in exchange rates in 2000 to 15% in 2020 and 36% in 2040 (Figure 4.1). This rapid development also means that China's share in world production is increasing strongly, surpassing that of the EU-15 at the end of the period (Figure 4.2). Measured by the average of exports and imports as a percentage of GDP, openness of the Chinese economy increases by about 9%-points. High growth in China and the rest of Asia redirects European trade flows towards that continent. Total Chinese exports to the EU-15 increase by almost 24 times from 2006 to 2004, i.e. 9.9% per annum. The equivalent number for European exports to China is 11 times. There is also further specialisation in the sectoral pattern of trade. For the EU-15, the fall in the export share of manufacturing is sharp in the Global Economy

60

scenario as there is stronger competition with China and other Asian countries. Chinese exports in the other manufacturing and capital goods sectors represent 78% of their total exports to the EU-15 in 2040, while European exports to China concentrate mainly in the services sectors (Table 4.4).

Trade liberalisation and the move towards more private responsibilities is not only boosting output growth of China but also that of the EU-15. High GDP growth in the EU-15 is accompanied by a wider income dispersion. The ratio of unskilled to skilled wages is expected to widen, from an EU-15 average of 0.62 in 2002 to 0.52 in 2040. 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.

Table 4.1   GDP growth, annual averages 2002-2040

	Regional communities			Global economy	
	02-05	06-20	21-40	00-20	21-40
China	9.1	6.5	4.4	8.5	6.9
EU-15	1.7	1.1	1.0	2.4	2.3
New EU members	2.8	2.2	1.8	4.6	4.9
Candidate members	3.7	3.5	3.4	7.0	6.6
Rest OECD	2.3	1.7	1.4	2.8	2.7
Former Soviet Union	6.1	4.6	5.1	5.5	5.5
India	6.8	5.6	5.6	8.1	6.6
Rest of the World	3.1	4.2	4.7	5.7	7.4
All regions	2.7	2.4	2.4	3.7	4.2

Source: WorldScan calculations.

In the Regional Communities (RC) scenario world trade and global economic growth is lower than in the Global Economy (GE) scenario because of limited international cooperation, more regulation and less room for private initiatives. The world is fragmented in a number of trade blocks and technology spillovers to emerging economies are limited. Globally, there is no further reduction in trade tariffs, but there are more regional trade agreements, for instance between China and the rest of Asia. As a consequence of more barriers and less incentives, China's economic growth is weaker than in the Global Economy scenario: 6.5% per year up to 2020 (Table 4.1). Therefore, China's convergence is slower, despite weaker growth in the high-income countries as well. In this scenario, growth in world exports is limited, and the share of intra-EU trade remains relatively high. Openness of the Chinese economy falls by about 6%-points. Bilateral trade between China and EU-15 increases at a less dramatic rate (Table 4.4).

Output growth in the EU-15 is less than in the recent past in contrast to growth in the Global Economy scenario. This is the result of less productivity improvements and of a drop in the labour force due to ageing and 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.

Table 4.2   Sectoral value added in China and EU-15, 2002 and 2040

	2002		2040 Regional communities		Global economy	
	China	EU-15	China	EU-15	China	EU-15
	% National income					
Agriculture and food	19.0	5.3	10.9	3.2	8.1	1.8
Energy and raw materials	5.9	2.3	8.6	3.1	8.6	4.7
Chemicals and minerals	7.4	4.4	1.1	2.0	0.3	1.3
Capital goods	11.3	9.5	2.9	4.8	0.9	3.5
Other manufacturing	13.0	5.6	7.5	3.6	5.1	2.6
Trade and transport	19.4	19.7	19.9	18.6	19.2	14.9
Business services	5.4	16.1	8.5	19.8	10.7	21.9
Other services	18.5	37.1	40.6	44.8	47.0	49.4
Capital goods	11.1	9.4	5.0	6.0	0.9	3.5

Source: WorldScan calculations.

Table 4.3   Production growth by sector in China and EU-15, 2006-2040

	Regional communities		Global economy	
	China	EU-15	China	EU-15
	Annual percentage changes			
Agriculture and food	6.2	1.0	8.8	2.0
Energy and raw materials	4.5	2.6	5.5	5.3
Chemicals and minerals	6.8	1.7	9.3	4.4
Capital goods	7.0	1.1	9.7	3.4
Other manufacturing	7.0	1.1	10.7	2.8
Trade and transport	6.1	1.1	9.0	3.0
Business services	4.4	1.3	6.4	2.7
Other services	3.8	1.1	5.3	2.3

Source: WorldScan calculations.

The two scenarios do not only differ economy-wide but also in sectoral developments. The share of the service sector varies because of different developments in per capita income in combination with relatively high income elasticities for consumer services. Hence, output growth of service sectors is bigger in the Global Economy scenario than in the Regional Communities scenario (Table 4.2 and Table 4.3). This is the case for both China and the EU-15. As a consequence of the bigger share of services in total value added, the shares of agricultural and manufacturing sectors are declining. In China, the agricultural share in output falls steeply but remains substantially bigger than in the EU-15.

These sectoral production reallocation is reflected on the shifts of labour shares by sector (Table 4.5). The economic events modelled in the Global Economy scenario cause higher labour reallocation rates in the long run.

To sum up, the most significant development present in both scenarios analysed is the considerable increase in bilateral trade flows between the EU-15 and China. If the proper conditions are in place, the same holds for the flows between the Netherlands and China. While the changes are much more pronounced in the Global Economy scenario, there are also significant even when trade barriers are left at roughly the same levels as in 2002. These increased trade flows, however, are only partially responsible for the significant labour and production reallocation towards the services sectors expected to take place in the EU-15, and in the Netherlands (Huizinga and Smid, 2004).

Table 4.4 **Bilateral trade flows between China and EU-15, by sector, 2002-2040**

		Regional Communities		Global Economy	
	Sectoral Shares 2002	Sectoral Shares 2040	% change 2006-2040	Sectoral Shares 2040	% change 2006-2040
	%				
Exports from China to EU					
Agriculture and food	2.3	1.1	192.7	1.1	1066.8
Energy and raw materials	0.7	0.1	-38.8	0.1	182.0
Chemicals and minerals	7.0	5.7	292.8	5.4	1436.1
Capital goods	30.9	35.7	513.1	26.1	1726.2
Other manufacturing	28.2	33.9	606.8	52.2	4365.8
Trade and transport	21.2	22.9	692.5	14.8	2006.6
Business services	7.6	0.6	-25.2	0.2	25.9
Other services	2.2	0.1	-59.6	0.0	-33.3
Total	100.0	100.0	506.8	100.0	2382.4
Exports from EU to China					
Agriculture and food	3.3	1.8	178.0	3.5	1468.2
Energy and raw materials	0.7	6.5	3262.5	12.4	18556.3
Chemicals and minerals	8.3	3.4	99.6	7.5	1197.1
Capital goods	45.2	15.3	56.5	24.5	632.3
Other manufacturing	11.6	5.9	118.7	9.5	934.9
Trade and transport	14.4	9.1	152.5	7.4	498.8
Business services	10.4	30.4	861.5	19.3	1687.3
Other services	6.2	27.5	1244.6	15.9	2170.8
Total	100.0	100.0	319.2	100.0	1127.2

Source: Worldscan calculations.

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

| | Regional Communities | | Global Economy |
	2002	2040	2040
	%		
Agriculture and food	4.9	2.9	1.6
Energy and raw materials	1.1	1.5	1.9
Chemicals and minerals	4.3	2.0	1.3
Capital goods	11.2	5.8	4.3
Other manufacturing	6.1	4.0	2.9
Trade and transport	20.7	20.2	16.5
Business services	12.3	15.3	17.0
Other services	39.3	48.3	54.5
Total	100.0	100.0	100.0

Source: Worldscan calculations.

4.2   The medium-term outlook and simulations up to 2010

Medium-term economic developments may diverge from the long-term scenarios sketched in the previous section. This section provides an assessment of the medium-term outlook for the Chinese economy and its impact on the global economy. As existing tensions may lead to crises, this section also analyses the impact on China and the EU of several possible shocks to the Chinese economy. The shocks that are considered are an inflationary shock (Section 4.2.2), increased reliance of China on export-led growth (Section 4.2.3), problems in China's financial sector (Section 4.2.4) and a global currency realignment (Section 4.2.5). These analyses are done with NiGEM, the estimated world model of NIESR which pays due attention to the adjustment processes in the medium term. The NiGEM model is briefly described in Annex D.2.

4.2.1   The medium-term outlook for the Chinese economy

China's role in the world economy is likely to increase further in the medium term. This view is shared by the OECD (2005a) and the IMF (Prasad, 2004). Both international organisations conclude that rapid Chinese growth and trade expansion could be sustained well in the future. It is, however, harder to assess whether in the absence of shocks and crises the speed of integration will be bigger or smaller in the coming 5 years than in the previous 10 years or so.

On the one hand, with Chinese investment at a stellar level and the capital stock increasing substantially, human capital rapidly rising and a good infrastructure, the current rate of growth of exports and output could continue unabatedly or could even rise. The more so as it takes some time before the recent captures of new technology and management know-how, mostly related to foreign direct investment, bear full fruit.

On the other hand, the policy of the Chinese authorities may make economic growth less export led and may pay more attention to social and environmental issues. The authorities recently acknowledged the need to narrow the huge gap between rural and urban China. Under the slogan "promote the construction of a new socialist countryside", they decided to allocate more resources for rural infrastructure. Such measures may boost domestic demand and could decelerate Chinese export growth. Hosting of the Olympics in 2008 may also give a boost to domestic expenditures, albeit temporary. A shift towards domestic demand is also necessary to reduce the huge current account surplus and prevent frictions with trading partners to escalate. The recent shift in policy is therefore also seen by many outside China as warranted, both for China and the global economy.[37]

Overall, some dampening of China's export growth is most likely, even in the absence of severe shocks and crises. In the NiGEM baseline used for the simulations presented below, exports are rising by 14% per year. This is in line with the 11th Five-Year plan of the government (Chinese government, 2006). In this plan, the government expects the total volume of trade in goods and services to almost double within the next 5 years, growing at a compounded annual rate of around 14% per year. This represents some moderation in trade growth as China's total trade volume tripled over the past 5 years and was growing at 26% in 2002-2005. Even in case of such a deceleration in export growth, China would become the largest exporter in the medium term. Such a continuing sharp growth may be accompanied by labour market bottlenecks in fast growing coastal regions in China, pushing up wages there for certain manufacturing workers. However, with continuing shifts of production towards less developed regions and inflows of migrant workers from the rest of China, it is most likely that China's exports will continue at a speedy rate.

China's energy demand could push up the oil price by 10 dollar per barrel in the next five years

China's cheap manufactured goods are dampening inflation in the Netherlands and other advanced economies (see Section 3.4). However, at the same time, China's strong demand for energy is pushing up world oil prices. The same holds for other commodities. If, as is most likely, China's strong economic growth continues, China's energy demand will continue to push up oil prices.

The US Congressional Budget Office has estimated that the increase in China's total demand for petroleum in the next five years could cause real crude oil prices to be as much as 7 to 14 dollar a barrel higher than they would be otherwise (CBO, 2006). Moreover, it has estimated costs of refining petroleum to be 1 to 1½ dollar a barrel higher. The CBO has assumed a five-year price elasticity of net supply of 0.2, which means that a potential 1% supply shortfall would require a 5% price increase of crude oil to restore balance in the market. As the CBO underlines, the uncertainty around this point estimate is big and the impact on oil prices could be both clearly bigger and smaller. Moreover, the impact may be at least partly temporary as supply is likely to react more strongly on prices in the longer term.

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[37] See for instance Blanchard and Giavazzi (2005) and Dunaway and Prasad (2006).

4.2.2 An inflationary shock in China

Increases in inflationary pressures could very well surprise on the upside in China. One reason is a move by the Chinese government towards a more market-based pricing regime in its domestic energy market. Furthermore in order to reduce the income gap between rural and urban workers, the government may raise rural income, possibly leading to higher food prices. Furthermore, it could reduce the number of migrant workers and raise the wage floor for unskilled workers in the cities. Finally, given that the Chinese economy is already growing at near capacity, it is not implausible that inflationary pressures could build up quickly.

In the simulation done, the consumer expenditure deflator jumps by 1% above baseline immediately and continues an upward trend to reach around 5% above baseline in the long run. This is assumed to lead to a tighter monetary policy and therefore to higher short- and long-term interest rates. The inflation shock would reduce Chinese GDP and hence Chinese imports (Figure 4.3). A reduction in Chinese imports has a negative direct impact on those that export to China. This negative impact is bigger for the United States than for the euro area as US exporters are more dependent on China.

Figure 4.3   The impact of a Chinese inflationary shock

Impact on Chinese economy

Impact on GDP of United States and Euro area
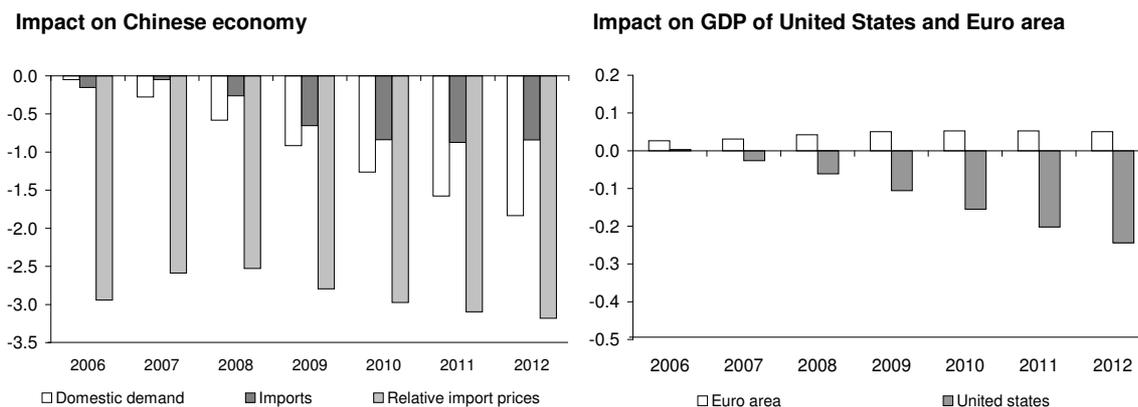
Source: NIESR NiGEM calculations.

The inflation shock also produces an internal and endogenously driven change in the terms of trade for China and hence for countries that import from it. Chinese export prices would rise relative to its import prices. A deterioration in Chinese export competitiveness will be reflected in an improvement in competitiveness elsewhere, although not all countries can be guaranteed to gain. The shock has a more positive impact on countries that compete more with China in their export markets as they could have a larger relative improvement in their competitiveness than others. China is broadly as important as competitor for the United States as for the euro area.

A further factor related to trade prices influencing results comes from the structure of imports, with countries that import relatively more from China finding that they face a relatively greater deterioration in their terms of trade, and hence a relative deterioration in their GDP prospects. The US is more dependent on Chinese imports than is the euro area, and hence the impacts on both prices and output are likely to be greater. The combination of greater dependence on China as an export market and more significant import from China are the major factors patterning the less positive impact of the shock on US output. While US output drops somewhat, output of the euro area is marginally higher. The NiGEM simulation shows a positive impact on the Netherlands that is twice that of the euro area as a whole, although it remains small. The bigger impact is due to Dutch exports to China that are below average (see Chapter 3), whilst the relative competitiveness gain is similar to that of other euro area countries.

4.2.3   Increased Chinese reliance on export-led growth

Rising imbalances in the distribution of income growth and access to services across China are already increasing the incidences of social protest and unrest especially in western and centre area provinces which have incomes that are still below those seen in low-income developing countries. Maintaining social stability has always been of primary concern to the government given that China is vulnerable to sudden political crisis that could cause the collapse of China's Communist Party. The government's growing anxiety over rural discontent was underlined by the key economic focus of its recently approved 11th Five-Year Plan which gave top priority to building a new socialist rural area and a socialist harmonious society (Chinese government, 2006). The government's principal strategy in maintaining social stability, as has been in the past, is to ensure robust top line economic growth so as to keep the discontentment from spreading across the different social classes.

Figure 4.4   The impact of stronger Chinese exports

On Chinese economy   **On GDP and on inflation United States and euro area**
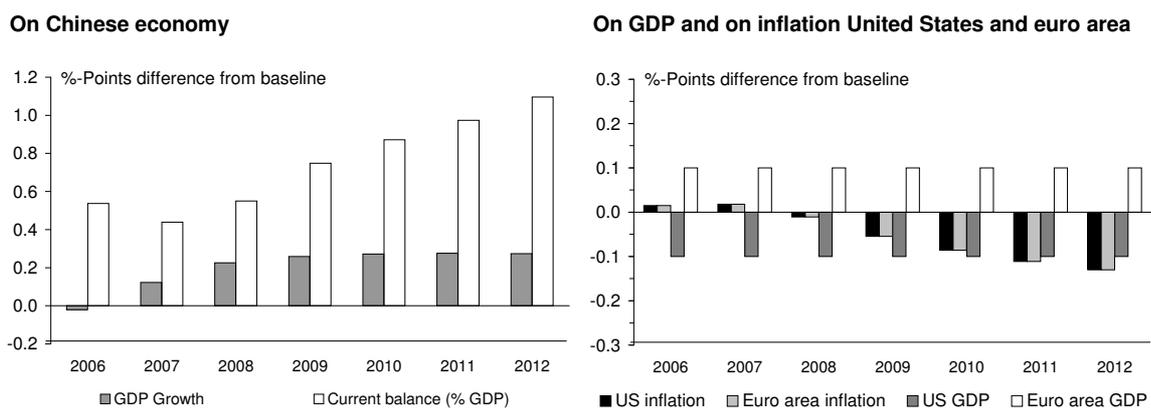
Source: NIESR NiGEM calculations.

Under these circumstances, the government could increase its reliance on the tried and tested growth strategy of export-led growth. Therefore, a simulation is done with stronger Chinese export growth of about 0.6%-points a year from 2006. This raises GDP growth in China by about ¼%-points per annum and increases the current account surplus by 1% of GDP by 2012. As the rise in Chinese output is assumed to be supply driven, there is little impact on the output gap or on domestic inflation. Imports would tend to rise with output, and this would support growth in China's primary trading partners.

A rise in the current account surplus indicates a rise in national savings, and this shift in the balance between saving and investment in the world economy puts downward pressure on inflation and real interest rates everywhere. By 2012 real long-term rates in the OECD would be 1/3%-points lower than they would have been. The impacts on the rest of the world of the Chinese expansion depend on the monetary policy regime in place. The increase in global supply dampens inflationary pressures, but as long as central banks react relatively quickly to cut interest rates and offset these lower pressures, inflation will only be marginally reduced. In the simulation, OECD inflation is 0.1%-points less in 2012.

The impacts on output in the euro area and the US are small, as the positive effect of lower long rates is offset by a fall in export market share in both regions. Growth would be marginally higher in the euro area and marginally lower in the US. However, the significant improvement in the terms of trade that accompanies higher Chinese exports would raise welfare and real consumption in both regions. The same holds for the Netherlands.

4.2.4 Increase in China's risk premium resulting from problems in the financial sector

While much progress has been made in strengthening the financial system in China over the last two decades, risk of a systemic failure in the system remains high (see for instance Podpiera, 2006). Due to the underdeveloped and tightly controlled capital market in China, financial risks in China are concentrated in the banking sector. Commercial banks dominate the financial institution sector, accounting for almost ¾ of total assets, with state owned commercial banks accounting for ¾ of the total commercial banks assets. Bank deposits as a percentage of GDP from households and companies amount to two times the average of four major OECD economies. Problems in the banking sector will thus be expected to be detrimental to the Chinese economy.

Steady efforts have been made in recent years to reduce the non-performing loans (NPLs), which some unofficial estimates put at more than 50% of outstanding loans in the late 1990s. Through a massive transfer of NPLs to asset management companies and a series of capital injections from the government as well as an introduction of tighter credit management practices and a stricter monitoring framework, the latest official estimates of the level of NPLs in the banking sector stood at 10% at the end of 2005. However private estimates including that from the OECD are in the range of 30%. One key risk that has recently emerged came from the

overheating in the real estate markets across major cities in China. The new risk-based capital weightings issued by the banking regulator in early 2004 have encouraged banks to lend to consumers, mainly in the form of mortgages. Should the real estate bubble burst recent loan portfolios could also turn non-performing.

In this simulation exercise, the impact is investigated of a rise in the risk premium of Chinese assets in the event of a systemic failure in the Chinese financial system. The risk premium shock was applied to the model, with the Chinese central bank operating under a nominal targeting regime. The shocks involve a positive risk premium shock to domestic assets and hence a rise in Chinese long term real interest rates, whilst there is no rise in the currency risk premium on all Chinese assets. Despite the major risk of contagion, it is assumed that the shock to the banking system is effectively contained within China, and that international spillovers are limited to trade effects. If there were to be a major global banking crisis because of developments within China then the impacts would be much more major than described here.

Figure 4.5 plots the effects of a rise in the risk premium that raises real interest rates by 4.5%-point. Higher domestic real interest rates reduce both domestic demand and the supply capacity of the economy in the medium term, and as a result imports fall markedly after 6 years. A 4.5%-points rise in the real interest rate reduces the level of output by about 1.5% in the medium term, taking about 0.2%-point from the growth rate on average for seven years, although the depreciation of the renminbi that accompanies the shock initially improves competitiveness and the impacts of this offset the fall in demand. In the longer term output settles down on a lower, parallel trajectory than it would have been on. Domestic demand falls more, and as a result imports into China fall by 2% or so, whilst exports are little affected. The effects of the fall in Chinese imports are similar for the US and the euro area, although the US has a marginally higher share of its exports going to that region. Chinese export prices fall initially because there is excess capacity in the economy. This improves the terms of trade for

Figure 4.5   The impact of an increase in the Chinese risk premium and real interest rate

On Chinese economy

On United States and Euro area
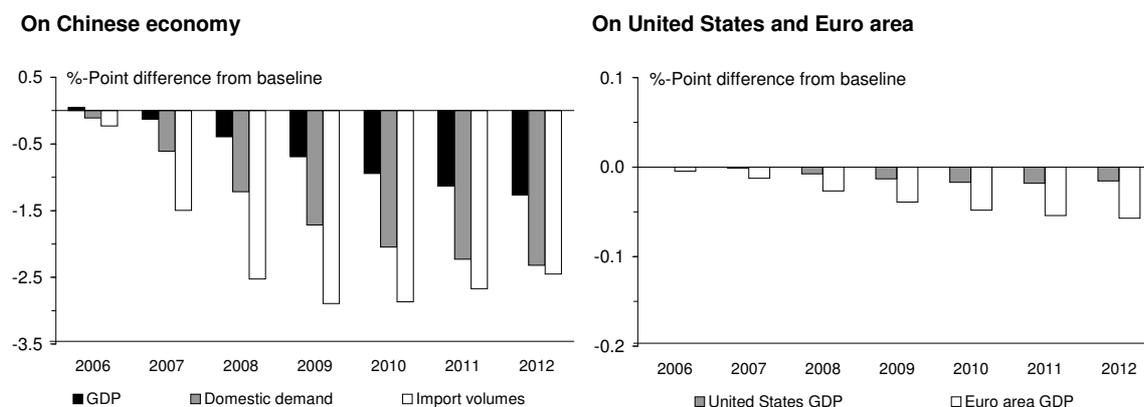
Source: NIESR NiGEM calculations.

those who import from China. This small beneficial effect partly offsets the fall in exports in both the US and the euro area.

The negative effects on the Dutch economy are only marginally higher than the euro area average, reflecting its greater openness to trade and the impact of lower world trade growth. However, if there were to be a major international banking crisis the impacts on the Netherlands would be particularly increased because of the importance of its international banking sector.

4.2.5 Global currency realignment

One of the key risks in the current global economy is that of the widening current account imbalances in major economies. The upward trend in both current account surplus and foreign exchange reserves in several large East Asian economies contrasts sharply with the deterioration in the US external position. The current account deficits in the US has risen from 3.5% of GDP at the end of 2001 to 7% of GDP by the first quarter of 2006 while the current account surplus in China has risen from 1.3% of GDP to 7% of GDP in 2005. Moreover, China has recently surpassed Japan as the largest holder of foreign exchange reserves in the world, with foreign reserves amounting to over US$850bn in the first quarter of 2006 (Figure 3.17). Should such massive imbalances in global savings and investment position were to unwind, it could impose a significant shock to global markets, in particular, to the foreign exchange markets. Obstfeld and Rogoff (2005) pointed out that the US has become increasingly dependent on Asian central banks and oil producers for financing its deficits. Indeed, in the past year, remarks made by Asian central bankers for the need to diversify their holdings of foreign assets have led to increased volatilities in the global exchange rates.

Apart from Obstfeld and Rogoff, analysis by many researchers including Roubini and Setser (2004) suggest that the current global system is fragile and unsustainable and that a risk premium might develop on US assets. Hence they suggest that the US dollar would need to depreciate significantly in the readjustment process to restore external balance. To explore the impact, a simulation with NiGEM has been made of an increased risk premium on US assets by imposing an endogenous shock on the US dollar such that its value depreciates against a basket of currencies which includes euro, yen, Canadian dollar, pound sterling, Australian dollar, Swiss franc, renminbi, New-Zealand dollar, Russian rouble, Korean won, Taiwanese dollar. The risk premium is such that the US dollar depreciates nominally against all the above currencies by an initial 4% while the real effective exchange rate of the US dollar depreciates by 2.5% by 2012. The euro and the renminbi appreciate against the US dollar by around 8.5% by 2012 while their real effective exchange rates appreciate initially by around 3.5% before returning back to base in the long run as shown in Figure 4.6.

With the higher price flexibility in China, its domestic prices adjust quickly to offset the loss in export competitiveness coming from the currency realignment. Hence, the real effective exchange rate of China returns back to base in the third year after the shock. Although the US sees its export competitiveness improve permanently through the currency realignment, its output improves only marginally for less than a year and than falls to around 1% below base by 2012 as the rise in the risk premium means its real interest rate rose by around 1%-point permanently. The slowdown in the US in combination with its depreciation mean that GDP in China and Europe contracts slightly and stays around 0.2% below base by 2012.

Figure 4.6   **The impact of a depreciation of the US dollar induced by an increased United States risk premium, 2006-2012**

On GDP

On current account balance (% of GDP)

On effective exchange rates
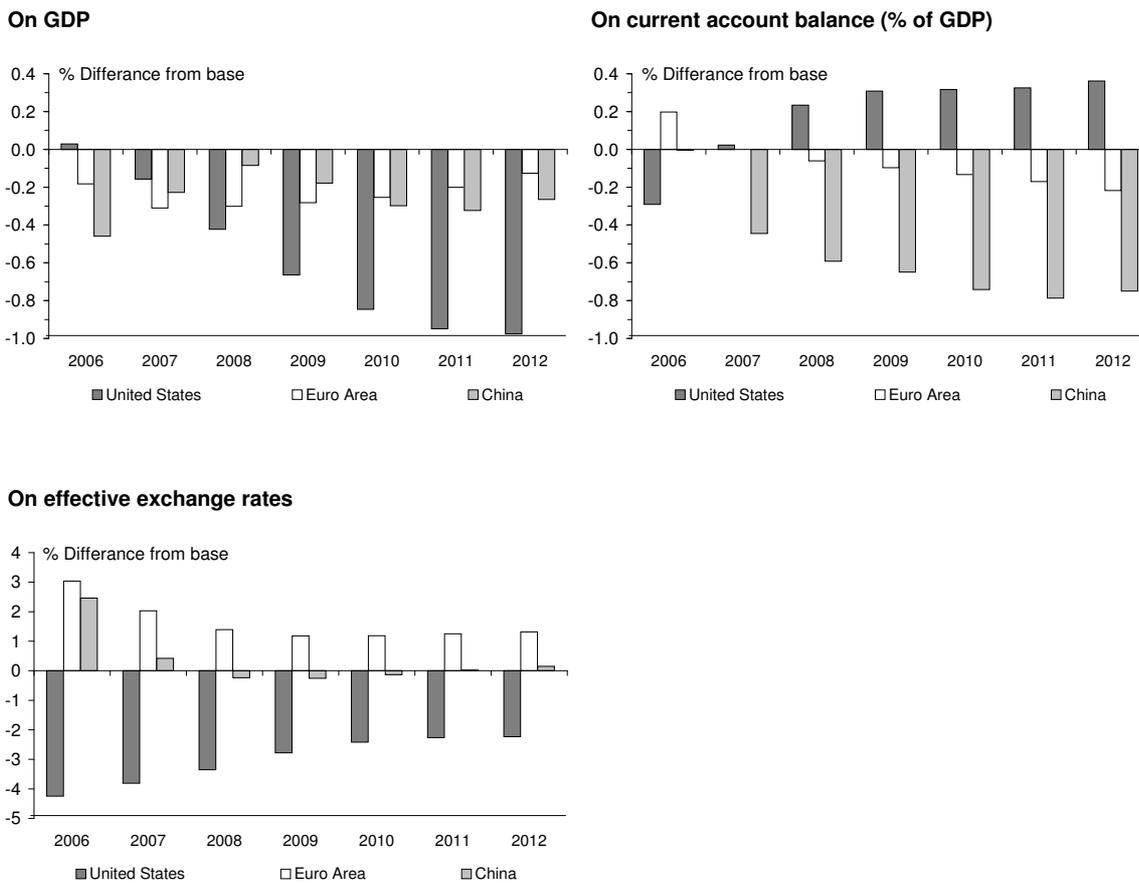
Source: NIESR NiGEM calculations.

5 China and the Dutch economy

5.1 Impact, outlook and risks

China's spectacular economic performance has had a positive net impact on the Dutch economy. Imports of cheap Chinese products have lowered Dutch inflation. As a result, consumption of a Dutch household is currently around 25 euro per month cheaper. In China, a new and expanding market for Dutch products has emerged. This expanding market has also provided Dutch firms attractive investment opportunities. Yet, current Dutch activities are relatively moderate, which may be related to worries about intellectual property rights and not yet lifted restrictions on investment in the service sector.

The big and rapidly expanding Chinese market is the main reason of investments of Dutch firms in China. Cheap labour is less important. This is consistent with the evidence of limited relocation of Dutch firms to foreign countries in general and to China in particular (Ministerie van Economische Zaken, 2005; Gorter et al., 2005; Berenschot, 2004).[38]

Increasing Chinese exports to Europe have strengthened the role of the Netherlands as key European distribution centre. The Dutch economy may also have benefited from lower global interest rates due to strong Chinese demand for foreign government bonds prompted by its huge current account surplus. Steeply increasing Chinese exports did not have a noticeable impact on the pace of restructuring in the Netherlands. Nor did this development lead to higher unemployment or did it cause a marked widening of Dutch income differentials. Concerning competition on world markets, Chinese export products are more supplements than substitutes of Dutch export products. Dutch employment from exports to China and re-exports of Chinese imports is estimated at around 23 000 jobs, approximately ½% of total employment.

The Chinese economy will continue to expand. In the coming five years, Chinese exports are likely to double (see Section 4.2.1). Up to 2040, Chinese exports to the EU-15 could increase between 5% and 10% per annum, depending on the speed of international economic integration and the role markets will play (see Section 4.1). Increasing trade with China will continue to enhance Dutch welfare in the coming years and will continue to be associated with more intense competition and restructuring on some markets. 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).

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[38] 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 (52% of total relocations) and to Western and Southern Europe (42%); 16% of total relocations was to China; i.e. around 2½% of Dutch firms that could relocate activities, did so to China in the past 10 years. Available evidence indicates that relocation to China was also limited for other European countries (Euroframe, 2005).

What about India, the other awakening Asian giant?

India is often mentioned in the same breath as China in discussions on the impact of globalisation on the rich countries. The two countries are the most populous and account for two fifth of the world population. Although India's economic performance has substantially improved recently, it is clearly not as breathtaking as that of China. In 1980 the two countries were fairly comparable economically. Since then, India's share in world GDP has almost doubled while that of China almost quintupled (see figure below). India's share in world exports of goods was 0.8% in 2004, compared with China's share of 6.5% (WTO, 2005). India's average income per capita has only risen to slightly more than a tenth of the Dutch level, while that of China is now almost a quarter of Dutch income per capita based on purchasing power parities (PPPs).

A main reason of the less favourable development is that India did not have an outward-oriented economic policy and invested less in infrastructure. India's less favourable development was despite its better legal system, including its protection of intellectual property, and its democratic processes.
The smaller openness of the Indian economy also shows up in Dutch foreign trade. India's share in Dutch imports of goods has remained tiny (see figure below). The same holds for Dutch exports of goods to India. Outsourcing of services to India got wide attention recently. However, Dutch imports of total services from India is up to now relatively limited (120 mln dollars in 2002) and even smaller than those imports from China (152 mln dollars).

Share in world GDP in PPPs
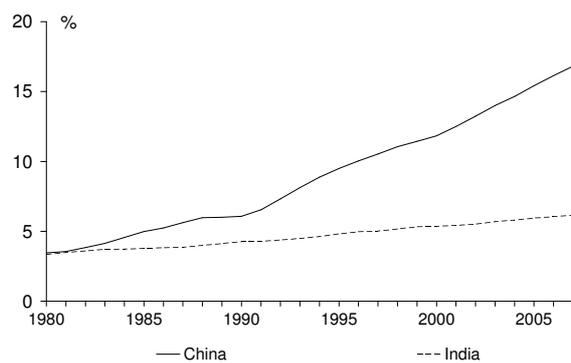
GDP per capita in PPPs
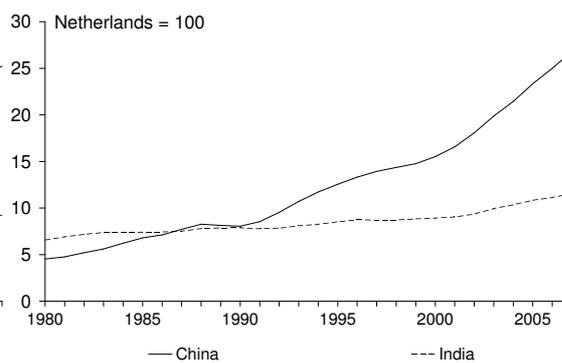
Share in Dutch exports of goods
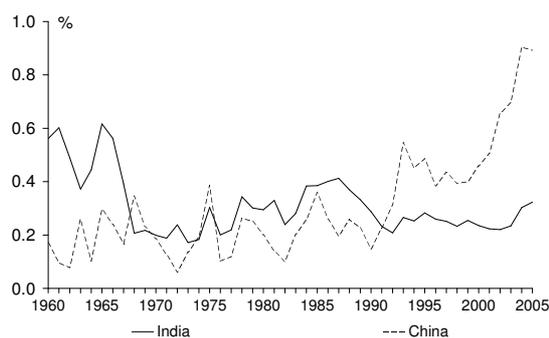
Share in Dutch imports of goods
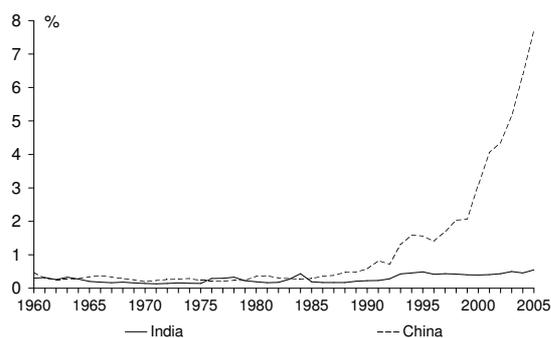
Sources: IMF World Economic Outlook database Spring 2006; OECD, Monthly statistics of international trade (May 2006).

Will China in the future dominate all export markets?

Some fear that in the future China will not only have a massive export of low-skilled products but also thrive in exports of high-skilled products and therefore no longer needs to import high-skilled products from the Netherlands and the rest of the European Union. However, this fear misses ground. International trade still resembles a barter: China will not export if it could not import attractive products with its export revenues. If the Chinese could produce everything more cheaply at home, their exporters would find that the euros and dollars earned would be worthless (Wolf, 2006).

Eichengreen and Tong (2006) answer the question of this box as follows: "Nonspecialist observers are sometimes led to conclude that, if current trends continue, it will not be many years before China dominates the market for virtually every type of good. Economists of course understand that even a large country has a comparative advantage. China will consequently specialise in the production and export of those goods in which its factor and organisational endowment give it a comparative advantage while importing the rest."

Thus, as is also presented in the long-term scenarios in Section 4.1, China will not dominate all export markets in the future. However, it has to be added that a stronger performance of China in the production of high-skilled products may change the terms of trade in a way that is detrimental for the Netherlands and the rest of the EU-15. The Dutch economy may have to export more goods to import the same amount of Chinese imports.

Most of the influences seen on the Dutch economy in recent years are likely to persist in the medium term. Dutch exports to China are likely to become more important; the role of the Netherlands as key European distribution centre of Chinese goods is likely to increase further, the expanding Chinese market will provide Dutch enterprises attractive foreign direct investment opportunities, some downward pressure on Dutch inflation from imports from China could continue, a continued limited shift in Dutch sectoral composition is likely with a very limited impact on friction unemployment; limited downward pressure on wages of low-skilled workers may persist despite the offsetting impact of rising labour demand from non-tradable services.

Table 5.1   Summary of impacts on the Dutch and European economies of possible shocks to the Chinese economy

	Medium-term impact on China	Medium-term impact on the Netherlands and other EU countries
Higher inflation in China	Substantial negative effect on imports and domestic demand	Marginal positive impact on GDP; somewhat higher import prices
Stronger export growth	Some positive impact on GDP; bigger current account surplus	Some positive impact on GDP, lower inflation
Problems in China's financial sector	Substantial negative effect on imports and GDP	Marginal negative impact on GDP
Depreciation of US dollar vis-à-vis renminbi and euro	Negative impact on GDP and current account balance	Slightly negative impact on GDP and current account balance

It is also important to assess the consequences for the Dutch economy of risks around the most likely Chinese medium-term outlook. The NiGEM simulations presented in Chapter 0 and summarised in Table 5.1 show that the impacts of domestic events in China on the rest of the world are normally quite limited, even given its role as the world's third largest trading nation. A rise in Chinese prices would slow the Chinese economy and make it less competitive, but would have its main impact on the rest of the world through lower imports into China. A rise in the domestic risk premium induced by problems in the banking sector would have similar, small scale effects on the rest of the world. However, if Chinese banking problems would lead to an international banking crisis, it would be a significant event. Such contagion is, however, not very likely. An increase in the growth of Chinese exports would marginally increase growth in the euro area in the medium term.

5.2   What does China's development mean for Dutch economic policy?

Concerning "China" and Dutch economic policy, a distinction has to be made between specific promotion measures, trade policy and other economic policy measures.

As regards promotion measures, it is clear from the continuing strong expansion that China has to be a spearhead in 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 vast Chinese market. Provision of such 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, with the emergence of Chinese multinationals, their search for a region to locate their main European office and the likely positive external effects of such locations, it is also clear that in attracting foreign direct investment in the Netherlands, the Netherlands Foreign Investment Agency (NFIA) has to pay substantial attention to China. Finally, with China's foreign tourism spending projected to soar, it is obvious as well that the Chinese market is highly relevant in the promotion of tourism to the Netherlands.[39]

Concerning trade policy, the focus of the European Commission and the Dutch authorities has to be on the opening-up of the Chinese service sector and on protection and enforcement of international property rights in China. Worries about technology leaks hamper foreign direct investment of Dutch enterprises in China as leaks can be detrimental for Dutch firms. The opening-up of the Chinese service sector has been agreed upon as part of the accession of China to the WTO, but still has to be implemented in the coming years. More in general, the focus of trade policy has to be on supporting a level playing field with China. This includes compliance

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[39] The World Tourism Organisation expects annual visits abroad from China to rise to 100 mln within 15 years.

with WTO-requirements, respect of ILO-prescriptions on work conditions and a transformation of the Chinese economy into a more environmentally sustainable direction.

The direction of EU trade policy vis-à-vis China is also highly relevant from a Dutch perspective. As the recent discussion on imports of Chinese textile showed, Dutch interest may differ from that of other member countries (Van Gennip et al., 2005).

Concerning other economic policy measures, the emergence of China only has a limited impact. The same holds for globalisation in general (see also Box "Ten Do's and don'ts of economic policy reactions to China" on page 78). It is important to underline that further globalisation, including the emergence of China, is likely to enhance Dutch welfare.[40]

No major acceleration in restructuring is foreseen in the long-term scenarios presented in Section 4.1. 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 Section 4.1 and Huizinga and Smid, 2004). Nevertheless, as more trade with China will lead to some restructuring, labour market policies aimed at lowering adjustment costs are relevant.[41] As analysed in Chapter 3.3, European workers losing their job in high import-competing industries have somewhat bigger problems in finding a new job than other job losers. Thus, some spending on retraining programmes may be warranted to smooth the adjustment. It has to be taken into account, however, that efforts to find re-employment in a comparable job and industry may be more cost-effective than retraining for a job in a very different industry. Even in declining industries labour turnover is high and allows job losers to find new work.

Globalisation adjustment funds have mixed records

The European Commission recently proposed a new 500 million euro European Globalisation Adjustment Fund, designed to assist displaced workers finding new jobs (European Commission, 2006b). The United States have already for 40 years such a target programme for trade-displaced workers (the Trade Adjustment Assistance Programme with outlays of 650 million dollar in 2003). Political economy reasons may play a role; such measures are seen as required to reap the fruits of trade liberalisation and further integration.

In practice, it is often hard to measure the exact cause of lay-offs and other drops 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 (2005b) 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 adjustment. This can be avoided by having clear time-limitations to such measures. Nevertheless, relying on general labour market programmes and the standard unemployment insurance system are in most cases clearly preferable.

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[40] 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 annually, in 2004 prices, for every EU household (Denis et al., 2006).

[41] See Chapter I "Trade-adjustment Costs in OECD Labour Markets: A Mountain or a Molehill?" of OECD (2005c) and OECD (2005d).

Ten Do's and don'ts of economic policy reactions to China

I Do not panic on China/globalisation as the net welfare effects are positive for the Netherlands.

II As the net effects are positive and the negative effects are relatively small and mostly temporary, there is no reason for major policy shifts.

III. Do not blame China/globalisation for every difficult but necessary measure to be taken.

IV. Refrain from trying to halt unavoidable adjustments stemming from China/globalisation. The global division of labour will change and more low-skilled Dutch workers will have to shift to jobs in the nontradable sector.

V. Acknowledge the costs of adjustment prompted by China/globalisation. Smooth required adjustments mainly by general policy measures (the unemployment insurance scheme and retraining programmes).

VI. Foster the existing comparative advantages of the Dutch economy. Do this by creating the proper framework conditions. This holds for sectors with strong export positions, and stems from the well educated and trained Dutch labour force.

VII. Exploit our comparative advantage in trade that gives rise to our role as a gateway to Europe, while also acknowledging and monitoring the potential negative effects in terms of, for example, increased congestion and negative environmental effects.

VIII. Monitor the opening-up of the Chinese service market closely as it is of great importance for Dutch financial companies and other service providers.

IX. Support multilateral initiatives to promote a level playing field with China. This has to result in equal rules for all regarding market access, compliance with WTO-requirements, respect of ILO-prescriptions and a transformation of the Chinese economy into a more environmentally sustainable direction.

X. Acknowledge the specificities of trade with and investing in China that translate into relatively high transaction costs and aim at lowering informal transaction costs.

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 of the OECD 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").

No doubt 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 Chapter 3.1.2 shows the persistence of sectors and products for which the Netherlands have a strong position on the world market. Policies should foster these existing comparative advantages, not by old-fashioned industrial policy but by creating the proper framework conditions.

Furthermore, the fact that two-third of Chinese imports are re-exported shows the importance of the role of the Netherlands as European distribution centre. Currently, every day 1000 two-container trucks are going to or coming from the Rotterdam harbours to transport containers with Chinese products. Almost the same amount of "Chinese" containers are transported by ship out of Rotterdam. Proper transport infrastructure is needed to tap the gains of the increasing role of China as supplier of goods to Europe. In decisions on infrastructural projects not only these benefits but also possible negative external effects on the environment have to be taken into account (CPB et al., 2006).

Finally, strengthening Dutch comparative advantages demands innovation. With regard to education, there are several promising policy options to increase welfare (Cornet et al., 2006). 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. In this context, the rising number of Chinese scientists and engineers can be seen as an opportunity.

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Annex A   Background statistics

Table A.1   Export shares of the Netherlands and EU15 with China

2004	ISIC Rev. 3	Netherlands Shares in exports to:			EU15 Shares in exports to:		
		China	Total world	China-world	China	Total world	China-world
Grand total		100.0	100.0	0.0	100.0	100.0	0.0
Agriculture, hunting, forestry and fishing	01-05	1.3	5.7	− 4.4	0.6	2.0	− 1.4
Mining and quarrying	10-14	0.1	0.7	− 0.6	1.3	1.7	− 0.4
Food products, beverages and tobacco	15-16	6.6	12.1	− 5.6	1.5	6.5	− 5.0
Textiles, textile products, leather and footwear	17-19	2.3	3.2	− 0.9	2.3	5.1	− 2.8
Wood and products of wood and cork	20	0.1	0.3	− 0.1	0.3	0.9	− 0.6
Pulp, paper, paper products, printing and publishing	21-22	2.2	2.8	− 0.6	1.9	3.4	− 1.5
Coke, refined petroleum products, nuclear fuel	23	0.1	6.2	− 6.1	0.1	2.7	− 2.6
Chemicals excluding pharmaceuticals	24ex2423	16.6	13.6	3.0	7.4	10.0	− 2.6
Pharmaceuticals	2423	1.7	3.8	− 2.1	1.4	5.4	− 4.0
Rubber and plastics products	25	1.4	2.4	− 1.1	1.6	3.0	− 1.5
Other non-metallic mineral products	26	0.3	0.7	− 0.3	0.8	1.6	− 0.8
Basic metals and fabricated metal products	27-28	6.5	5.5	1.1	7.5	7.5	− 0.1
Machinery and equipment, nec.	29	18.7	6.0	12.8	31.7	11.1	20.6
Office, accounting and computing machinery	30	3.2	11.1	− 7.9	1.5	3.5	− 2.0
Electrical machinery and apparatus, nec	31	5.3	2.6	2.7	7.6	3.9	3.7
Radio, television and communication equipment	32	4.9	7.6	− 2.7	7.8	5.0	2.7
Medical, precision and optical Instruments	33	16.5	5.0	11.5	5.2	3.4	1.8
Transport equipment	34-35	1.3	5.5	− 4.1	14.2	17.0	− 2.8
Manufacturing nec; recycling	36-37	0.4	1.1	− 0.8	1.3	2.3	− 1.1
Electricity, gas and water supply	40-41	0.0	0.0	0.0	0.0	0.3	− 0.3
Scrap metal		6.8	0.8	6.0	1.9	0.5	1.5
Other		3.6	0.3	3.3	1.2	2.3	− 1.1
High technology manufactures		26.5	28.1	− 1.6	21.7	20.0	1.6
Medium-high technology manufactures		41.8	26.6	15.2	55.1	38.8	16.3
Medium-low technology manufactures		8.3	15.2	− 6.9	10.1	15.4	− 5.3
Low technology manufactures		11.5	19.5	− 8.0	7.2	18.2	− 11.0
ICT manufactures		9.4	20.0	− 10.6	12.6	10.3	2.4

Sources: OECD, STAN Bilateral Trade Database (BTD); International Trade by Commodity Statistics (ITCS), 2006.

Table A.2   **Import shares of the Netherlands and EU15 with China**

2004	ISIC Rev. 3	Netherlands Shares in imports from:			EU15 Shares in imports from:		
		China	Total world	China-world	China	Total world	China-world
Grand total		100.0	100.0	0.0	100.0	100.0	0.0
Agriculture, hunting, forestry and fishing	01-05	1.2	4.2	− 3.0	0.7	2.9	− 2.2
Mining and quarrying	10-14	1.4	8.5	− 7.1	0.6	7.7	− 7.2
Food products, beverages and tobacco	15-16	0.9	6.8	− 5.9	1.3	6.2	− 4.9
Textiles, textile products, leather and footwear	17-19	10.5	4.4	6.1	19.3	6.2	13.1
Wood and products of wood and cork	20	0.7	0.9	− 0.2	1.0	1.0	0.1
Pulp, paper, paper products, printing and publishing	21-22	0.5	2.8	− 2.2	0.8	2.9	− 2.0
Coke, refined petroleum products, nuclear fuel	23	0.4	3.6	− 3.2	1.0	2.6	− 1.6
Chemicals excluding pharmaceuticals	24ex2423	2.7	9.1	− 6.4	2.5	8.4	− 5.9
Pharmaceuticals	2423	0.6	4.1	− 3.5	0.8	4.5	− 3.7
Rubber and plastics products	25	2.0	2.4	− 0.4	2.8	2.6	0.2
Other non-metallic mineral products	26	1.0	1.0	0.0	1.4	1.2	0.2
Basic metals and fabricated metal products	27-28	3.3	6.1	− 2.9	5.1	7.4	− 2.3
Machinery and equipment, nec.	29	3.7	5.6	− 1.9	8.0	7.4	0.6
Office, accounting and computing machinery	30	36.7	12.9	23.9	17.3	4.9	12.4
Electrical machinery and apparatus, nec	31	5.1	2.9	2.2	7.1	3.5	3.6
Radio, television and communication equipment	32	21.1	8.8	12.3	14.7	5.9	8.8
Medical, precision and optical Instruments	33	1.5	4.0	− 2.5	2.6	2.9	− 0.3
Transport equipment	34-35	0.7	8.2	− 7.5	1.5	14.9	− 13.4
Manufacturing nec; recycling	36-37	5.8	1.9	3.9	11.2	2.6	8.5
Electricity, gas and water supply	40-41	0.0	0.3	− 0.3	0.0	0.3	− 0.3
Scrap metal		0.0	0.6	− 0.6	0.0	0.5	− 0.5
Other		0.0	0.2	− 0.2	0.0	2.8	− 2.8
High technology manufactures		60.0	30.8	29.2	35.8	20.6	15.2
Medium-high technology manufactures		12.1	24.7	− 12.6	18.6	31.5	− 12.9
Medium-low technology manufactures		6.8	13.3	− 6.5	10.6	14.2	− 3.6
Low technology manufactures		18.5	16.8	1.7	33.6	18.9	14.7
ICT manufactures		58.6	22.8	35.7	33.2	12.3	20.9

Sources: OECD, STAN Bilateral Trade Database (BTD); International Trade by Commodity Statistics (ITCS), 2006.

Annex B   SITC product groups classification

The SITC- Rev.2, 2-digit product groups classification has been applied.

00   food and live animals

01   meat and meat preparations

02   dairy products and birds' eggs

03   fish (except marine mammal) crustaceans, etc, preps

04   cereals and cereal preparations

05   vegetables and fruit

06   sugars, sugar preparations & honey

07   coffee, tea, cocoa, spices & manufactures thereof

08   feeding stuff for animals not incl unmilled cereal

09   miscellaneous edible products & preparations

10   beverages and tobacco

11   beverages

12   tobacco and tobacco manufactures

20   crude materials, inedible, except fuels

21   hides, skins and furskins, raw

22   oil seeds and oleaginous fruits

23   crude rubber (including synthetic & reclaimed)

24   cork and wood

25   pulp and waste paper

26   textile fibers & their wastes (exc wool tops etc)

27   crude fertilisers (not of div 56) & crude minerals

28   metalliferous ores and metal scrap

29   crude animal and vegetable materials, n.e.s.

30   mineral fuels, lubricants and related materials

32   coal, coke and briquettes

33   petroleum, petroleum products & related materials

34   gas, natural and manufactured

35   electric current

40   animal and vegetable oils, fats and waxes

41   animal oils and fats

42   fixed veg. fats & oils crude, refined, fractionate

43   anml/veg fats/oils process/waxes/inedible prep nes

50	chemicals and related products, n.e.s.
51	organic chemicals
52	inorganic chemicals
53	dyeing, tanning and coloring materials
54	medicinal and pharmaceutical products
55	essential oils, etc; toilet, polishing etc prep
56	fertilisers (except crude of group 272)
57	plastics in primary forms
58	plastics in nonprimary forms
59	chemical materials and products, n.e.s.
60	manufactured goods classified chiefly by material
61	leather, leather mfr, nes, and dressed furskins
62	rubber manufactures, n.e.s.
63	cork and wood manufactures other than furniture
64	paper, paperboard and articles thereof
65	textile yarn, fabrics, made-up articles, n.e.s.
66	nonmetallic mineral manufactures, n.e.s.
67	iron and steel
68	nonferrous metals
69	manufactures of metals, n.e.s.
70	machinery and transport equipment
71	power generating machinery and equipment
72	machinery specialised for particular industries
73	metalworking machinery
74	general industrial machry & equipmt, n.e.s. & pts
75	office machs and automatic data processing machs
76	telecommun & sound record & reproduce app & equip
77	electrical machry, apparatus & appliances, n.e.s.
78	road vehicles (inc air-cushion vehicles)
79	transport equipment, n.e.s.

80	miscellaneous manufactured articles
81	prefab buildings; sanitary, plumb etc fix nes
82	furniture & parts; bedding, mattresses, etc.
83	travel goods, handbags and similar containers
84	articles of apparel and clothing accessories
85	footwear
87	professional scient & control inst & apparatus nes
88	photo appt, equip & optical goods nes; watch & clk
89	miscellaneous manufactured articles, nes
90	commodities and transactions not classified elsewhere
91	postal packages not classified according to kind
93	special transactions & commod not classif by kind
94	animals, live, n.e.s.
95	coin including gold; proof and presentation sets
96	coin (other than gold coin) not being legal tender
97	gold, nonmonetary (excluding ores & concentrates)
98	estimate of low valued import transactions
99	low value shipments; various shipments nik

Annex C   Dutch multinationals operating in China[42]

In extracting natural resources and in chemical industry, Dutch multinationals Shell, Akzo Nobel and DSM operate in China. In 2005, a joint venture of Shell and Chinese state energy enterprise CNOOC completed the construction of a chemical plant in South China, enabling to serve the rapidly growing Chinese market for petrochemical products, involving a 4.3 billion dollar investment. To supply Beijing with natural gas, Shell and PetroChina are developing a gas field. The project will take 20 years, amounting to 600 million dollar, both partners going fifty-fifty. In a joint venture with state enterprise Sinopec, Shell is building a network of 500 petrol stations in eastern China, 200 of which are already operational. Moreover, Shell entered into a joint venture for laying down a pipeline for the transport of natural gas, which should be completed in 2008, involving an investment sum of 90 million dollar.

Akzo Nobel has 20 sites in China, employing 4.000 people. In 2005, sales in China were 650 million dollar, two third of which consisting of coating. China is very important for the company's growth strategy. As increasing prosperity and economic activity will result in a surge of demand for coating, China, together with Eastern Europe, is an important area to invest in. In 2005, Akzo Nobel opened two plants for coating. In the same year, Akzo Nobel announced to build two manufacturing plants in China, an investment sum of 15 million euro.

DSM has strongly expanded capacity and sales. Due to the huge growth of the purchasing power of Chinese middle class, DSM expects a strong growth of sales in the next few years. In 2005, sales amounted to 500 million dollar in China, corresponding to 6% of total group sales. The company intends to redouble this in 2010. To develop chemical products and food ingredients for the Chinese market, the company opened its first R&D centre in China (Sjanghai) in 2005. In 2006 DSM will invest 10 million euro to build a factory for flavouring. A new production plant will be built for high-grade plastics for LCD screens and mobile telephones, involving a few tens of millions of dollars. In 2005, the company announced that it will take a stake in two Chinese pharmaceutical companies and will enter into a joint venture with two other Chinese companies.

In electronics, Philips is one of the biggest multinational enterprises in China. In the Philips global strategy, China is one of the most important sales markets. It is also of significance as a centre for production and research. Philips has established 20 joint ventures and 15 wholly-owned enterprises, employing 20.000 staff nationwide. In 15 R&D facilities, new products are developed for selling in China and the Asia Pacific region. Up to now, Philips has invested 3.4 billion dollar in China. In 2005, 10% of the sales of the group was in China, for the major part consumer electronics and semiconductors. Philips Lighting had an market share of 14% in 2004, being market leader.

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[42] The information on enterprises in this section, is exclusively based on public available information laid down in annual reports and press releases published by enterprises, as well as on newspaper reports.

In the food industry, Dutch companies such as Unilever, Numico, and Heineken have invested in China. For this industry, China is a challenging market due to fierce competition of local Chinese enterprises and the fragmented sales market. Unilever has 10 production sites in China and produces food products and products for personal care for the growing Chinese market, with sales of 500 billion dollar in 2005. Strong differences in consumer preferences and eating habits between regions, as well as fierce competition of local food producers, complicate doing business in China. In 1999, Unilever went through a process of reorganisation and consolidation of its plants and joint ventures in China. In 2000 it invested 20 million dollar to set up Unilever Research China. This centre has access to the scientific knowledge developed globally by Unilever, in order to introduce more traditional ingredients into the products.

In 2005, Numico (baby food, clinic food) announced to reduce its activities in China, due to incurring losses. Operating with three brands and selling in the whole country, market efforts were too fragmented. Numico sold a manufacturing plant and concentrates on the regions Sjanghai and Guangdong and on one leading brand. Late 2005, Numico announced to acquire EAC Nutrition, leading in baby food in China, Malaysia and Thailand. Numico considers Southeast Asia as a market with a high growth potential. Heineken has two breweries in Sjanghai and has entered in two joint ventures with Chinese breweries for sales in the Chinese market. Experience shows that is it is difficult to gain market share in China because of competition of local Chinese breweries in a locally very fragmented market. Profit margins are under pressure. In 2006, the company hopes to operate break-even.

The Dutch dairy companies Friesland Foods en Coberco have pulled out from China in 2004 because their manufacture sites were not profitable due to competition of local suppliers.

Dutch banks operating in China[a]

Under the terms of joining the WTO in 2001, China has committed itself to fully open up its markets in 2006 for foreign financial service providers. With growing prosperity, banks expect demand for consumer credit, insurance and credit cards will surge, whereas they also have an eye on a household saving market amounting to 1,700 billion dollar. In recent years, foreign banks and insurance companies have set up branches in China or have acquired stakes in Chinese banks. Chinese authorities welcome this, because it strengthens the capital base of Chinese banks, improves risk management and contributes to their expertise of modern banking. A foreign bank's stake in a Chinese bank is not allowed to exceed 20% and a Chinese bank is permitted to be foreign-owned to a maximum of 25%. With a market share of 2%, foreign banks are, anyway, "a drop in the ocean".

Different from American and British banks, Dutch banks do not have stakes in the big four Chinese banks. The main participation is the ING 19.9% stake in Bank of Beijing, which opens up a sales channel for lending, insurance and asset management. Besides, ING has branches in Chinese towns for lending to big Chinese enterprises and for advising European companies, intending to acquire a Chinese company or to enter a joint-venture. The insurance market will be liberalised in December 2006. Growing prosperity of the Chinese population will stimulate the demand for insurance. In view of this development, ING has two joint-ventures with Chinese companies, with a license to sell life insurance products in ten cities with over a million inhabitants.

ABN AMRO has branches in Peking, Sjanghai en Shenzhen and aims at having branches in nine big cities in 2007. The bank is building up a branch network and does not have a stake in a Chinese bank, opting for a different growth strategy than ING. ABN AMRO considers a stake in a Chinese bank to be risky, because the assets may include bad loans. The bank will only participate if taking a controlling stake is permitted. Since only minority participation is allowed, ABN AMRO does not choose for participating in a Chinese bank for the time being.

Fortis is involved in lending and trade finance. Lending to domestic Chinese enterprises has growth potential. However, in this respect the bank acts prudently, because of the risk to lose money. Through two joint-ventures, Fortis carries out asset management and sells life insurance products. Rabobank has a 10% stake in Hangzhou Cooperative Bank. Within the framework of the government policy of restructuring and recapitalising rural banks, Rabobank provides technical assistance to develop and strengthen this cooperative bank. This links up with Rabobank's rural background. Aegon has a joint-venture with a Chinese company for the sale of life insurance products and health insurance in some big cities, including Beijing and Sjanghai.

Operating in China also entails problems for banks. The non transparent character of small Chinese enterprises renders assessment of lending risks more difficult. Details of the legal framework are not always clear-cut and getting licences restraints doing business. Rules of the supervisors for banking and insurance are complicated and may often change. Finally, there are restrictions on export and import of foreign currencies. The main reason, however, for Dutch banks to be present in China and expand business is a strategic one: to take advantage of the market growth in the future: "you cannot afford not having been there."

[a] Sources of this box are Bank- en Effectenbedrijf (2005); annual reports and press releases of financial institutions concerned; and newspaper reports

Annex D   Description of models used

Annex D.1   WorldScan

WorldScan, the CPB's applied general equilibrium model for the world economy, is recently described in detail in Lejour et al. (2006). It is recursively dynamic and reflects the global economy with multi-region and multi-sector detail, the regions being connected by bilateral trade flows at industry level. WorldScan fits into the tradition of applied general equilibrium models: it builds upon neoclassical theory, has strong micro-foundations and explicitly determines simultaneous equilibrium on a large number of markets.

China and India are now separate regions in the model (Table D.1.1), 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 the energy results, energy consumption is not analysed this time, nor the effect of high growth rates in China on the prices of oil and raw materials. Likewise, migration from Central and Eastern Europe is not included in these particular scenarios. As before, 16 sectors are distinguished (Table D.1.2).

Table D.1.1   Regions in WorldScan

1	Germany	Germany
2	France	France
3	United Kingdom	United Kingdom
4	Netherlands	Netherlands
5	Other EU15	Austria, Belgium, Denmark, Finland, Greece, Ireland, Italy, Luxembourg, Portugal, Spain and Sweden
6	EU New Member States	Cyprus, Czech Republic, Hungary, Malta, Poland, Slovakia, Slovenia, Estonia, Latvia and Lithuania
7	Candidate EU Members	Bulgaria, Croatia, Romania and Turkey
8	Rest OECD	Australia, New Zealand, Japan, Korea, Canada, United States, Mexico, Switzerland and Rest of EFTA
9	Former Soviet Union	Russian Federation and Rest of Former Soviet Union
10	China + Hong Kong	China and Hong Kong
11	India	India
12	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
13	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
	Regional Aggregations	
	EU-15	DEU,FRA,GBR,NLD,OD
	ASE/AAR	ASE,AAR

Table D.1.2   Sectors in WorldScan

	Worldscan sectors	GTAP sectors
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

Sectoral Agregations	
Agriculture and food	AGR, FOD
Energy and raw materials	ENG, RAW
Chemicals and minerals	CRM
Capital goods	CPI
Other manufacturing	COS, PPP, MET
Trade and transport	TRA, TRD
Business services	FSR, OBS
Other services	OSR, CNS, CMN

Annex D.2   NiGEM

NiGEM is an estimated world model, which uses a "New Keynesian" framework in that agents are presumed to be forward looking, but nominal rigidities slow the process of adjustment to external events (Al-Eyd, Barrell and Holland, 2005). NiGEM therefore fits in the New Open-Economy Macroeconomics literature where, among other distinctions, the dynamic adjustment of prices commands particular attention (for example, see the seminal contribution of Obstfeld and Rogoff (1995), and a survey of the subsequent literature in Lane (2001)). A central tenant of this literature is the link between exchange rate dynamics, precipitated by nominal price rigidities, and the adjustment in the current account.

In the NiGEM model, economies are linked through the effects of trade and competitiveness and are fully simultaneous. International linkages also occur through financial markets since the structure and composition of wealth is modelled, emphasising the role and origin of foreign assets and liabilities. Wages, equity prices and exchange rates are forward looking, while long term interest rates are the forward convolution of short-term interest rates. In the NiGEM model, policy rules can determine short-term interest rates:

$$i_t = \gamma_1 (\ln(P_t Y_t) - \ln(P_t^* Y_t^*)) + \gamma_2 (\Delta \ln P_{t+j} - \Delta \ln P_{t+j}^*) , \tag{D.1}$$

where P is the price level, Y is real output, the superscript "*" denotes target values for these variables, γ_1 and γ_2 are policy weights set by the authorities, and j indicates the appropriate lag or lead.

In NiGEM, each country has a description of its domestic economy that can be broken up into sectors: government, labour market, consumption behaviour, the supply side of the economy, and financial markets. Currently, NiGEM contains submodels for 35 countries, including one on the Chinese economy.

Key equations from the Chinese model are set out below. All equations have been estimated using an equilibrium correction framework (ECM) popularised by Davidson et al. (1978). The ECM provides a functional framework for assessing the short-run dynamics that are important to the nature of this study, while ensuring long-run equilibrium relations that are consistent with economic theory. For any variable Y

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^{k} \beta_{Y,i} \Delta Y_{t-i} + \sum_{j=0}^{k} \beta_{X,j} \Delta X_{t-j} - \gamma(Y_{t-1} - X_{t-1}) + \varepsilon_t \tag{D.2}$$

where X_t is a vector of variables influencing the dynamics of Y_t, Δ is the standard difference operator ensuring stationary dynamics in I(1) variables, the last term in levels reflects the long-run cointegrating relationship, and the disequilibrium response, γ, reflects the speed of adjustment. The parameter $\gamma > 0$ ensures that this response acts to reduce any error over time and t-statistics greater than 3 in absolute values is evidence of a strong cointegrating vector (Banerjee et al., 1993).

Looking first at equations in the price system, a strong disequilibrium response is evident in both the consumer expenditure deflator (CED) and the wholesale price (P) equations implying that prices will adjust quickly to shocks.[43]

$$\Delta \ln CED_t = \underset{(2.2)}{0.003} - \underset{(4.6)}{0.2} \left(\ln CED_{t-1} - \underset{(3.8)}{0.59} \ln PM_{t-2} - (1-0.59) \ln P_{t-1} \right)$$

$$+ \underset{(2.1)}{0.79} OG_{t-1} \qquad\qquad (D.3)$$

$$Rbar = 0.61 \quad LM(4) = 7.8 \quad SE = 0.005$$

$$\Delta \ln P_t = \underset{(1.3)}{-0.11} - \underset{(2.3)}{0.3} \left(\ln P_{t-1} - \underset{(6.8)}{0.83} \ln CED_{t-1} - (1-0.83) \ln PM_{t-1} \right)$$

$$+ \underset{(3.3)}{0.63} \Delta \ln P_{t-1} + \underset{(1.5)}{2.52} \Delta OG_{t-1} \qquad\qquad (D.4)$$

$$Rbar = 0.33 \quad LM(4) = 4.2 \quad SE = 0.012$$

where t-statistics are in parentheses,[44] PM is the price of imports, OG is the output gap, and static price homogeneity has been imposed on the long run cointegrating relation.

The CED impacts directly on domestic demand (DD) as well as on the price of exports (PX).[45]

$$\Delta \ln DD_t = \underset{(3.9)}{0.09} - \underset{(3.4)}{0.022} \left(\ln DD_{t-1} - \underset{(18.3)}{0.46} \ln EX_{t-1} \right) - 0.00047 LRR + 0.77 \Delta DD_{t-1}$$

$$\qquad\qquad (D.5)$$

$$Rbar = 0.87 \quad LM(4) = 8.9 \quad SE = 0.004$$

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[43] Estimation period for CED equation is 1997Q2 – 2003Q2; and 1997Q2 – 2004Q3 for the P equation.

[44] Diagnostics reported below each equation include adjusted R2 (Rbar), fourth order serial correlation (LM(4)), and the standard error of the regression (SE), respectively.

[45] Estimation sample for DD equation is 1984Q2 – 2002q2; and 1978q3 – 2003q3 for PX equation.

$$\Delta \ln PX_t = +0.07 - 0.06 \left(\ln PX_{t-1} - 0.5 \ln CPX_{t-1} - (1-0.5)\ln CED_{t-1} \right)$$
$$ \underset{(3..3)}{} \quad \underset{(3.4)}{} \quad \underset{(7.2)}{}$$

$$+ \underset{(10.7)}{0.5} \; \Delta \ln CED_t + (1-0.5)\Delta \ln PX_{t-1} \tag{D.6}$$

$$Rbar = 0.77 \quad LM(4) = 8.5 \quad SE = 0.02$$

where EX is total value of exports in domestic currency deflated by the CED to give an index of their impact on income, LRR is the long real interest rate, CPX is the export price of competitors (constructed with appropriate trade weights), and both static and dynamic homogeneity have been utilised in the PX equation. Rapid dynamic adjustment in the CED and P equations facilitate the adjustment of domestic demand and export prices leaving the economy relatively flexible in the face of shocks.

Chinese prices also feed directly into the trade volume equations, which also exhibit relatively rich dynamic adjustment.

$$\Delta \ln XVOL_t = \underset{(0.6)}{-0.06} - \underset{(3.1)}{0.06} \left(\ln XVOL_{t-1} + \underset{(9.2)}{1.9} \ln XPC_{t-1} - \ln S_{t-1} \right)$$

$$+ \underset{(2.6)}{0.74} \Delta \ln S_t - \underset{(5.5)}{0.48} \Delta XPC_t \tag{D.7}$$

$$Rbar = 0.41 \quad LM(4) = 5.8 \quad SE = 0.038$$

$$\Delta \ln MVOL_t = \underset{(4.7)}{-0.0} - \underset{(4.9)}{0.14} \left(\ln MVOL_{t-1} + \underset{(6.3)}{0.74}\ln RPM_{t-1} - \underset{(6.1)}{0.02}FDII_{t-1} - 1.24\ln TFE_{t-1} \right)$$

$$+ \underset{(5.7)}{2.4} \; \Delta \ln TFE_t - \underset{(2.2)}{0.24}\Delta RPM_t \tag{D.8}$$

$$Rbar = 0.68 \quad LM(4) = 11.9 \quad SE = 0.032$$

where XVOL and MVOL are export and import volumes, respectively, XPC is a ratio of domestic export prices to competitors domestic prices, S measures export market size (appropriately weighted by trade partner), RPM is the real price of imports, FDII measures the inward stock of foreign direct investment relative to GDP, and TFE represents domestic total final expenditure.