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China and Latin America

Economic relations in the twenty-first century

Rhys Jenkins / Enrique Dussel Peters (eds.)

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German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE)

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in cooperation with

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Abbreviations

AAGR	Average Annual Growth Rate
AD	Antidumping
ADM	Archer Daniels Midland Company
AMSDE	Mexican Association of Economic Secretaries
APEC	Asia-Pacific Economic Cooperation
AQSIQ	Administration of Quality, Supervision, Inspection and Quarantine of the People's Republic of China
ATC	Agreement on Textiles and Clothing
BCB	Brazilian Central Bank
BDI	Baltic Dry Index
CAEI	Argentine Center of International Studies
CAP	Corporación Andina de Fomento
CAFTA	United States-Dominican Republic-Central America Free Trade Agreement
CAMEX	Brazil's Chamber of Foreign Trade
CASRECH	Chamber of Minimarkets and Supermarkets owned by Chinese Residents of the Metropolitan Area of Buenos Aires
CCPIT	Chinese Consulate for the Promotion of International Trade
CECHIMEX	Center for Chinese-Mexican Studies
CEMA	Conveyor Equipment Manufacturers Association
CENIT	Centro de Investigaciones para la Transformación, Argentina (Center for Research on Transformation, Argentina)
CEP	Center of Production Studies
CEPAL	Comisión Económica para América Latina y el Caribe (Economic Commission for Latin America and the Caribbean)
CET	Common External Tariff
CICA	Argentinean Chamber for the Tanning Industry
CIF	Cost, Insurance and Freight
CIF	Código de Identificación Fiscal (Tax Identification Code)
CIMA	Argentinean Chamber of Leather Goods
CIPPEC	Centro de Implementación de Políticas Públicas para la Equidad el Crecimiento (Center for the Implementation of Public Policies Promoting Equity and Growth)

CMS	Constant Market Share
CNAE	Clasivicadión Nacional de Actividades Económicas (National Classification of Economic Activities)
CNCE	National Commission of International Trade
CORFO	The Chilean Development Agency
CuPIC	Partners Investment Company Ltd.
CVRD	Comphania Vale do Rio Doce
DR-CAFTA	Dominican Republic-Central America Free Trade Agreement
EAP	Economically Active Population
ECLAC	Economic Commission for Latin America and the Caribbean
EIU	Economist Intelligence Unit
ESI	Export-Similarity Index
ESRC	Economic and Social Research Council
EURE	Latin American Journal of Urban and Regional Studies
DIE	Deutsches Institut für Entwicklungspolitik
FDI	Foreign Direct Investment
FOB	Free on Board
FTA	Free Trade Agreement
FTAAP	Free Trade Area of the Asia Pacific
FUNCEX	Brazilian Foreign Trade Studies Foundation
GAN	Grupo de Alto Nivel China-México (High Level Group China-Mexico)
GATT	General Agreement on Tariffs and Trade
GDE	Global Demand Effect
GDP	Gross Domestic Product
GMM	Generalized Method of Moment
GRUMA	Grupo Maseca
GTAP	Global Trade Analysis Project
GVC	Global Value Chain
HTS	Harmonized Tariff System
IBGE	Instituto Brasileiro de Geografía e Estatística (Brazilian Institute of Geography and Statistics)
ICMS	Value Added Tax
ICTs	Information and Communication Technologies

IDB	Inter-American Development Bank
IMF	International Monetary Fund
IMSS	Mexican Institute of Social Security
INAI	Institute for Agricultural International Negotiations
INDEC	National Institute of Statistics and Census, Argentina
INEGI	Instituto Nacional de Estadística, Geografía e Información (National Institute of Statistics and Geography)
IPI	Industrial Products Tax
IRIAP	Institute of International Relations for Asia and the Pacific
ISI	Import Substitution Industrialization
ISIC	International Standard Industrial Classification
ITC	International Trade Commission
LAC	Latin America and the Caribbean
M&A	Merger and Acquisition
MCC	Metallurgical Group Corporation
MDIC	Ministry of Development, Industry and Trade
MERCOSUR	Mercado Común del Sur (Common Market of the South(
MES	Market Economy Status
MFA	Multi-Fiber Arrangement
MFN	Most Favored Nation
MOU	Memorandum of Understanding
NAFTA	North American Free Trade Agreement
NBTT	Net Barter Terms of Trade
NCM	MERCOSUR's version of the Harmonized System
NES	Not elsewhere specified
NGO	Non-governmental Organization
NOS	Not otherwise specified
NRI	National Registry of Investment
NTAX	Non-Traditional Export
OECD	Organisation for Economic Co-operation and Development
PC	Personal Computer
PPP	Purchasing Power Parity
R&D	Research & Development

RBC	Responsible Business Conduct
RCA	Revealed Comparative Advantage
ROW	Rest of the World
SAGyPA	Argentina’s Agricultural, Cattle and Fishing State Department
SDE	Structural Demand Effect
SE	Ministry of the Economy
SECEX	Ministry of Foreign Trade
SITC	Standard International Trade Classification
SME	Small and Medium Enterprise
SNBT	Swedish National Board of Trade
SSCs	Shared Services Centres
TFP	Total Factor Productivity
TIE	Temporary Import Entries
TNC	Transnational Corporation
TT	Terms of Trade
UBA	University of Buenos Aires
UNAM	Universidad Nacional Autónoma de México/National Autonomous University of Mexico
UNCTAD	United Nations Conference on Trade and Development
UNRISD	United Nations Research Institute for Social Development
USA	United States of America
USITC	United States International Trade Commission
UTDT	Instituto Torcuato Di Tella
VAT	Value Added Tax
VILLA	Victoria Institute for Links with Latin America
WDI	World Development Indicators
WIPO	World Intellectual Property Organization
WTA	World Trade Atlas
WTO	World Trade Organization

Introduction

Rhys Jenkins / Enrique Dussel Peters
Editors

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Introduction

Rhys Jenkins / Enrique Dussel Peters

1 China's re-emergence as a global economic power

China's rapid economic growth and increased openness has been one of the most significant developments in the global economy over the past quarter century and even since the beginning of capitalism in the 15th century. This re-emergence of China dates at least from the late 1970s when Deng Xiaoping began the process of reform and economic opening. It has led to China becoming the third largest economy in the world in terms of gross domestic product (GDP) at official exchange rates (and the second largest at purchasing power parity rates). The significance of China's development is being felt around the globe and there is much talk of the twenty first century being "the Asian century".

This book analyses the impact of China on Latin American economies and focuses specifically on the challenges which China poses for the region at the beginning of the 21st century. First, however, the spectacular economic performance of China will be briefly documented.[1] While Latin America entered a period of economic stagnation in the 1980s, China was starting a period of rapid economic growth.[2] In 1980 China's total GDP was only 14% of that of Latin America and the Caribbean but by 2007 it had risen to 93% of the total for the region in constant US dollars. Since 1980, the Chinese economy has grown at almost 10% p.a. and as a result per capita income has increased seven-fold.

Not only did China grow rapidly, but it also became a much more open economy. Between 1995 and 2005, Chinese exports grew by 18% p.a. in value terms and imports by 17% p.a. In the 1970s, before the start of the economic opening, trade as a share of GDP in China was less than 10%. By 2007 this had increased to over 40% (World Bank 2009). As a result, China's share of world trade has risen from less than 1% in 1980 to around

1 For more detailed accounts of China's growth since 1979, see Maddison (2007), Nolan (2004) and Naughton (2007).

2 Chinese GDP increased by an average of 9.9% p.a. in the 1980s while that of Latin America grew by 1.3% p.a. (Devlin / Estevadeordal / Rodríguez-Clare 2006, Table 1.1).

7%, making it the third largest trading economy. It has been predicted that it would become the world's largest exporter by the beginning of the next decade (OECD 2005) and probably much earlier as a result of the current global crisis.

The fact that China's export growth has been so spectacular has led to a growing trade surplus and accumulation of large foreign exchange reserves of over US$2.1 trillion and to China becoming a major purchaser of US treasury bonds. In recent years China has also been a major destination for foreign direct investment (FDI), accounting for around 6% of global FDI inflows between 2005 and 2007 (UNCTAD 2008). It is still of only marginal significance as a source of foreign investment, with less than 2% of world FDI outflows over the same period, although Chinese FDI is growing rapidly and a number of Chinese companies have become important global players, particularly in the extractive industries, but also increasingly in manufacturing in sectors such as electronics, autoparts and automobiles, among others. With levels below US$5 billion prior to 2005, Chinese FDI is expected to be around US$60 billion in 2009. Chinese outflows are also increasing through foreign acquisitions by China's sovereign wealth fund.

China's rapid growth is unprecedented, and it shows similarities with earlier growth episodes in Japan, South Korea and Taiwan. What is different about China is the dynamism it has exhibited for over three decades as well as the sheer size of its economy (Winters / Yusuf 2007, 9–10). This means that the heightened competitiveness of China and its increased presence in world markets is having a major impact on both developed and developing countries. It is estimated that China accounted for 12.8% of world economic growth between 1995 and 2004 and this is projected to rise to 15.8% for the period 2005–2020 (Winters / Yusuf 2007, Table 1.1). With the world recession, the importance of China as a source of global growth has taken on even greater meaning.

The impact of China's rapid industrial development has been particularly significant in terms of its increasing demand for primary products and it is now the world's leading consumer of many minerals and agricultural products. It accounts for around a third of world consumption of tin, coal, iron ore, steel and cotton and almost a quarter of world demand for soy oil, rubber, aluminum and copper (Winters / Yusuf 2007, Table 1.4). Looked at in terms of the contribution to the *increase* in world demand for these products, China's share is even greater.

The effects of the emergence of China are being felt around the world. In Europe and North America it is seen as a source of cheap manufactured goods and as a booming market for exports and investment. Other Asian countries are becoming increasingly integrated with China through the development of production networks which have created a regional division of labor and substantial intra-regional trade and investment flows. Africa has seen a rapid increase of Chinese presence, particularly in the extractive industries which have led to growing exports to China and significant inflows of Chinese investment, as well as increased aid from China to a number of African countries.

In all these cases – in Africa, Europe and the US – China's rapid integration into the world market is accompanied by varying responses: from debates on the new opportunities that China poses, to discussions about the competition and "threat" of China in their domestic markets and in third markets.

2 Growing relations between Latin America and China

Although it may not be as clear as in other parts of the developing world, Latin America has also felt the impact of China's emergence. A decade ago, trade was limited between China and the region; but this has changed significantly. China is now one of the top three trade partners for many Latin American countries. In 2007, over 5% of the region's exports went to China and more than 10% of imports were supplied by China (see Chapter 2, Tables 1 and 3). Chinese firms are also beginning to invest in Latin America and some Latin American companies have established operations in China; the best known example for this is the Brazilian aircraft manufacturer Embraer.

These growing economic links have been paralleled by closer diplomatic relations between Latin America and China. Until 1970 Cuba was the only Latin American country to recognize the People's Republic of China (PRC). Most South American countries and Mexico recognized the PRC between 1970 and 1980; however, the Central American countries, a number of Caribbean islands and Paraguay still maintain diplomatic relations with Taiwan. The latest country in the region to switch its recognition from Taiwan to the PRC was Costa Rica in 2007. It is expected that several Central American and Caribbean countries will follow with this path.

Over the last five years there have been intensified political exchanges between Latin America and China with Chinese President Hu Jintao visiting the region three times, in 2004, 2005 and 2008, while Latin American leaders have been frequent visitors to Beijing. In 2008 China published its first Policy Paper on relations with Latin America (Ministry of Foreign Affairs 2008). China has also increased its multilateral involvement in the region becoming a full member of the Inter-American Development Bank (IDB) in 2008.

Political and economic relations have come together in negotiations for free trade agreements between China and individual Latin American countries. The first of these was with Chile and came into force in 2006. An agreement was then signed with Peru in 2009 and one is currently under negotiation with Costa Rica. China is of course a member of Asia-Pacific Economic Cooperation (APEC) (to which Chile, Peru and Mexico also belong) and it has engaged in dialogues with Mercado Común del Sur (MERCOSUR) and the Andean Community.

3 Main themes in the debate

Up to now there have been relatively few academic studies on the implications of the growing involvement of China in Latin America as a whole. The principal studies on the economic dimensions of this phenomenon have been produced by international organizations; particularly the Economic Commission for Latin America and the Caribbean (ECLAC 2004, 2008), the Inter-American Development Bank (Devlin / Estevadeordal / Rodríguez-Clare 2006; Cesarín / Moneta 2005), OECD (Santiso 2007) and the World Bank (Lederman / Olarreaga / Perry 2008). Other studies include Roett / Paz (2008), Oropeza (2008), Ellis (2009) and Jenkins / Mesquita Moreira / Dussel Peters (2008). There have also been a few studies on individual Latin American countries' relations with China, most notably in Mexico (Dussel Peters 2005; Dussel Peters 2007; Dussel Peters / Trápaga 2007) and, to a lesser extent, Argentina (Cesarín 2006, Tramutola / Castro / Monat 2005).

The focus of this book is on the economic impact that China's increased global presence presents for Latin America. Although these effects clearly have political implications both within Latin America and for the region's international relations, they will not be addressed here. There are also social and environmental consequences of these economic changes and although these are touched on by some of the authors in this volume, again they are not the central line of argument.

The theme that has received most attention in the economic literature on China's impact on Latin America has been the effect of Chinese competition on the region's exports to third countries. This was the main preoccupation of 2 out of 5 Chapters in the IDB study, 3 out of 5 in the Organisation for Economic Co-operation and Development (OECD) collection and 3 out of 10 in the World Bank study. The dominant view presented by these international organizations is that, with the exception of Mexico, Latin American countries' exports are not likely to be particularly affected by Chinese competition because the structures of their exports are dissimilar. This contrasts with the perception of many business organizations in the region which see China as a major threat to their exports. The optimistic view of the limited extent to which Latin American countries are threatened by Chinese competition has also been challenged by some academic studies which suggest that the impact has been more pervasive and has increased over time as a result of China's accession to the World Trade Organization (WTO) and the phasing out of the Agreement on Textiles and Clothing (Dussel Peters 2005; Mesquita Moreira 2007; Jenkins 2008; Gallagher / Moreno-Bird / Porzecanski 2008). This issue requires much more detailed study of the region and of specific countries –with the respective policy recommendations- in the future.

Another major theme in the discussion of economic relations between China and Latin America has been the growing significance of China as a market for the region's exports. Over the last decade China's booming demand for primary commodities contributed significantly to the increase in Latin American exports. Some authors emphasize the complementarities between the Latin American and Chinese economies, and the beneficial effects of Chinese growth on Latin America in terms of improved terms of trade, increased export earnings and produced higher government revenues (Blázquez-Lidoy / Rodriguez / Santiso 2007; Lederman / Olarreaga / Perry 2008). While such benefits have undoubtedly been seen in the short-term, other commentators have raised concerns about the long-term implications, pointing to the "primarization" of the region's exports and their overall economic structure. These critics point to an overdependence on a narrow range of commodity exports (copper, iron ore, soybeans) and a possible return to a traditional centre-periphery trade pattern which has been criticized in the region since the 1940s (Prebisch 1950). These trends raise the possibility of deindustrialization in the region or of the increased difficulty for Latin American countries to move into dynamic industrial sectors in the future (Mesquita Moreira 2007; Phillips 2007; Lall / Weiss 2005).

A more recent phenomenon that has received less attention in the literature is the impact of the growth of Chinese exports to the region. This has been an important focus of political debate in many Latin American countries with domestic producers who face increased competition from imported Chinese goods calling for protection from "unfair" competition (Murphy / Swann / Drajem 2007). Several Latin American countries have imposed anti-dumping restrictions on a range of Chinese goods in response to these demands. On the other hand, there are those who stress the advantages of imports from China, both in terms of reducing the cost of living to consumers and in providing local manufacturers with cheaper industrial inputs and low cost machinery and equipment which help increase their competitiveness.[3]

Issues around Foreign Direct Investment (FDI) have also played an important role in the debate over economic relations between China and Latin America. When President Hu Jintao visited Latin America in 2004, there were great expectations that there would be massive inflows of Chinese investment to the region.[4] These investments have not materialized, leading to discouragement in the region. Recently even some of the flagship Chinese investments that were announced have been dropped; such as the

3 For example in Brazil see the contrasting stances of FIESP (Industrial Federation of the State of Sao Paulo) and CEBC (China-Brazil Business Council) on the impact of Chinese imports.

4 There is some controversy surrounding statements that were made by the Chinese President at the time and whether these expectations were the result of inadvertent mistranslation or were deliberately inflated by the media or the Latin American governments involved. Whatever the reason, large sums of future Chinese investment came to be expected in the region.

joint venture between Baosteel and Vale to produce steel in Brazil, and the FAW investment in a car plant in Mexico. This raises questions as to why Chinese investment in Latin America has been so limited up to now and what the prospects are for future FDI flows. Is the low level of FDI a result of obstacles posed by Latin American governments and the lack of a suitable investment climate? Or is it a consequence of Chinese strategies which, in certain high profile cases, have looked at means other than FDI to secure stable long-term supplies of key raw materials (such as loans in return for guaranteed supplies, as in the recent agreement with Petrobras in Brazil)? Similar considerations apply to the low level of FDI by Latin American firms in China. Are these a reflection of a lack of initiative by the region's firms or obstacles faced by firms wishing to invest in China? Unfortunately there is relatively little information available on these issues.

Another controversial issue is whether FDI from third countries has been diverted from Latin America to China as a result of the increased growth and global competitiveness of the latter. The previously mentioned studies by the Inter-American Development Bank, the OECD and the World Bank each devote a chapter to this issue (Devlin / Estevadeordal / Rodríguez-Clare 2006, Ch.III; Garcia-Herrero / Santabárbera 2007; Cravino / Ledermann / Olarreago 2008). It has also been the subject of several academic papers. While some authors believe that there has been a diversion of FDI from some Latin American countries –most notably Mexico to China- others are skeptical. One study has even found that increased investment in China has been associated with increased flows to the region, rather than a diversion away from it; implying that there is a complementarity between FDI flows to China and to Latin America (see Chapter 2 below for a fuller discussion of this issue).

In addition to the economic effects of China on Latin America, there has been a growing interest in the lessons that Latin America can learn from China's rapid economic development. To some extent this is a re-run of an earlier debate over the lessons that could be learnt in the region from the growth of the first generation of East Asian newly industrializing countries (South Korea, Taiwan, Hong Kong and Singapore), which took place in the 1980s and 1990s (Jenkins 1991).

For some authors, the Chinese experience provides a clear challenge to the Washington Consensus policies that have been applied in Latin America since the 1980s (Fernández Gilberto / Hogenboom [s. a.]; Paus [s. a.]). China is "the worst student getting the best marks" with a performance 10.9 times higher than Latin America in terms of GDP per capita for 1980-2007. It poses massive challenges for Latin America's political and economic elites, as well as for the development strategies implemented in most of the region since the 1980s (Dussel Peters s. a. a). China is seen as a developmental state with a clear long-term economic development strategy, which is not afraid to use industrial and trade policies in a strategic way to promote economic growth. The lesson that Latin America should draw from this is to use mechanisms and policies itself to allow for technological upgrading and long-term development goals. Free trade and/or macroeconomic stability alone are clearly not sufficient.

However, another interpretation sees China's success as the result of the liberalization of the economy that has taken place since 1979 (Lora 2005; OECD 2005). Although this process is still far from complete and needs to be continued further to resolve remaining imbalances, it is a vindication of the role of the market in economic development. On this view, the lessons for Latin America are to complete the process of economic reform, particularly in relation to the labor market, to privatize state-owned firms, and to intensify the deregulation process against different types of monopolies and quasi-monopolies.

Although these debates on the lessons that the Latin American countries should draw from the Chinese development experience are touched on in some of the contributions to this volume, the main focus is on the economic impact of China's growth on the region. No attempt is made to systematically analyze the causes of China's spectacular economic growth nor to compare its overall performance with that of the Latin American economies and to draw policy conclusions from such an analysis.

4 Contents of the book

Chapter 2 by Rhys Jenkins provides an overview of both the direct and indirect effects of China on 19 Latin American countries. Six different channels are identified through which these forms of impact have been felt: Latin American exports to China; the region's imports from China; bilateral FDI flows; competition from China in Latin American export markets; impact on FDI flows to Latin America from other countries; and the impact of China on global commodity prices. It is shown that these channels vary in importance between different countries of the region. Up to now the effects of trade have been much more significant than those of FDI, although it is possible that investment flows will become more significant in the future. It is also shown that the indirect effects of China's growth may be at least as important for the region as the direct effects that arise from bilateral relations between China and Latin America.

The remaining chapters of the book present case studies of four countries which are both highly relevant in terms of Latin America's relations with China and also represent contrasting experiences with respect to the level of importance of the main channels through which they have been affected by China's global expansion. Brazil is China's chief trade partner in Latin America. It is the largest exporter to China accounting for around two-fifths of the region's total exports and is the main destination for Chinese FDI in Latin America (excluding tax havens in the Caribbean such as the Cayman Islands and the British Virgin Islands). Mexico, on the other hand, is the region's largest importer from China. It is also the large Latin American economy which has been most affected by Chinese competition in the US market and where relocation of FDI to China has given rise to most concern. As a result, it is the Latin American country where tensions with China have been most acute, exacerbated recently by the outbreak of swine flu in Mexico and the reaction of the Chinese authorities who quarantined Mexican citizens.

Chile is the country in the region (apart from Cuba) with the best relationship with China. It recognized the People's Republic of China in 1970, even before the PRC was admitted to the United Nations. It was also the first country in the region to sign a Free Trade Agreement with China in 2006. It is the second largest exporter to China after Brazil and has benefited from the high world market price of copper, its major export, which has been driven partly by demand from China. Of all the Latin American countries covered by the Pew Global Attitudes Project, it reports the most favorable view of China among the public (Shambaugh 2009) Argentina in contrast has experienced growing tensions with China over the past couple of years. Although it is a major exporter to China, mainly of agricultural commodities in contrast to Chile, the government has been increasingly concerned about competition from Chinese imports and has taken steps to restrict their growth. Public attitudes towards China have become less favorable in the last couple of years and it now ranks, along with Mexico, as the country with the least positive view of China (Shambaugh, 2009).

In **Chapter 3**, Andrés Lopez and Daniela Ramos show that the main driver of Argentina's economic relations with China has been the growing Chinese demand for soybeans and their derivatives. Exports to China have made a significant contribution to the growth of foreign exchange earnings and to government revenues, as well as improving Argentina's terms of trade. However, these exports are concentrated in a few products supplied by a very small number of firms and there has not been any evidence of the export basket becoming more diversified over time. Imports have grown rapidly in recent years and the Argentine government has taken a number of protectionist measures in response. The authors provide some evidence that Chinese competition has had a negative impact on industrial employment in Argentina although this has been a major problem for only a few sectors. They also provide information on bilateral FDI flows and the major planned Chinese investments in Argentina.

Chapter 4, by Daniel Saslavsky and Ricardo Rozemberg, shows that Brazil's exports are dominated by iron ore and soybeans; with crude oil also becoming increasing in importance recently. As in Argentina, a relatively small number of companies dominate exports to China. Brazil too has enjoyed improved terms of trade partly as a result of the Chinese demand for its major export commodities. However, unlike Argentina, increased trade with China has not significantly contributed to government revenues. Imports have grown rapidly in recent years, leading to an increasing number of anti-dumping cases and some voluntary agreements by China to restrain exports to Brazil in sectors such as textiles and toys. The

Chapter also discusses the negative effects of Chinese competition on Brazilian exports to the USA and the EU. Finally Saslavsky and Rozemberg present information on FDI flows between the two countries while emphasizing that they have been on a relatively small scale up to now.

Chile's trade with China is dominated by copper exports as Jonathan Barton shows in **Chapter 5**. He argues that China's demand for copper has intensified dependence on this one product, based on natural resources, and exposed Chile even more to the vagaries of fluctuating international commodity prices. The import of clothing and footwear and electronic and electrical goods has surged in recent years. While the latter are not produced locally, the Chilean clothing and footwear industries have been affected by competition from Chinese imports. However, as Chile's manufacturing sector was in any case much smaller than in other Latin American countries, the overall economic impact of competition from Chinese imports was not as significant as in the other countries discussed in the book. Indeed because the Chilean economy is so open, in many cases Chinese goods have displaced imports, often from other Latin American countries, rather than domestic production.

In **Chapter 6**, Enrique Dussel Peters provides an overview of economic relations between China and Mexico. He highlights some of the statistical problems of analyzing this relationship, which arise from the very large discrepancies in data provided by the Mexican and Chinese authorities. Nevertheless it is clear that unlike the other three cases considered here, Mexico has consistently had a large deficit in its trade with China. Because of the significance of the US market for Mexico, the Chapter gives particular attention to the effects of Chinese competition in the USA. There is a high degree of similarity between the products exported by Mexico and China to the US and a tendency for unit values of exports from Mexico to fall in the sectors most affected by Chinese competition. The chapter also discusses the impact of Chinese competition on employment in Mexican manufacturing and presents detailed policy recommendations for improvement and with which to face the new dimensions of the bilateral relationship.

In addition to the mentioned analysis, and parallel to this book, one of the main contributions of this publication is the presentation of detailed information on the effects of China on Latin America and on each of the four countries discussed herein (Argentina, Brazil, Chile and Mexico). The results of this work are seven analyses on specific value-added chains and the impact of China: two on Mexico (on the electronics and autoparts-automobile segments), two on Argentina (on the soybean and leather chains), one on Chile (on the copper and textile chains), and two on Brazil (on mining and steel and electronics chains). The above can be downloaded from the webpage of the German Development Institute (http://www.die-gdi.de) and of the Center for Chinese Mexican Studies of the Department of Economics at the National Autonomous University of Mexico (http://www.economia.unam.mx/cechimex). We believe that these unique contributions are valuable for current knowledge on the socioeconomic effects of China on the region, and respective policy implications.

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The Latin American Case

Rhys Jenkins

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Introduction

This chapter provides an overview of the economic effects of China's growth and growing integration with the global economy on Latin America. While providing an overview of the impacts on the region as a whole, it is also important to bear in mind the heterogeneity of the region and to recognize the different effects on individual countries within Latin America. Where possible this is done by providing disaggregated data for 19 Latin American countries. Later chapters provide much more detailed accounts of the impact of China on four of these countries, where bilateral relations have been particularly significant, namely Argentina, Brazil, Chile and Mexico.

While China's growth has been seen by some as a benefit for Latin America – an "angel" not a "devil" in the words of one much quoted paper (Blázquez-Lidoy / Rodriguez / Santiso 2007) – there is today a growing skepticism over the impact of China in the region. Recently the International Herald Tribune reported that Colombian textile manufacturers have seen their exports drop as a result of stronger competition from China and the president of the National Foreign Trade Council in Washington is quoted as saying *"The least developed countries in Latin America are scared to death"* (Murphy / Swann / Drajem 2007).

The effects of the rise of China on Latin America are multiple and complex, making it necessary to approach them within a systematic framework. The focus here is on trade and foreign direct investment (FDI). Chinese aid to Latin America is relatively limited, particularly in comparison with Africa, and will not be discussed here.[1] Although there are reports of growing Chinese migration to the region, this too has yet to make a major impact.

1 One recent estimate of Chinese concessional loans and grants to different regions over the period 2002–2007 put it at less than a tenth of the level provided to Africa (Lam et al. 2009)

A number of different channels through which China's growth affects other countries can be identified. The most obvious ones are those that arise from the growth of bilateral economic relations with China. These include the rising significance of China as a market for Latin American exports, the increased penetration of the Latin American market by Chinese goods and the growth of bilateral FDI between China and the region. These are the *direct* forms of impact of China on the Latin American countries.

But these are not the only channels, or even necessarily the most important ones, through which China has an effect on Latin America. Because of its sheer size, the rapid growth of the Chinese economy has a global economic impact on world markets and prices, which also have an impact on the Latin American economies even where bilateral trade and investment relations are limited. Three of these *indirect* effects are likely to be particularly significant for Latin America. The first is the competition between China and Latin America in export markets (particularly in the United States) leading to a potential loss of market share for Latin American exporters. Second, there may be competition to attract inflows of foreign investment and the possibility that investment is diverted from Latin America to China. Finally, China's rapid growth may have an effect on the terms of trade of Latin American countries, particularly through the impact on the prices of primary commodities.[2]

This is not an exhaustive list of the possible effects of China on the global economy and thus indirectly on Latin America. It is widely recognized for example that the willingness of the Chinese government to buy US Treasury Bills has helped keep down US interest rates and, until recently, maintain the growth of the US economy in the face of rising trade and budget deficits. The continued significance of the state of the US economy for Latin America suggests that this is another indirect impact of China on the region. However, the impact of US interest rates and gross domestic product (GDP) growth on the Latin American economies will not be analyzed here.

2 China may also have an impact on Latin American countries' terms of trade through its impact on prices of manufactured goods, but this effect will not be discussed here.

In the literature on the impact of China's growth on developing countries a distinction is also often drawn between *competitive* and *complementary* effects (Shafaeddin 2004; Jenkins / Edwards 2006; Schmitz 2006; Kaplinsky / Messner 2008). Complementary effects are seen as positive for the countries affected while competitive effects are negative. There is no simple relationship between the different channels through which China affects the Latin American economies and the nature of its impact. The effects of the growth of imports from China may be competitive – as for example where local producers are displaced by cheap imports of Chinese consumer goods – or complementary when they are able to reduce costs through imports of low cost Chinese inputs. The effects may also differ from country to country so that booming Chinese demand for primary products has a positive impact on those countries which export these goods, but a negative impact on those that are net importers of such products. The impacts may also differ at a sub-national level between different regions, classes or groups. As a result, it is not possible to read off the impact of China on Latin American countries simply by identifying the channels through which they have been affected.

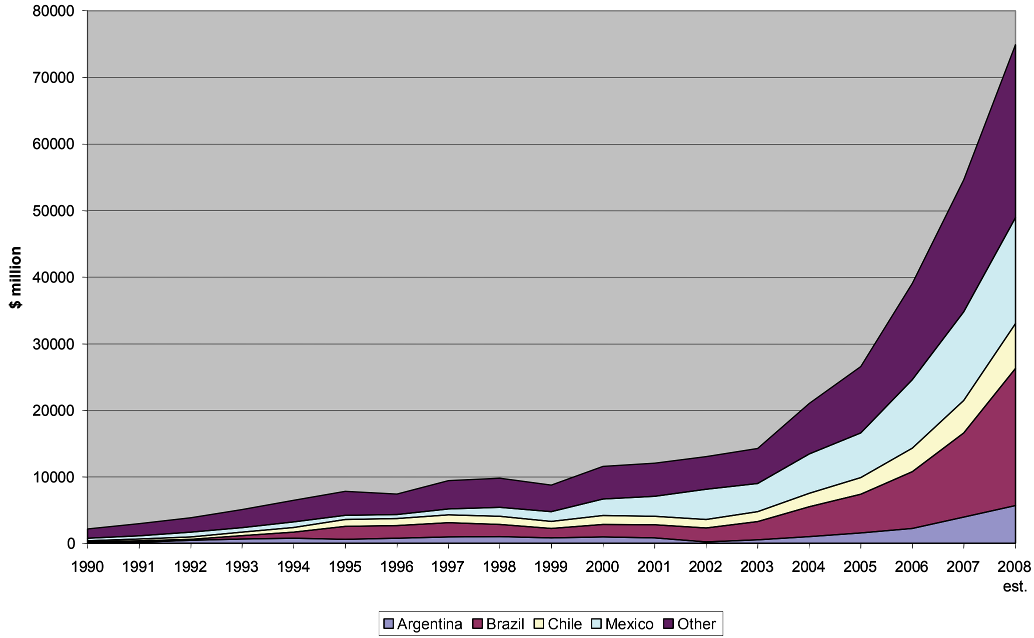
PART A: DIRECT EFFECTS

1 Latin American exports to China

As was seen in Chapter 1, Latin American exports to China have grown spectacularly in recent years. While trade with China was expanding during most of the 1990s, a sharp increase in Chinese imports from the region occurred after 1999 (see Figure 1).[3] A further inflection point occurred in 2002 when the growth of Chinese imports from the region accelerated further. Since this pattern holds for all the major Latin American countries

3 The data used covers 19 Latin American countries. Trade with Hong Kong is included as well as with Mainland China. This is justified since although the trade statistics of the two are presented separately in international statistics, Hong Kong reverted to Chinese rule in 1997. Moreover a lot of China's trade, particularly in the early years of its export growth, went through Hong Kong.

Figure 1: China and Hong Kong's Imports from Latin America, 1990–2008



Source: IMF, Direction of Trade Statistics exporting to China, it would seem that the explanation must be sought in events in China rather than developments in the various Latin American countries. One explanation is that resource constraints really began to bite in China at the end of the 1990s. This view is supported by the sharp increase in China's net trade deficit in a number of primary commodities which feature prominently in Latin America's exports such as copper, iron ore, nickel and soybeans as of the late 1990s (UNCTAD 2005, Fig. 2.8). Furthermore the accession of China to the World Trade Organization (WTO) in 2001 and the sharp rise in commodity prices from 2002 gave an additional boost to the region's exports.

However, not all Latin American countries have participated equally in the boom of exports to China. While China accounted for 5.4 % of the region's total exports in 2007, the shares for individual countries ranged from 1 % or less of total exports in Mexico, Ecuador, Paraguay and several Central American countries, to over 10 % in Chile, Costa Rica, Cuba and Peru (see Table 1). One obvious reason for this is that a number of countries, particularly those of Central America (apart from Costa Rica), continue to recognize Taiwan and therefore do not have diplomatic relations with the People's Republic of China. In contrast, the close political ties between Cuba and China and the fact that Cuba is excluded from its closest market, the USA, helps explain the high level of trade between the two countries.

In terms of the composition of exports to China, the region's role is clearly as a supplier of primary products and resource based manufactures with a relatively low degree of processing. The former account for almost two-thirds of Latin American exports in 2006 and the latter for a further fifth (see Table 2). The main products exported from the region to China in 2006 were copper ore and concentrates, soybean and soya oil, iron ore, crude oil, refined copper and fishmeal.[4]

4 The only significant exports of manufactured goods from the region to China are of integrated circuits which are largely accounted for by Intel in Costa Rica.

Table 1: Exports to China and Hong Kong as a share of total exports, 1995, 2001, 2007

	1995	2001	2007
Argentina	2.8 %	4.6 %	9.8 %
Bolivia	0.0 %	0.4 %	1.6 %
Brazil	3.5 %	4.0 %	7.7 %
Chile	2.3 %	5.7 %	14.9 %
Colombia	1.3 %	0.3 %	2.7 %
Costa Rica	2.0 %	0.3 %	17.1 %
Cuba	13.1 %	6.9 %	27.9 %
Dominican Republic	0.0 %	0.1 %	1.7 %
Ecuador	0.2 %	0.0 %	1.0 %
El Salvador	0.5 %	0.1 %	0.3 %
Guatemala	1.8 %	0.0 %	0.7 %
Honduras	0.0 %	0.1 %	0.3 %
Mexico	0.7 %	0.3 %	0.8 %
Nicaragua	0.3 %	0.0 %	0.0 %
Panama	1.0 %	1.2 %	6.5 %
Paraguay	0.8 %	2.3 %	0.7 %
Peru	7.3 %	6.4 %	12.9 %
Uruguay	8.2 %	6.2 %	6.8 %
Venezuela	0.0 %	0.2 %	3.2 %
Total	1.9 %	1.7 %	5.4 %

Source: Own elaboration from IMF, Direction of Trade Statistics

Latin American exports to China are much more heavily concentrated on primary products and resource based manufactures than the region's exports to the rest of the world, where primary products make up only a third of the total (Table 2). Also the trend over time has been for the share of primary products in Latin American exports to China to increase significantly, particularly at the expense of resource based manufactures.

Table 2: Composition of Latin American exports to China and the rest of the world, 1995, 2001, 2006 (% share)

	China			Rest of the world		
	1995	**2001**	**2006**	**1995**	**2001**	**2006**
Primary products	**35.0**	**56.5**	**62.5**	**30.5**	**25.4**	**33.9**
Manufactured goods	**65.0**	**43.5**	**37.5**	**67.9**	**73.5**	**64.9**
Resource based	43.3	21.4	22.8	21.8	16.5	18.3
Low technology	10.1	6.5	3.7	12.6	12.5	8.8
Medium technology	10.4	8.3	6.3	24.3	26.7	24.7
High technology	1.1	7.3	4.7	9.2	17.8	13.1
Other	**0.0**	**0.0**	**0.0**	**1.3**	**1.0**	**1.2**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Economic Commission for Latin America and the Caribbean

Studies of particular value chains show that China has promoted the development of its own processing industry and relied on imports to supply the basic raw materials. A clear example of this is in soybeans where China promoted its own crushing industry in the late 1990s virtually ending imports of soybean flour which were replaced by imports of unprocessed soybeans (see Lopez / Ramos, chapter 3, page 65–157). A similar situation exists in relation to the copper value chain where Chilean exports to China are concentrated in the early stages of the value chain and China has invested heavily in smelting and refining capacity (see Barton s. a.). Brazil's trade with China in the iron and steel value chain also show a tendency towards "primarization" with exports increasingly being of iron ore and pig iron as opposed to steel and steel products (Barbosa / Guimarães 2009).

Each Latin American country's exports to China depend heavily on one or two products. In Argentina soybeans and their derivatives account for the bulk of exports (see Lopez / Ramos, Table 11, page 88). In Chile around 80 % of exports are of copper (see Barton, Table 3, page 250); while in Brazil soybeans and iron ore exports dominate (see Saslavsky / Rozemberg, Table 8, page 177). The other major South American exporter to China, Peru, relies heavily on exports of copper and fishmeal. What is more, the trend has been for exports to become increasingly concentrated in a small number of products over recent years.

Not only are exports to China concentrated in terms of products, but also in terms of the firms involved. For example, five firms account for over 60 % of Chilean exports to China (see Barton, Table 2, page 240), while in Argentina the top ten firms make up more than 70 % of exports. Brazil's exports to China also appear to be similarly concentrated in a handful of large companies. The most extreme example in the region is probably Costa Rica where Intel is responsible for 85 % of the country's exports to China. This suggests that the benefits from exports to China may also be highly concentrated.

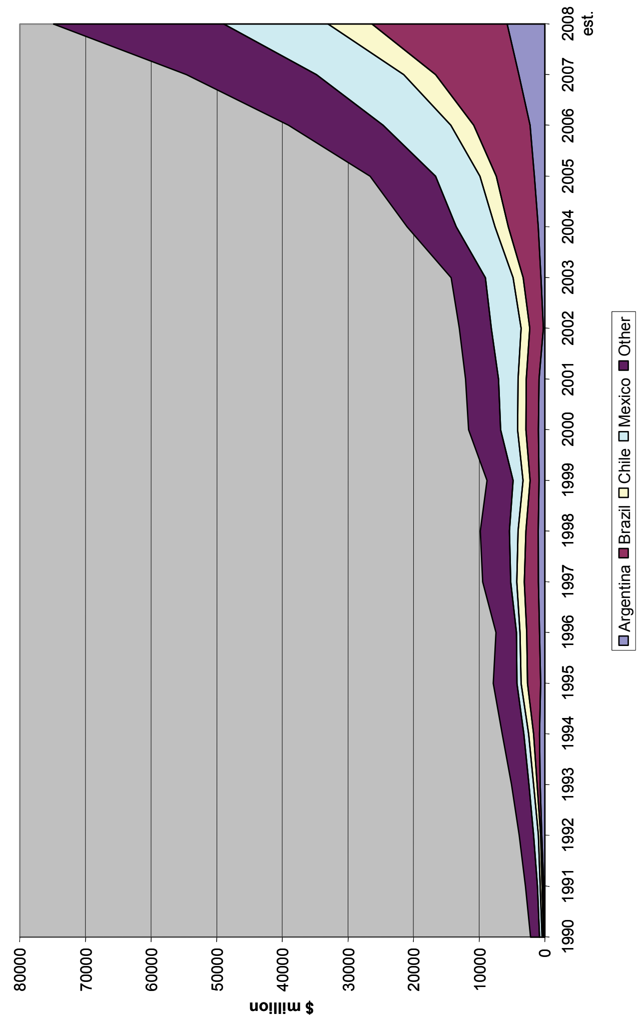
One way in which the benefits may be spread more widely is through government revenues from the export sector. The most obvious example is Chile where the copper sector accounted for more than a fifth of government revenue in 2006. China accounted for about an eighth of total Chilean copper exports (by volume) in that year, suggesting that it may have accounted for between 2 % and 3 % of total government revenue. Another example is that of soybean grain and oil exports from Argentina to China where it has been estimated that revenues from export duties ("retenciones") came to almost US$ 1,300 million in 2007, representing an almost eight-fold increase over five years (see Lopez / Ramos, Table 25, page 112). However, these examples are the exception rather than the rule and it is unlikely that other countries' exports to China have had such a significant impact on government revenues.

2 Latin American imports from China

Latin American imports from China have also grown significantly in recent years. Figure 2 shows that Chinese exports to the region grew gradually from the early 1990s (with slight dips in 1996 and 1999) until 2003, after which they accelerated markedly. This reflected the growing international competitiveness of China in an expanding range of manufactured goods and improved access to Latin American markets following China's accession to the WTO in late 2001.

China's share in total imports to Latin America increased more than five times from less than 2 % in 1995 to over 10 % in 2007. Table 3 shows the increasing share of imports from China in individual Latin American countries. Although the share of China varies between countries, the differences are not as marked as in the case of exports (see Table 3). Cuba is again the country with the highest share of trade with China, but it is closely followed by Argentina, Chile, Peru and Brazil. Although the Central American countries have below average shares of imports coming from Cuba, apart from Nicaragua, they are not negligible.

Figure 2: China and Hong Kong's exports to Latin America, 1990–2008



Source: IMF, Direction of Trade Statistics

Table 3: Imports from China and Hong Kong as a share of total imports, 1995, 2001, 2007

	1995	**2001**	**2007**
Argentina	3.5 %	5.5 %	12.1 %
Bolivia	1.1 %	5.1 %	3.7 %
Brazil	3.0 %	3.0 %	11.0 %
Chile	3.2 %	5.8 %	11.3 %
Colombia	0.7 %	4.0 %	10.4 %
Costa Rica	1.2 %	1.8 %	5.4 %
Cuba	6.3 %	10.6 %	13.4 %
Dominican Republic	0.0 %	1.5 %	4.2 %
Ecuador	0.0 %	0.0 %	8.0 %
El Salvador	0.9 %	1.6 %	6.0 %
Guatemala	0.8 %	2.7 %	7.4 %
Honduras	0.0 %	1.1 %	3.7 %
Mexico	0.9 %	2.6 %	10.7 %
Nicaragua	2.1 %	0.0 %	0.0 %
Panama	1.1 %	1.3 %	6.1 %
Paraguay	4.4 %	11.6 %	10.5 %
Peru	2.8 %	5.3 %	11.2 %
Uruguay	2.5 %	4.8 %	9.7 %
Venezuela	0.6 %	2.4 %	7.5 %
Total 19	1.9 %	3.1 %	10.1 %

Source: Own elaboration from IMF, Direction of Trade Statistics

In terms of the type of goods imported from China, the pattern is the reverse of that noted for Latin American exports to China. Almost all Latin American imports from China in 2006 were manufactured goods and over 90 % were non-resource based manufactures (see Table 4). Contrary to some popular perceptions, imports from China are not predominantly of low tech goods which account for just over a fifth of the total by 2006. While over a quarter are made up of medium-technology goods, more than two-fifths of imports from China were high technology goods.[5] Since 2001, the share of high-tech imports from China has been increasing while that of low-tech products has tended to fall (see Table 4).

Table 4: Composition of Latin American imports from China and the rest of the world, 1995, 2001, 2006 (% share)

		China			Rest of the World	
	1995	**2001**	**2006**	**1995**	**2001**	**2006**
Primary products	**26.5**	**3.0**	**1.0**	**9.0**	**8.6**	**9.0**
Manufactured goods	**70.5**	**96.3**	**97.5**	**87.3**	**90.0**	**89.6**
Resource based	27.0	9.8	6.9	17.6	15.8	17.4
Low technology	7.7	34.4	22.0	14.4	15.0	13.3
Medium technology	24.2	25.4	26.3	38.7	37.0	36.9
High technology	11.5	26.7	42.3	16.6	22.2	21.9
Other	**2.8**	**0.7**	**1.5**	**3.5**	**1.4**	**1.5**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: Economic Commission for Latin America and the Caribbean

The rise in imports from China has, in the past few years, become a matter of growing concern in a number of Latin American countries. From the point of view of consumers, the increased availability of low cost Chinese goods has been a benefit, despite concerns over quality and safety standards for some products. The focus of recent concern has been the impact of Chinese competition on local producers and whether they are being displaced by cheaper Chinese imports.

There have been no detailed studies of this issue for Latin America up to now. Anecdotal evidence, however, suggests that in the early stages of the growth of Chinese exports to the region the impact was felt mainly by other exporting countries, but that more recently domestic producers have

5 These are based on Lall's classification of goods according to technology level (Lall 2000). A limitation of this approach to classification is that it is unable to identify high technology goods which have only been assembled in China and where the true technology content is produced elsewhere. It may therefore exaggerate the extent to which imports from China effectively embody technology.

started to be affected. This appears to have been the case in Brazil where industrialists only began to realize the size of the challenge from China in 2005 (Jenkins et al. 2008). In other Latin American countries too, there have been increasing complaints from local manufacturers about the impact of Chinese imports (Murphy / Swann / Drajem 2007).

As two of the most industrialized countries in Latin America, domestic manufacturers in Brazil and Argentina could be among the most seriously affected in the region. In order to assess the possible impact of Chinese competition, data was collected on the share of imports from China and from the rest of the world in domestic demand in the two countries in the period up to 2006. In aggregate as imports from China supplied only 2.5 % of total Argentine demand for manufactures in 2006, compared to 23.2 % met by imports from other countries.[6] The comparable figures for Brazil were 1.7 % and 15.0 % in the same year.[7] This suggests that at the level of the manufacturing sector as a whole, the impact of China is quite marginal in both countries.

At a more disaggregated level it is possible to detect more significant effects. Table 5 identifies those industries where China's share of the Argentine market increased by more than five percentage points between 2001 and 2006. Of the seven industries included, the share of domestic producers fell in six of them.[8] Of these six, the share of imports from the rest of the world also fell in half of them, indicating that Chinese competition partly displaced imports from other countries. In the case of Motorbikes, Bikes etc. (359), the bulk of the impact was felt by other exporting countries. In addition, despite a significant increase in the market share of Chinese imports in TV, Radio and VCRs (323), the rapid growth of demand for these products meant that production in Argentina increased over the period. This leaves four industries where competition from China could be regarded as having had a negative impact on domestic production, which contracted between 2001 and 2006 (300, 32A, 361B, 369). Thus although, in aggregate, increased imports from China have not had a major negative impact on domestic producers, they have presented a problem in certain sectors.

6 Own calculation based on data from Centro de Estudios y Publicaciones (CEP) and Instituto Nacional de Estadística y Censos (INDEC).

7 Own calculation based on data from Instituto Brasileiro de Geografia e Estatística (IBGE).

8 The exception was Electric Motors, Generators and Transformers (31A).

Table 5: Argentine industries in which the share of Chinese imports in domestic demand increased by >5 %, 2001–2006

		% Change in share of domestic demand			
Code	**Industry**	**China**	**Rest of world**	**Domestic production**	**Growth of production**
300	Manufacture of office, accounting and computing machinery	24.1	-13.0	-11.1	-49.9
31A	Manufacture of electric motors, generators and transformers	5.0	-8.6	3.6	86.7
31B	Manufacture of accumulators, cells and batteries, electric lamps and lighting equipment	12.6	5.0	-17.6	-10.6
323	Manufacture of television and radio receivers, sound or video recording or playback apparatus	21.6	-9.2	-12.4	87.2
32A	Manufacture of electronic valves and tubes and other electronic components, and of television and radio transmitters and telephone apparatus	6.2	1.7	-7.9	-28.3
359	Manufacture of transport equipment n.e.c.	29.4	-24.5	-4.9	152.8
369	Manufacturing n.e.c.	10.1	8.2	-18.3	4.5

Source: Own elaboration based on data from CEP and INDEC

Table 6 identifies those Brazilian industries which have seen the largest increase in the share of Chinese goods in local consumption.[9] The market share of Brazilian producers fell in five of the six industries. The exception was office equipment where the increase in China's market share was entirely at the expense of other exporters. Of the five industries in which Brazilian producers lost a significant share of the market to China, local production still increased over the period in three of them. Thus there were only two industries (315 and 321) where Chinese competition could be seen as having led to a decline in domestic production.

Table 6: Brazilian industries in which the share of Chinese imports in domestic demand increased by >10 %, 1998–2006

		% Change in share of domestic demand			
Code	**Industry**	**China**	**Rest of world**	**Domestic production**	**Growth of production**
192	Travel goods and other leather products	18.6 %	-1.4 %	-17.2 %	16.9 %
301	Office equipment	24.4 %	-29.5 %	5.1 %	-10.5 %
314	Batteries and accumulators	13.4 %	-3.0 %	-10.3 %	31.6 %
315	Lamps and lighting	14.6 %	12.7 %	-27.3 %	-30.3 %
321	Basic electronic materials	11.3 %	14.4 %	-25.6 %	-29.5 %
334	Optical and photographic equipment	24.0 %	0.9 %	-24.9 %	28.5 %

Source: Own elaboration based on data from IBGE

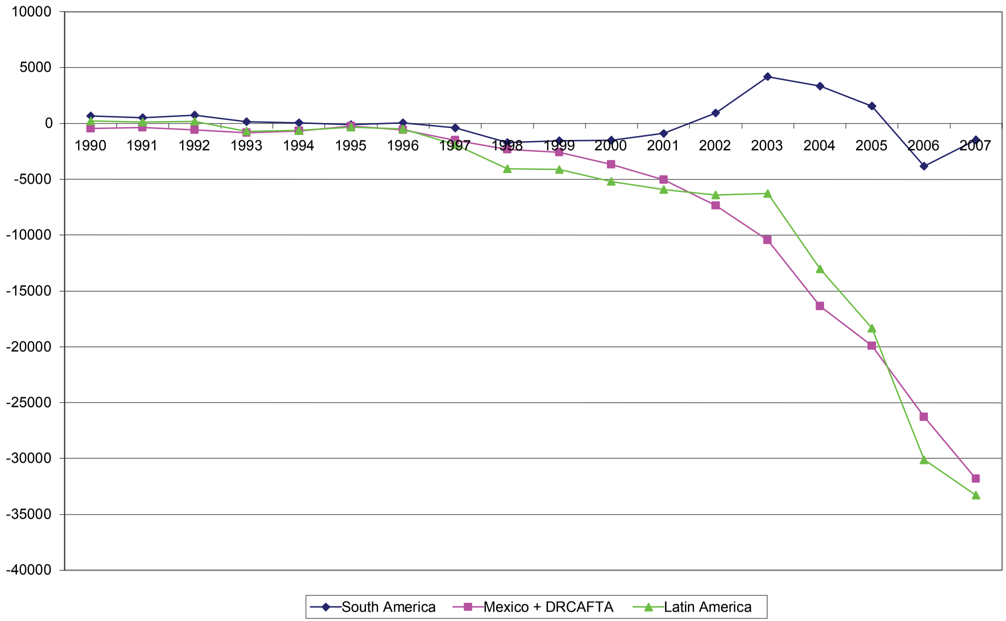
Given the alarm that Chinese competition has caused among local manufacturers in Latin America recently, these findings are perhaps a little sur-

9 In this case we only show those industries in which the market share of China increased by 10 % (as opposed to an increase of 5 % in Argentina). This was because of the longer time period covered and the more disaggregated data used. A total of 14 Brazilian industries showed an increase of over 5 % in the market share of Chinese imports over this period.

prising. However, there are a number of reasons why they may underestimate the effects of Chinese competition. First, the period covered is only up to 2006 and Chinese competition has become more intense since then. Second, the level of aggregation of the data is still relatively high so that the industries considered are quite broad. Individual firms, however, face competition in specific products and so may be more affected than industry level data suggests. Finally, the estimates provided here are based on data for legal imports and do not take into account any illegal imports from China. These are by definition very difficult to obtain information on. The estimates that do exist often come from local producers, who may have an interest in exaggerating the extent of such contraband. In the case of Mexico for instance, it has been estimated that up to 65 % of domestically sold textiles and clothing are imported illegally, and as much as 80 % of watering cans, many of them from China (see Dussel Peters, Chapter 6, page 279–393). In Brazil, the textile and clothing trade association estimated losses of US$ 60 million in 2006 as a result of illegal imports from China (Paraguassu 2007). If systematic data were available on these imports, then the impact of China on domestic producers might be somewhat greater than suggested by the estimates provided here.

The rapid expansion of imports from China since 2003 has had a major impact on the trade balance between Latin America and China. Figure 3 shows that South America, which had a growing trade surplus with China in the early years of the twenty-first century as a result of the export boom in primary commodities, has seen these surpluses shrink rapidly and turn into a deficit in their bilateral trade with China in 2006 and 2007. When the trade deficit of Mexico and (less significantly) the Dominican Republic-Central America Free Trade Agreement (DR-CAFTA) countries are added, then the picture is one of a rapidly increasing deficit in trade with China. The fall in commodity prices is likely to increase this deficit further in subsequent years.

Figure 3: Latin America's trade balance with China, 1990–2007 (US$ mn)



Source: own elaboration based on IMF, Direction of Trade Statistics

3 Foreign direct investment

Despite the high expectations of large inflows of foreign direct investment (FDI) from China in the region, the most striking feature of bilateral investment flows is their relatively modest level up to now. If one ignores FDI flows between China and Caribbean tax havens such as the British Virgin Islands and the Cayman Islands, the role of FDI is not nearly as significant as that of trade in bilateral relations. In 2007, Chinese FDI flows to the region were just over US$ 300 million (see Table 7). Although this was a three-fold increase over the previous year, it still only represented around 1 % of worldwide Chinese FDI. The stock of Chinese investment in Latin America reached over US$ 1 billion in 2007.

Somewhat surprisingly in view of the expectations of large inflows of Chinese investment into the region, Latin American FDI flows to China were greater than the flows in the opposite direction before 2007, running at over US$ 100 million per year. However, the level of investment fell in 2007 and in any event had only accounted for about 0.2 % of total FDI inflows to China. Thus bilateral investment flows in 2007 came to around US$ 400 million which compares with total trade flows in that year of around US$ 100 billion.

Geographically, Chinese FDI in the region has gone mainly to Argentina, Brazil, Mexico, Peru and Venezuela, which between them account for three-quarters of the total stock at the end of 2007. Much of this investment is of the "resource seeking" variety focusing on oil and minerals, as is suggested by the significant investments in Peru, Venezuela and Ecuador. There has also been some Chinese investment in manufacturing for example in textiles and electronics in Mexico (see Dussel Peters, Chapter 6, page 279–393) and in consumer electronics and telecommunications in Brazil (see Saslavsky / Rozemberg, Chapter 4, page 159–226).

Table 7: FDI flows between China and Latin America, 2006 and 2007 (US$ mn)

	Latin America FDI in China			Chinese FDI in LA		
	2006	2007	2002–2007	2006	2007	2007
	Flow	Flow	Cumulative Flow	Flow	Flow	Stock
Argentina	6.86	11.13	88.87	6.22	136.69	157.19
Bolivia	3.06	1.29	16.3	18	1.97	23.03
Brazil	55.6	31.64	174.62	10.09	51.13	189.55
Chile	5.6	7.19	42.44	6.58	3.83	56.8
Colombia	0.35	0.05	0.97	-3.36	0.22	6.77
Costa Rica	0.1	0	6.7			
Cuba	2.8	0.63	18.8	30.37	6.58	66.49
Dominican Republic	1.64	1.82	17.19			
Ecuador	0.1	1	2.76	2.46	3.58	49.18
El Salvador	0.2	0	0.37			
Guatemala	1.6	1.16	2.63			
Honduras	1.31	1.68	13.03		-4.38	0.9
Mexico	12.34	5.66	59.25	-3.69	17.16	151.44
Panama	59.56	25.8	243.48		8.33	55.31
Paraguay	1.58	0.58	13.55			
Peru	0.73	5.27	15.85	5.4	6.71	137.11
Uruguay	0.13	0.1	1.27		0.48	2.11
Venezuela	0.98	2.09	9.14	18.36	69.53	143.88
Total	154.54	97.09	727.22	90.43	301.83	1039.76

Source: Outward Investment, 2007, Statistical Bulletin of China's Outward Foreign Direct Investment; Inward Investment, China Statistical Yearbook, various years

Latin American FDI in China is equally limited. Among the major Latin American countries, Brazil has been the most significant investor[10] with an accumulated investment of US$ 175 million between 2002 and 2007, followed by Argentina (US$ 89 million), Mexico (US$ 59 million) and Chile (US$ 42 million) (see Table 7). As the country chapters in this book show, only a few companies from the region have so far ventured into China through investment in productive activities.

10 Table 7 shows Panama as having the largest stock of FDI in China among the countries listed. However Panama is a well known tax haven and it is therefore likely that a significant part of the recorded FDI involves "round-tripping" by Chinese investors who want to take advantage of the tax advantages offered to foreign investors in China. For a discussion of "round-tripping" see Geng (2004)

PART B: INDIRECT EFFECTS

Two of the main concerns in Latin America about the growing economic significance of China arise not from the direct effects of bilateral economic relations with China but from the indirect effects on the region's relations with third countries. In the case of trade, some countries see China as a serious competitive threat to their exports, particularly to developed country markets; while in terms of FDI there is concern that investment has been diverted from Latin America to China. This part will examine each of these threats in turn. A third indirect impact of China is on world commodity prices, which has a positive effect on those countries which are major exporters of these commodities. The third part of this section will estimate the extent to which the region may have benefited from this aspect of the "China effect".

4 Competition in export markets[11]

The potential threat of China to Latin America's exports to third markets has been one of the most widely studied aspects of the impact of China on the region. Previous studies which have compared Latin America with other regions have found that, apart from Mexico, the countries of the region are less threatened by Chinese exports to third markets than are the Asian economies or the transition economies of Eastern Europe (Blazquez-Lidoy / Rodriguez / Santiso 2007; IDB 2006, Ch. 5; Meller / Contreras 2003). The optimistic view, as expressed in a recent World Bank report, is that *"there is come evidence of substitutability between LAC exports and Chinese exports within industries, but these effects are limited to a few countries (mainly Mexico and to a minor extent, Central America) and a few manufacturing sectors"* (Lederman / Olarreaga / Perry 2006, 26). It is also argued that over time *"LACs trade specialization pattern is becoming more complementary to the specialization pattern of China"* (Lederman / Olarreaga / Rubiano 2006, 17).

However, there are reasons for believing that the threat to Latin American exports is more significant than this optimistic view would suggest. China's accession to the WTO in 2001 and subsequently the phasing out,

11 This section is based on Jenkins (2008b).

and final elimination on 1 January 2005, of import quotas for textiles and garments under the WTO Agreement on Textiles and Clothing (ATC) meant a significant increase in competition from China in developed country markets. Also in terms of the countries affected, these are by no means restricted to Mexico. The Central American countries are also likely to have been negatively affected because they have specialized in exports of labor-intensive manufactures.

Most previous studies of the impact of China on Latin American exports have used various types of indices to estimate the similarity between the export structure of China and that of the different Latin American countries as a way of identifying the potential threat that China poses.[12] Here, however, we attempt to estimate the extent to which Latin American countries have lost market share in the United States to China in recent years. Thus, rather than looking at the potential threat in the future, we will estimate the actual impact that China has had on Latin American exports in the recent past.

The methodology used to estimate the loss of market share to China is an extension of the Constant Market Share (CMS) analysis developed by Chami Batista (2008). The gains (losses) of market shares between countries are related to their relative growth rates. In other words, countries gain from those countries whose exports are growing more slowly and lose to those that are growing faster than their own.[13]

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12 For a fuller discussion of these studies and a critique of their methodology, see Jenkins (2008a).

13 The loss of market share by a country (H) to China (C), in a particular product i is defined as:

$$\Delta kHci = \Delta kHi{*}k^{t}Ci - \Delta kCi{*}k^{t}Hi \qquad (1)$$

where: kHi is the share of country H in total imports of good i by the destination market
kCi is the share of China in total imports of good i by the destination market
Superscript t represents the initial year of the period.

Summing over all products gives the aggregate loss of market share to China:

$$\Sigma\Delta kHci = \Sigma\Delta kHi{*}k^{t}Ci - \Sigma\Delta kCi{*}k^{t}Hi \qquad (2)$$

Although this provides a useful way of attributing losses of market share between countries, one should note that the decomposition is based on accounting identities and should therefore be careful in making any causal inferences from it. For a fuller discussion of the methodology used, see Jenkins (2008b).

This approach was used to estimate the loss of market share by Latin American countries to China. The analysis presented here focuses on the US since this has been the most significant market in terms of competition between China and Latin America. The data comes from the US International Trade Commission (ITC) (http://dataweb.usitc.gov/) and covers imports from 18 countries in the region and from China and Hong Kong. Product data at the 5-digit level of the Standard International Trade Classification (SITC) (Rev.3) was used. It was important to have a high level of disaggregation in order to ensure that the products being compared were close substitutes for each other.

The data was collected for four key years, 1996, 2001, 2004 and 2006. 1996 represents the situation some time before China became a member of the WTO. 2001 is immediately prior to WTO accession in December 2001. 2004 is the last year before the final removal of quotas on textiles and garments on 1 January 2005[14], and 2006 is the latest year for which data was available. The use of these four years makes it possible to analyze how competition between China and Latin America has evolved over time in response to these changes in the trade regime.

The first point that stands out from Table 8 is the sharply increased impact of China on Latin American exports to the US in the period since it became a WTO member. Whereas between 1996 and 2001 the aggregate effect on the region as a whole amounted to US$ 1.3 billion (1 % of 1996 exports), over the next five years, the impact came to over US$ 18 billion (9.3 % of exports in 2001). This supports the view that far from decreasing over time, the impact of Chinese competition on Latin America has been on the increase.

Looking at the experience of individual countries, it can be seen that only two countries (Nicaragua and Peru) have not lost exports to the US to Chinese competition over the whole period 1996–2006. As well as Nicaragua, several other Central American countries (El Salvador, Guatemala and Honduras) were able to gain market share from China in the period before the latter became a WTO member. However, in all three countries, the gains were more than offset by losses after China joined WTO. These losses were particularly concentrated in the period after 2004 when even Nicaragua lost exports to China.

14 Although it should be noted that subsequently the US imposed new restrictions on Chinese textile and clothing imports

Table 8: Loss of exports to the US to China, 1996–2001, 2001–2006, 2004–2006 (as % of country's total exports to the US)

	1996–2001	2001–2006	2004–2006
Argentina	-1.8 %	-5.1 %	-1.6 %
Bolivia	-10.4 %	1.6 %	-1.3 %
Brazil	-4.1 %	-7.7 %	-3.3 %
Chile	-1.3 %	-3.0 %	-1.3 %
Colombia	-0.5 %	-2.3 %	-1.7 %
Costa Rica	-1.3 %	-7.8 %	-1.6 %
Dominican Rep	-2.4 %	-13.0 %	-6.1 %
Ecuador	-1.0 %	-1.1 %	0.0 %
El Salvador	6.5 %	-12.3 %	-10.5 %
Guatemala	6.2 %	-10.5 %	-8.7 %
Honduras	3.8 %	-7.7 %	-6.0 %
Mexico	-1.1 %	-11.4 %	-4.5 %
Nicaragua	6.4 %	2.3 %	-0.8 %
Panama	-2.4 %	-2.4 %	-1.1 %
Paraguay	-6.9 %	-5.7 %	-5.5 %
Peru	2.0 %	0.5 %	-1.4 %
Uruguay	-5.8 %	-9.3 %	-1.6 %
Venezuela	0.0 %	-0.7 %	-0.5 %
Latin America	-1.0 %	-9.3 %	-3.8 %

Source: Own elaboration from USITC data (United States International Trade Commission)

In the period from 1996–2001, the most severely affected countries were Bolivia, Paraguay, and Uruguay whose estimated losses to China represented more than 5 % of their total exports to the US. Between 2001 and 2006, those worst hit were the Dominican Republic, El Salvador, Mexico and Guatemala, all of which lost over 10 %. As might be expected, between 2004 and 2006, the countries which lost most in the aftermath of the phasing out of the ATC were the Dominican Republic and the Central American countries which rely heavily on textile and clothing exports to the US. The countries which have been least affected in the post 2001 period have been the Andean group countries whose exports to the US are mainly of minerals and oil and have therefore not faced significant Chinese competition.

Of the countries covered in detail in later chapters of this book, Mexico is the one which has been most affected by Chinese competition in the US market, and this is explored in more detail, with a particular emphasis on the electronics industry, in the chapter by Dussel Peters. In a companion piece on the personal computer (PC) industry in the state of Jalisco in Mexico, Dussel Peters (s. a.) describes how between 2001 and 2003 many of the leading producers of personal computers, laptops and peripherals, such as IBM, Hewlett Packard, Solectron and Jabil, transferred their production lines to Asia; particularly China. Mexico's share of US imports of PCs fell by half from 14 % in 2001 to under 7 % in 2006, while China's share more than tripled form 14 % to 45 % over the same period. As a result it has been estimated that more than 45,000 jobs were lost in the Jalisco electronics industry between 2001 and 2003. There is only one firm still producing PCs in the state today.

This led to a major restructuring of the electronics industry in Jalisco. While China specializes in mass produced PCs, Mexico and Jalisco are increasingly specializing in the final configuration of products and in high value segments that require rapid delivery. Thus Mexico is concentrating on those products and processes where it derives a competitive advantage from proximity to consumers and suppliers in the US. Whether this strategy proves to be sustainable in the longer term remains to be seen, but it has helped Jalisco recover somewhat from the impact of the crisis of 2001–2003.

While the main effect of Chinese competition in third markets for Mexico is to be seen in the US, for some of the South American economies, with more diversified trade patterns, the impacts on exports to the European Union and on intra-regional trade may also be significant. In the chapter on Brazil, Saslavsky and Rozemberg report that the country has been negatively affected by Chinese competition in the EU market as well as the US. There is also some evidence that Brazil is losing markets to China in the regional market. Sica (2007) reports that Brazilian exports to Argentina have been affected by Chinese competition. In a study of the consumer electronics sector, Barbosa and Guimarães (s. a. b) find that Brazil faces increasing competition from China in its Latin American export markets.

5 The impact of China on FDI flows to Latin America

The second indirect effect of China's growth on Latin America arises from the impact on global FDI flows. This could give rise to a competitive effect if the increased attraction of China as a host for foreign investors led to reduced FDI flows to Latin America and the Caribbean. On the other hand, there may be positive effects where FDI in China involves the development of global production networks and hence is complementary to investment flows to other countries as has been argued in the case of East Asia (Chantasasawat et al. 2004).

Compared to the literature on trade, there have been relatively few studies of the effects of China on investment flows to other countries, particularly to Latin America. The *prima facie* case that the growth of China has led to a diversion of FDI from Latin America is based on the observation that inflows to China grew rapidly in the 1990s while investment in Latin America and the Caribbean lagged behind. Cravino / Ledermann / Olarreaga (2006a) point out, however, that the lag was mainly during the period 1990–1997, and that since 1997 Latin America has performed rather well relative to China in attracting FDI. In any case any such correlation does not necessarily indicate a causal relationship.

There are a number of *a priori* reasons for being skeptical about the view that FDI has been diverted from Latin America to China. First, the nature of FDI in Latin America in general is not such that diversion is highly likely. In discussing foreign investment it is usual to distinguish between different types of FDI according to their motivation – natural resource seeking; market seeking; efficiency seeking. Diversion is most likely to occur in the last of these where FDI can reinforce changes in trade patterns as firms relocate to lower cost countries. It is less likely where investment is primarily resource seeking since these depend on the existence of natural resources and are much less footloose. Market seeking investments occupy an intermediate position where investors may consider the relative attractiveness of different markets in terms of their size and growth. Although a significant part of FDI to China can be regarded as efficiency seeking, this is less important in Latin America and the Caribbean where natural resource and market seeking FDI have dominated (CEPAL 2004, Table I.6)

Second, the scale of FDI in China also limits the likelihood of major impacts on Latin America. Despite the rapid growth of inward investment from the early 1990s, China only accounts for about 6 % of world FDI inflows. In aggregate therefore, even if there were some diversion to China, the effects on the availability of foreign capital for other regions such as Latin America and the Caribbean is likely to be limited. However, if capital markets are imperfect, there may be significant effects on flows in individual sectors and for particular countries (IDB 2006, Ch. 6).

A third factor that suggests that diversion to China is not likely to have been very significant in terms of aggregate flows to Latin America is the different structure of FDI in terms of origin and sector. Investment in the region comes mainly from the US and the European Union, while FDI in China is mainly from East Asia. Similarly the sectoral distribution of FDI is also different. US FDI in China is mainly in manufacturing while other sectors dominate in Latin America (IDB 2006 Ch. 6).

These *a priori* considerations make it unlikely that diversion of FDI to China would be a major problem for Latin America as a whole. However, the situation does vary between countries and sectors and it is quite possible that there may be impacts at a more disaggregated level. A clear example mentioned above was the PC industry in the state of Jalisco, Mexico, where major foreign investors relocated to China. There is a clear link here between competition in export markets and diversion of investment in that what appears in the trade data as a loss of market share by Mexico to China is driven by the decisions of major transnational corporations to invest in China rather than Mexico. Thus FDI diversion is more likely to arise in countries which have attracted efficiency seeking investment and those sectors, particularly in manufacturing, where such investment is prevalent.

A number of empirical studies have attempted to test the FDI diversion thesis more systematically with contrasting results. These studies differ in terms of their methodology, time period, and countries covered and level of aggregation, making it difficult to compare their results. Two studies (Chantasasawat et al. 2004; Eichengreen / Tong 2005) find that FDI in China has no effect on the level of FDI in Latin America.[15] Both these studies use aggregate FDI flows and are not able to identify the impacts on individual Latin American countries.

In contrast the studies by Garcia Herrero / Sanatabárbara (2007) and De la Cruz Gallegos / Ivanova Boncheva / Ruiz-Porras (2008) which do look at the impact on individual countries find some evidence of FDI diversion to China. Garcia Herrero and Santabárbara (2007) distinguish two time periods (1984–2001) when they find no significant FDI diversion to China and (1995–2001) when they do find a significant negative effect on FDI in Mexico (and to a lesser extent Colombia). De la Cruz Gallegos / Ivanova Boncheva / Ruiz-Porras (2008), who use data on US investment in China and several Latin American countries, conclude that investment in China has a negative effect on flows to Mexico, Brazil and Venezuela (but not Argentina, Chile and Colombia). The finding that Mexico has been negatively affected is consistent with the view that diversion is most likely when FDI is efficiency-seeking, since, of the larger Latin American countries, it is the one where such investment has been most significant.

Only one study by Cravino / Ledermann / Olarreaga (2006b), which uses both total FDI stocks and US FDI, finds a positive impact of FDI in China on total foreign investment in Latin America. This result supports the view that there is complementarity between FDI in China and Latin America rather than competition for foreign capital. However, they fail to find any relationship in the manufacturing sector where this kind of "production sharing" is most likely to occur. In view of the lack of any corroborating evidence from the other studies mentioned, there are strong grounds for

15 Chantasasawat et al. (2004) find no impact on the level of FDI in Latin America but do find an impact on the share of Latin America in total FDI in developing countries but that China is not a major factor.

skepticism regarding this evidence of a positive impact on FDI in Latin America.

All these studies suffer from a number of limitations. The time period of the analysis may be important and even if it were the case that in the past there had been no significant diversion of FDI to China, this is no guarantee that it would not occur in the future. The results obtained by Garcia Herrero / Sanatabárbara (2007) and De la Cruz Gallegos / Ivanova Boncheva / Ruiz-Porras (2008) concerning the effects on different Latin American countries also indicate that aggregate data on the region as a whole may hide significant impacts on individual countries. There may also be sector specific effects which are not captured in the highly aggregated type of studies that have been carried out so far. This suggests a need for further work on this issue, particularly on the impact on individual countries and sectors where diversion is most likely to occur.

6 China's impact on global commodity prices

The third major indirect impact that China has on the region is through its effects on primary commodity markets. In recent years China has accounted for a significant and increasing share of world demand for a number of the major commodities exported from Latin America.

Table 9, which lists the fifteen most important primary products exported from the region, shows that in 2007 China accounted for more than half of world consumption of iron ore[16], a third of aluminum and zinc, and more than a quarter of copper. It is also a major market for certain agricultural products, particularly soybeans, soybean oil and fishmeal, where it makes up between a fifth and a quarter of world consumption. In other commodities, however, its share is not so striking. It does account for more than 10 % of world beef and poultry consumption, but consumes less than 10 % of world oil and other industrial inputs such as timber and pulp. It also has a relatively small share of the world market for tropical agricultural products such as sugar, bananas and coffee.

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16 This figure is somewhat inflated by the low iron content of much of the ore mined in China. An adjusted figure which takes account of this would reduce China's share to around 44 % of world consumption in 2007.

Table 9: China's share of global consumption of primary commodities, 2002, 2006, 2007 (in volume terms)

	China's share of global consumption			Increase in price
	2002	2006	2007	2002–2007
Fuels				
Oil	6.9 %	9.0 %	9.3 %	185.1 %
Minerals, ores and metals				
Iron ore	30.3 %	50.7 %	54.3 %	184.7 %
Copper	18.2 %	21.2 %	27.1 %	356.5 %
Aluminum	21.1 %	25.4 %	33.2 %	95.4 %
Zinc	22.4 %	28.9 %	32.4 %	316.4 %
Feedstuffs				
Soybean	18.4 %	20.2 %	20.9 %	80.6 %
Soya oil	21.2 %	24.2 %	25.9 %	94.0 %
Fishmeal	23.0 %	24.8 %	27.5 %	93.8 %
Tropical food and beverages				
Coffee	0.3 %	0.4 %	n. a.	125.6 %
Sugar	7.9 %	8.7 %	9.3 %	46.4 %
Bananas	8.4 %	10.0 %	n. a.	28.6 %
Meat products				
Beef	10.6 %	11.9 %	12.3 %	22.6 %
Poultry	16.8 %	16.3 %	17.2 %	23.9 %
Forest products				
Sawn wood	4.0 %	4.2 %	8.6 %	63.6 %
Chemical pulp	5.7 %	6.8 %	7.8 %	55.5 %

n. a. – not available

Source: China's consumption – own elaboration from various sources
Prices – UNCTAD (2008, Table 2.1) and UNCTAD, Commodity Price Statistics

Table 9 also shows the substantial price increases that occurred for most primary commodities between 2002 and 2007. The most dramatic rises have been in metals, particularly copper and zinc, and in oil. Feedstuffs have also increased significantly in price, although this is largely attributable to dramatic increases between 2006 and 2007 associated with the demand for land to grow bio-fuels. Other agricultural products have had more modest price increases, with the notable exception of coffee. Although a number of different factors have led to these price increases, there is widespread agreement that the growth of demand in China has been an important contributor to the commodity boom (UNCTAD 2005, Ch. II; IMF 2006; Gottschalk / Prates 2005).

Latin America as a region benefited from the boom in commodity prices. Several of the chapters in this book illustrate the rise in export prices and the improvement that has taken place in the terms of trade. Lopez and Ramos show the substantial increase in export prices (particularly of oilseeds and their products) in Argentina between 2000 and 2008 and the accompanying improvement in the terms of trade (see Lopez / Ramos, Table 27, page 115). In the case of Brazil, export prices to China almost doubled between 2001 and 2007, giving rise to a substantial improvement in the bilateral terms of trade (see Saslavsky / Rozemberg, Figure 3, page 190). Brazil's terms of trade with other countries did not improve to the same extent but nevertheless there was an overall improvement. Chile is the country where the effect on commodity prices has been felt most strongly with the sharp increase in copper prices increasing export earnings and government revenues (Barton s. a.).

The question that this raises is: to what extent can these increases in export prices be attributed to the growing Chinese demand for primary commodities? In order to estimate this, a hypothetical global demand was calculated for each product in 2006, assuming that China's demand had grown at the same rate as in the rest of the world between 2002 and 2006. The difference between this figure and the actual world demand in 2006 provides an estimate of the extent to which China's exceptional economic performance increased world demand for the products concerned over the period. Table 10 shows that the impact of China's growth on world demand varied from being insignificant in products such as sugar and coffee to a massive increase in world demand of over 40 % for iron ore.[17]

17 In the case of poultry Chinese demand has grown more slowly than for the rest of the world, probably reflecting the impact of the bird flu outbreak on domestic demand.

Table 10: Impact of China on prices and the value of 15 main commodities exported from Latin America, 2002–2006

	China demand effect	China Price effect		Estimated effect of China on value of exports (US$ mn.)	
		Maximum	Minimum	Maximum	Minimum
Crude oil	2.4 %	24.0 %	9.6 %	21,825	9,877
Iron ore	41.2 %	164.9 %	103.1 %	5,979	4,875
Copper	3.8 %	37.9 %	15.2 %	11,926	5,712
Aluminum	5.8 %	23.3 %	14.6 %	1,151	774
Zinc	8.4 %	83.5 %	33.4 %	1,831	1,008
Soybean	2.2 %	5.4 %	3.6 %	411	279
Soya oil	3.9 %	9.8 %	6.6 %	382	262
Fishmeal	2.4 %	6.1 %	4.1 %	105	71
Coffee	0.1 %	1.0 %	0.3 %	77	19
Sugar	0.9 %	9.2 %	1.8 %	655	141
Bananas	1.7 %	8.6 %	4.3 %	227	118
Beef	1.4 %	4.7 %	2.4 %	265	136
Poultry	-0.7 %	-2.2 %	-1.1 %	-75	-37
Sawn wood	0.3 %	1.3 %	0.4 %	41	14
Chemical Pulp	1.2 %	5.8 %	1.9 %	213	74
Total				**45,014**	**23,322**

Source: Jenkins (2008c)

In order to calculate the impact of rapid Chinese growth on world price, it is necessary to have estimates of the global elasticity of supply for the concerned commodities. These are surprisingly difficult to come by and when they are available, there is often a considerable range of estimates, making it impossible to come up with a single reliable figure. Thus a range of elasticities has been used for each product to calculate the effect on prices.[18] The effect varies from negligible in the case of coffee and wood to more than a doubling in price for iron ore. Copper, aluminum and zinc, the other metals for which Latin America is an important exporter, have also experienced a significant "China effect".

Columns (4) and (5) of Table 10 present the estimated effect of Chinese demand on the value of Latin American exports in 2006. Despite the fact that China's impact on oil prices has not been as pronounced as for metals, the sheer scale of oil exports from Latin America means that the largest absolute impact on export earnings has been from oil. The estimate indicates that the region's exports would have been between US$ 9 and US$ 22 billion less in the absence of the "China Effect" on the oil market. Although individually the contribution of metals is less significant than for oil, taken together the four commodities included have a roughly similar impact to oil. Other commodities have a relatively small impact on Latin American export earnings. In aggregate, the impact of China on export earnings was estimated at between US$ 23 billion and US$ 45 billion (see Table 10). This represented between 10 % and 20 % of the total earned from the 15 commodities in 2006.

It is interesting to compare the extent to which Latin America has benefited indirectly from the growth of Chinese demand for the products which it exports, with the increase in export revenues from bilateral trade with China. The increase in direct exports to China between 2002 and 2006 came to US$ 20.8 billion. In other words the indirect impact of China on Latin American exports in this period was at least as great as the direct impact.

There are several caveats which need to be attached to these estimates. First, they depend critically on the assumptions made about the elasticities of global supply for the 15 commodities. These are relatively low because

18 For further details on the elasticities used, see Jenkins (2008c).

of the short period of time being considered. In the longer term, supply elasticities would tend to be higher as new sources come on stream and consequently the impact on prices and export earnings would be reduced. Second, no account is taken of the fact that the high growth of demand in China may have been at the expense of growth elsewhere in the world, for example because industries using these commodities as inputs have relocated to China. To the extent that this is significant, then the overall impact will have been overestimated.

A third consideration is that the estimates presented here are based on the total value of the region's exports of the 15 commodities in order to calculate the gain in export earnings. However some countries in the region import some of these commodities and it might therefore be more appropriate to look at net exports rather than the total value. If this were done then the estimated gain to the region as a result of the "China effect" on commodity prices would be about 20 % lower (US$ 18–36 billion).

This highlights the fact that these estimates are for Latin America as a whole, and there has been no attempt to identify the impacts on individual countries within the region. However, it is easy to infer how these impacts would be distributed from the effects on different commodities. The main beneficiaries would be oil and mineral exporters such as Venezuela, Mexico, Ecuador, Peru, Chile and Brazil. Some benefits would also accrue to exporters of soybeans (Argentina, Brazil). However, other agricultural exporters would have benefited relatively little, particularly the Central American countries whose main exports are coffee, bananas and sugar.

Conclusion

One should beware of exaggerating the significance of the rise of China for Latin America. As was indicated above, for the region as a whole, China is still far less important as a trade partner than either the United States or the European Union. It also lags a long way behind the traditional sources of foreign investment in the region. However, as long as China continues to grow at rates well above the average for the world economy as a whole, its impact on Latin America is likely to become increasingly significant over time.

All the countries of the region, even those which do not recognize the People's Republic and have limited trade links with the mainland, have been affected by the growth of China. The ways in which they have been affected vary from country to country. For some countries (Cuba, Costa Rica, Peru, Chile and Argentina), China has become a major export market and they have also benefited from the impact of Chinese demand on global prices for their primary commodity exports.[19] Other countries (Bolivia, Ecuador, Venezuela), whose exports to China are relatively limited, have nevertheless benefited indirectly from the "China effect" on commodity prices. All the countries of the region have seen rapid growth in imports from China since 2002 which has benefited consumers but also had adverse impacts on local manufacturers in some sectors. Those countries which are important exporters of manufactures to the US (Mexico, most of Central America and the Dominican Republic) have been particularly affected by losing market share to Chinese competition. Brazil, as the largest and most diversified economy in the region, has been affected in all these ways.

The different patterns that have been observed underline the importance of carrying out individual country studies of the impact of China. Despite these differences in the channels through which China has affected the various Latin American countries, there is a general trend for the region to become more specialized in production of primary products and resource based manufactures, while China specializes in manufactured goods which are becoming more technologically sophisticated over time. This is not

19 Costa Rica is an exception in that its exports to China are of manufactures and its primary commodity exports have not been significantly affected by Chinese demand.

just a matter of market forces leading to specialization based on different resource endowments. Despite China's economic reforms since the late 1970s, the state continues to play a major role in Chinese development, promoting particular industries and protecting local producers. This is in sharp contrast to Latin America, where there have been no attempts to utilize industrial policies since the neo-liberal reforms of the 1980s and early 1990s. As a result, the high value parts of global value chains are being located in China, not in Latin America.

In this respect the rise of China is contributing further to the re-orientation of the Latin American economies towards a resource based model, which began in the late 1980s. The relative decline of the manufacturing sector gives rise to concern on two main grounds. With the commodity boom apparently at an end, the traditional concerns voiced by Prebisch and the Economic Commission for Latin America and the Caribbean concerning the negative effects of specializing in primary commodities on growth and technological development again come to the fore (Mesquita Moreira 2007). There are also likely to be negative distributional effects arising from this growth pattern. As former Inter-American Development Bank chief economist Guillermo Calvo stated recently, *"if by development you mean better income distribution, then I'm not sure that China is a positive factor. Because when China imports soya, minerals, that sort of thing, that does not necessarily improve living conditions in Latin America. It doesn't improve the quality of life of the majority"* (Calvo 2007).

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The Argentine Case

Andrés López / Daniela Ramos

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Andrés López / Daniela Ramos

Introduction[1]

China's emergence has generated a great impact on the economic performance of many countries, in particular those that have developed a strong commercial relationship with that country and those which compete with China in third export markets or in the sphere of foreign direct investment (FDI) inflows.

During the last 15 years China has grown at an average real rate of 10% and its share in world industrial production has climbed from 1.9% in 1990 to 5.2% in 2005 (Ancochea 2007). In part, this performance has been sustained by the expansion of Chinese exports, which have increased at an annual rate of 17% since 1990, making it the third world exporter (see Table 1, where you may observe how China has gained presence in a number of key

Table 1: China's performance in recent years

	2001	2002	2003	2004	2005	2006
Share in world FDI inflows	5.1	6.7	7.2	6.9	8.3	5.8
Share in world GDP*	4.2	4.5	4.5	4.7	5.0	7.0
Share in world GDP (at PPP**)	11.3	11.8	12.4	13.0	13.7	16.5
Share in world good exports	4.2	5.0	5.7	6.4	7.2	12.3
Share in world population	20.7	20.6	20.5	20.3	20.2	20.7

* At market exchange rates
** Purchasing power parity
Source: EIU / CPII (2006)

1 The authors wish to thank the valuable collaboration of Cecilia Simkievich and Gabriela Starobinsky in the execution of this study, as well as the able assistance of Florencia Benítez Boiardi and Andrés Niembro. They also gratefully acknowledge the information and opinions provided by the organizations and persons interviewed during the research project on which this paper is based.

economic indicators). The entry of China into the World Trade Organization (WTO) in 2001 and the removal of Multi-Fiber Arrangement (MFA) quotas in 2005 both contributed to the expansion of Chinese exports.

In turn, some indicators suggest that China's rapid growth could be maintained in the future, in spite of the impact of the current international crisis. China's rate of investment averaged 40% between 1997 and 2005 and productivity increased almost 10% annually between 1990 and 2001 (Pitsilis / Woetzel / Wong 2004), while Research & Development (R&D) expenditures grew at an average annual rate of 20 % in recent years to reach 1.4% of the GDP (Dougherly 2008).

In just a few years, China has become the main world importer of many primary products. Furthermore, since the 1990's China has become the principal destination of foreign direct investment (FDI) within the developing world, with almost US$ 70 billion of inward flows (average per year) between 2003 and 2007 (UNCTAD, years 2006–2008). All these figures give support to the following statement: "*this economic giant matters*" (Dougherly 2008).

With the main goal of securing access to the continent's vast natural resources and markets, China is forging deep economic and political ties with many Latin American countries. For these countries, China is a significant competitor and rival, but also a potential investor, customer, economic partner and a counterweight to US power (Malik 2006). China is now the second largest trading partner for Argentina, Peru and Brazil; and the third largest for Chile; also, trade with China now falls within the top ten for Paraguay and Uruguay. Following Santiso (2006), *"China's invisible hand spreads through Latin America"*.

In the particular case of Argentina, the emergence of China in the global economy has great current and potential future impact and hence it comes as no surprise that there is a growing interest in bilateral relations. On one hand, the announcement of possible huge Chinese investments in Argentina spurred a great amount of attention some years ago (although so far those *investments* have only been made in small quantities, as seen below). On the other hand, and more concretely, China has become a first rate trade partner of Argentina, due both to its increasing need for agricultural goods and raw materials and to its strong export capabilities.

Argentina's exports to China went from less than US$ 160 million in 1980 to more than US$ 5 billion in 2007. In turn, imports from China rose from

US$ 30 *million* to US$ 5 billion in the same years. As a consequence of these trends, China became the second export destination and the third import supplier for Argentina.

From the point of view of a developing country such as Argentina, China's emergence has different and often contrasting interpretations. First, as previously mentioned, China has become the most attractive destination for foreign direct investment within the developing world.[2] This could clearly have direct relevance for Argentina insofar as it competes with China in the attraction of FDI inflows. Of course, this is not the case for sectors in which China has very strong competitive advantages – such as the manufacturing industry or in cheap labor-intensive activities –, but it may occur in certain service activities or other sectors in which labor costs or scale of production are not the central sources of competitiveness.

Second, in the *foreign trade area*, the rapid growth of Chinese exports may result in fierce competition with Argentina's domestic industry as well as in the displacement of Argentina's exports in third markets. This naturally depends on the degree of substitutability of Argentina's export basket *vis-à-vis* that of China. This last point is especially relevant because, as stated by Mesquita Moreira (2006), China has a combination of endowments, scales, fast productivity growth and a strong state that makes it a formidable competitor for Latin America in general.[3]

Nevertheless, the growing Chinese demand and expansion of its domestic market at the same time, open new possibilities for exporting mainly natural resource-intensive goods and hence becoming a very attractive trade opportunity for Argentina, as well as a motivation for new Chinese investments in the country. Furthermore, the strong Chinese demand for raw materials and its large manufacturing exports are among the factors that led to the improvement in terms of trade observed in many developing countries, including Argentina, up until the current international crisis (see Kaplinsky 2006).

Third, China – together with other fast growing economies of Asia and Eastern Europe – plays a key role in production and trade restructuring at the world level associated with the deployment of global value chains

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2 For an empirical analysis of the impact of China on FDI flow towards Latin America see Chantasasawat et al (2004) and García-Herrero / Santabarbara (2007).

3 As an example, wages in China are four times lower than average wages in Latin American countries (Blázquez-Lidoy / Rodríguez / Santiso 2006).

(GVCs). This process, which is relatively recent, is based on a number of factors linked to the characteristics of the economies integrated within those chains and to changes in the strategies of transnational corporations (TNCs). Among the former, it is important to highlight the importance of the cost advantages that are enjoyed by many of those countries, as well as the development of capabilities and competences which were lacking some years ago. Another significant factor is the emergence of global TNCs originating in those countries. Regarding these factors, the deployment of efficiency seeking strategies means that TNCs increasingly concentrate their affiliates in activities which contribute to their global competitiveness, while at the same time creating global outsourcing networks with the same objective. Hence, TNCs increasingly offshore production lines, areas or functions towards emerging countries in which those activities may be developed efficiently. All this has a clear impact on the role which countries such as Argentina may play in the GVCs that are being created. The challenge for such countries is to find a place in those chains if they want to have a sustainable insertion in global trade and investment flows.

In this scenario, the present work addresses some of the questions raised by the emergence of China as a global economic power. In particular, we have focused on the recent evolution of Argentina-China bilateral relations in two key areas: trade and investment. In the first case we are interested in learning about the current pattern of bilateral exchange and in knowing to what extent Argentina is taking advantage (or has the capabilities to do so) of the large and growing Chinese domestic market. The impact on Argentina of bilateral trade with China is also analyzed. Regarding investments, this study surveys the main bilateral investment projects with the aim of analyzing to what extent Argentina has profited from increasing Chinese investment in Latin America. Finally, the study also deals with the potential impact of China on the possibilities in Argentina for sustainable integration within the goods and services GVC that are being developed at a global level.

The first part of this study analyzes bilateral trade between China and Argentina at a five digit level of disaggregation according to the Standard International Trade Classification (SITC) during the 1995–2006 period. It also includes information on the principal protectionist measures adopted by each country affecting the other partner, as well as an analysis of the impact of trade with China on government revenues, terms of trade and employment in Argentina. The second part focuses on bilateral FDI flows during the same years and includes a list of the main investment projects detected both in China and Argentina in recent years. The analysis is based on available data from official agencies, press releases, information provided by key informants and other formal and informal sources. The last section provides a conclusion of this study.

1 The trade relationships between China and Argentina

At present, bilateral trade between China and Argentina displays a clear pattern according to which Argentina has become a supplier of natural resource-based commodities and an importer of manufactured goods of assorted technological content. As mentioned previously, China is now the second export destination for Argentina and the third import supplier (behind Brazil and the United States).[4]

The first landmark in bilateral relations was the establishment of full diplomatic relations in 1972. Since then China and Argentina have signed many agreements, e.g. maritime transport (1978), scientific and technological cooperation (1978), economic cooperation (1980), etc. At that time, China had established diplomatic relations with most Latin American countries and trade with the region began to grow rapidly – from US$ 150 million in the early 1970s to US$ 1,269 million in 1979 (Cesarín 2007).[5]

Since then, a number of presidential visits have taken place and several agreements have been reached. President Néstor Kirchner visited China in 2004 and both countries signed cooperative agreements in the areas of civil aviation, public health, culture, investment and agriculture. Some months later, in November 2004, President Hu Jintao visited Argentina. During this visit, he and President Kirschner expressed their willingness to establish a strategic association between the two countries. The objectives were to reinforce economic-commercial cooperation and enrich scientific-

4 Unless otherwise indicated, INDEC – the Argentinean National Institute of Statistics and Census – official statistics are employed in this section. As stated by Jenkins and Dussel Peters (2006), there are some doubts regarding the accuracy of the trade figures provided by China insofar as they are often different from those supplied by its trade partners.

5 Before then, the relationship between China and the Latin American countries was weak, dominated by a few trade links and based on sporadic entrepreneurial links, mostly due to China's international isolation.

technological exchange, to promote personal communications as well as the development of human resources, and to increase multilateral cooperation. After this visit, the Chinese authorities declared Argentina a tourism destination. This was probably the most important outcome of Hu Jintao's visit; although so far, unfortunately, it has not had a real impact on tourist flows from China.

On that occasion, there were official announcements (by the Argentine Government) regarding China's goal of investing around US$ 20 billion in Argentina during the following ten years in fields such as communications and satellite technology; Information and Communication Technologies (ICT); infrastructure; energy; and railways, etc. Those announcements were denied by the Chinese authorities and, according to some key informants, they constituted a diplomatic mistake which damaged bilateral relations in the field of FDI.

At the same time, in recent years Argentina – like many other countries – has taken a few offensive measures with the aim of benefiting from China's increasing role in world trade. One of these actions was the negotiation of China's accession to the WTO[6] (which finally occurred in 2001), in exchange for some commercial benefits (tariff reductions in some products – mainly agricultural and metallurgical – most favored nation concessions, tariff-rate quotas for soybean oil, corn, wool wheat; negotiations on the openness of markets (bovine meat, lemons, mate, soybean oil) and agreements on some sanitary measures (Galperín / Girado / Rodriguez Diez 2004).

As seen in Table 2, China's share in Argentina's foreign trade has been growing. The volume of trade between both countries was very low until the 1980's when total trade (exports + imports) was under US$ 200 million. This is in striking contrast with the 2007 figures, when bilateral trade amounted to more than US$ 10 billion.

China's share in Argentina's exports rose from 1.4% to 9.3% between 1995 and 2007. The corresponding figures for imports were 3% and 11.4% growth (China contributed with 14% of the increase in exports between

6 China's accession to the WTO implied its signature on some agreements, including: reduction on tariffs, admission of FDI flows within the telecommunications sector, elimination of subsidies to exports and financial restrictions, etc.

Table 2: The importance of China as a trading partner of Argentina, 1995–2007 (export FOB and import CIF)

Year	Share in total exports (%)	Position as export destination (ranking)	Share in total imports (%)	Position as imports supplier (ranking)
1995	1.4	17	3.0	8
1996	2.6	9	2.9	8
1997	3.3	5	3.3	8
1998	2.6	8	3.7	8
1999	2.2	11	3.9	8
2000	3.0	6	4.6	4
2001	4.2	4	5.2	3
2002	4.3	5	3.7	4
2003	8.3	4	5.2	4
2004	7.6	4	6.2	3
2005	7.8	4	7.8	3
2006	7.5	4	9.6	3
2007	9.3	2	11.4	3

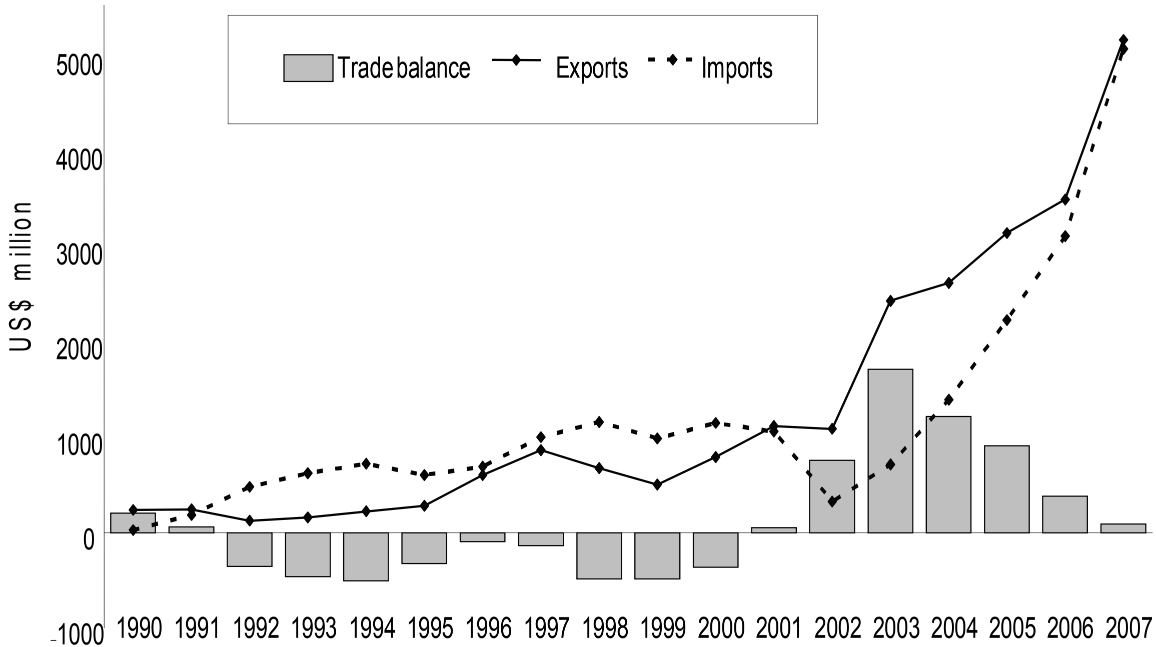
Source: Author, based on information from INDEC, Argentina

1995 and 2007) is higher than in other Latin American countries.[7] It is in fact since 2002 that bilateral trade has really soared: between that year and 2007, exports increased almost five times while imports grew more than 15-fold (see Figure 1 and Tables 3 and 4).

The outlook indicates that China will continue to increase its importance as trade partner of Argentina. First, because the projected increase in urban consumption and industrial demand for agricultural raw materials, the increasing sophistication of urban demand, the growing population, and the

7 Between 1995 and 2004 exports to China represented 9.7% of total export growth in Brazil, 1.7% in Mexico, 2.5% in Venezuela and 2.4% in Colombia. But there are also cases in which China's significance is even greater than in Argentina, such as Chile with 19% of its export growth in the same period, Costa Rica (34.9%) and Peru (15.9%) (Jenkins / Dussel Peters 2006).

Figure 1: Argentina–China bilateral trade (1990–2007)



Source: Author, based on information from INDEC, Argentina

Table 3: Annual growth rates of Argentina's exports and imports by destination (1995–2007)			
	Total	China	Rest of the world
Exports (%)	8.5	27.3	7.8
Imports (%)	6.9	19.4	6.1
Source: Author, based on data from INDEC, Argentina			

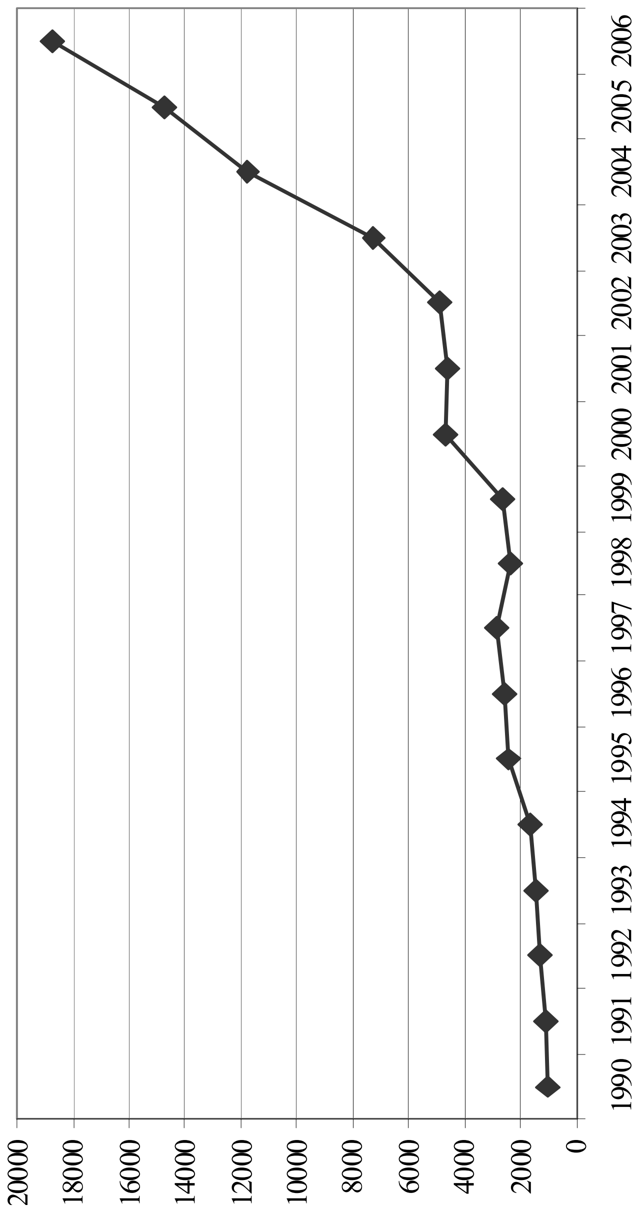
Table 4: Argentina-China bilateral trade (1990–2007)					
	Average annual amount (in US$ million)			Average annual rate (%)	
Period	Exports	Imports	Balance of trade	Exports	Imports
1990–1995	215.1	444.4	-229.4	3.5	80.6
1996–2002	811.6	916.7	-105.1	22.8	13.7
2003–2006	2,932.8	1,870.3	1,062.5	33.8	75.3
2007	5,166.6	5,092.8	73.8		
Source: Author, based on data from INDEC, Argentina					

improvement in average income, are all indicators that China's demand will be more important in the future (Cesarín 2007). Second, because Argentina's export structure to China is, as seen below, concentrated in a small number of products that have been going through a very favorable price cycle in recent years and are expected, in spite of the effects of the current crisis, to continue enjoying high international prices over the next years.

Following Jenkins and Dussel Peters (2006), the explanation for the increase in Argentine exports, as in other Latin American countries, must be sought mainly in events in China, whose appetite for raw material and natural resources[8] has grown sharply since the 1990s (Figure 2). In their study of China's impact on Latin American and Caribbean Countries

8 China is the fourth importer of raw materials in the world (Cesarín 2007). In 2003, China had become the first importer of cotton and the fourth importer of petroleum (Blázquez-Lidoy / Rodríguez / Santiso 2006). China is also, at present, the first importer of soybeans and the second importer of soybean oil in the world. In turn, between 2000 and 2004, China's share in world imports of copper and steel climbed from 11% to 17% and from 7% to 9%, respectively (Ancochea 2007)

Figure 2: China's imports of primary goods, 1990–2006 (US$ million)



Source: National Bureau of Statistics of China (2007)

(LAC), Blázquez-Lidoy / Rodríguez / Santiso (2006) show that the weight of natural resource-based manufactures and raw materials in China's import basket increased from 22.7% in 1990 to 29% in 2004. In the same work, the authors indicate that the rise in China's soybean and petroleum oil imports between 1997 and 2004 were eight and three times greater than the global average increase, respectively. Vanishing cropland and diminishing water supplies are hampering the ability of China to feed itself, and the increasing US use of farmland for biofuel production is pushing China to search for more of its agricultural staples in South America (International Herald Tribune, April 5th, 2007).

For better understanding, we have divided the analysis of trade with China into three different stages: 1990–1995, 1996–2002 and 2003 to the present. During the first period, average exports and imports were of US$ 215 million and US$ 444 million respectively, with a sharp increase in imports in 1992, explained, to a great extent, by the establishment of a new economic program in Argentina (the Convertibility Plan); the adoption of a trade liberalization program and an exchange rate regime which favored import flows as a result of the appreciation of the national currency. In that year, the trade balance, which had been positive in Argentina in the past, reversed dramatically.

During the second period (1996–2002), exports to China increased markedly and imports continued to grow at a lower annual rate, which allowed the country to obtain a surplus as of 2001. As shown in Table 2, China overtook many countries as an export destination while its position as an import supplier climbed from 8th to 4th place in the ranking.

The third stage starts in 2003, when exports to China more than doubled over the previous year. As seen below, this increase is almost entirely explained by the growth of exports of soybean and its sub-products. On the other hand, imports continued to grow at a very high average rate, in part due to the economic recovery that began after the Argentinean crisis of 2001–2002.[9]

The growth in exports was accompanied by an increase in the number of companies exporting to China since 2001 (Table 5). In turn, average

9 Between 2003 and 2008, Argentina's Gross Domestic Product (GDP) grew at an average annual rate of 8.46% (around 50% accumulated); GDP per capita increased 43%; exports and imports rose 136% and 314% at current prices (but 40% and 204% at constant prices), respectively; monetary reserves climbed from US$ 14.100 to 46.400 million, and unemployment fell from 17% to 8%.

Table 5: Number of companies exporting to China (1998–2006)

Year	Exporting companies	Average exports / company (US$ million)
1998	240	2.8
1999	220	2.3
2000	213	3.7
2001	248	4.5
2002	347	3.2
2003	333	7.3
2004	438	6.0
2005	470	6.7
2006	556	6.3

Source: Author, based on CEP and INDEC

exports by company grew significantly, from US$ 2.8 million in 1998 to US$ 4.5 million in 2001 and US$ 6.7 million in 2005, and they fell again in 2006 to US$ 6.3 million.[10]

According to information provided by the CEP (2006), 48% of companies exporting to China are large companies, 38% belong to the medium-sized group and 10% are small exporters.[11] Nevertheless, there are still very few firms that export to China on a regular basis and the bulk of Chinese exports is concentrated to a limited number of firms – mainly agricultural and agro-industrial ones – as shown in Table 6. In effect, during 2006 the top three exporting companies accounted for 40% of total exports to China while 95% of exports were concentrated in the top 10% of exporting firms.

10 As may be expected given the importance of primary products among exports to China, average exports to that country by company are much greater than those corresponding to Argentina's total exports (US$ 2.7 million in 2005) (Gatto 2007).

11 According to the methodology of the CEP (2006), SME exporters to China were firms with average exports of US$ 10,000 to US$ 100,000 during the period 2003–05. Medium-sized exporters were firms with exports of US$ 100,001 to US$ 3 million and big exporters were enterprises with exports above US$ 3 million.

Table 6: Argentina's exports to China (concentration by firm)	
	Share in exports (%)
Top 3 companies	40.1
Top 10 companies	71.4
Top 20 companies	88.1
Top 50 companies	95.2
Source: Author, based on CEP and INDEC	

This situation is directly correlated with the export pattern that predominates in trade with China. Since soybean and oils are the main exported products, and taking into account the high level of concentration of these activities (the capital-intensive characteristic of the oil industry and the fact that grain exports are also highly concentrated), an elevated concentration of exports to China in a few companies is expected.

On the other hand, given the small volumes of industrial exports and the fact that developing export markets entail many difficulties in terms of market research, selling abroad, etc., it is understandable that small and medium-sized companies face many barriers to entering the Chinese market (see Table 7). Moreover, for this type of firm, cultural and linguistic barriers are likely to be more of an impediment than for large companies.

In contrast to what has been said so far, the significance of Argentina in China's imports and exports is marginal.[12] In 2005, the share of Argentina in China's imports was less than 0.6% and its share in exports was even lower, scarcely 0.17%[13] (see Table 8).

12 Taking into account the mentioned divergence between trade statistics provided by the National Bureau of Statistics of China and those produced by the National Institute of Statistics and Census of Argentina, the calculations of shares in imports and exports are made, in both cases, on the basis of each country's trade data to ensure consistency.

13 In contrast, Brazil has increased its importance as a trade partner of China and at present China is its third export market (CEP 2006)

Table 7: Argentina's exports to China by size of exporting companies

	Number of companies	Share in exports to China (%)	Average exports (US$ million)
US$ 500 million or more	1	18.1	n/c
< US$ 500 million and > US$ 200 million	4	33.9	298.5
< US$ 200 million and > US$ 50 million	11	32.0	102.5
< US$ 50 million and > US$ 10 million	11	7.2	23.0

Source: Author, based on CEP and INDEC

Table 8: Argentina's share in Chinese trade in % (selected years)

Year	Share in exports (%)	Share in imports (%)
1996	0.22%	0.37%
1997	0.25%	0.51%
1998	0.30%	0.52%
1999	0.25%	0.36%
2000	0.24%	0.41%
2001	0.22%	0.53%
2002	0.06%	0.42%
2003	0.10%	0.66%
2004	0.14%	0.58%
2005	0.17%	0.58%

Source: Rozemberg (2006), based on Comtrade data

1.1 Exports to China

Argentina's exports to China in the period under analysis present two distinguishing characteristics: first, as mentioned previously, they are based on natural resources and raw materials, particularly within the agro-food sector; and second, they are highly concentrated in a few products, most of which have a low level of processing.

This trend has been reinforced in recent years due to the high increase in grain prices, which led to an increased share of primary and natural resource-based products in Argentina's export basket to China (as well as its export basked to the world). This result is not surprising considering the characteristics of Argentina's economic development and industrial structure. Notwithstanding the typical bias of Argentina's exports towards natural resource-based products, this is even more marked in the case of China (Table 9).

Table 9: Composition of Argentina's exports by sector, 2007 (%)

	World	China
Primary products	22.3	52.2
Agro-based manufactures	34.4	37.7
Industrial manufactures	31.1	2.2
Fuels, lubricants, energy and gas	12.2	7.9
Total exports	100	100

Source: INDEC, Argentina

At present, therefore, China is not an important driver in the development of high value added exports in Argentina. On the contrary, China's impact on the rise of international prices of many commodities could even be an incentive to further increase production of those goods, in all probability reinforcing the abovementioned trend.

Table 10 summarizes bilateral trade between China and Argentina between 1995 and 2007. As seen, import and export patterns differ greatly.

Table 10: Bilateral trade by category (SITC, 1 digit), 1995–2007 (in US$ million: FOB values)

Description	1995			2005			2006			2007		
	Ex-ports	Im-ports	Bal-ance	Ex-ports	Im-ports	Bal-ance	Ex-ports	Im-ports	Bal-ance	Ex-ports	Im-ports	Bal-ance
Food and live animals	103	3	100	56	8	48	96	13	82	90	24	66
Beverages and tobacco	0	1	-1	3	0	3	2	1	2	17	0	17
Inedible crude materials, except fuels	87	4	83	1,879	11	1,869	1535	11	1,524	2,781	17	2,764
Mineral fuels, lubricants and related materials	2	0	2	227	24	203	907	2	905	423	13	410
Animal and vegetable oils, fats and waxes	27	0	27	729	0	729	661	0	661	1,566	0	1,566
Chemicals and related products n.e.s.*	5	53	-48	50	295	-245	54	442	-388	61	831	-769
Manufactured goods classified chiefly by materials	53	58	-5	185	244	-59	220	308	-88	198	544	-346
Machinery and trans-port equipment	7	186	-178	13	1,172	-1,159	9	1,854	-1,845	11	2,922	-2,910
Miscellaneous manu-factured articles	0	241	-240	12	314	-302	11	492	-482	19	743	-724
Total	286	545	-259	3,154	2,068	1,087	3,494	3,122	372	5,166	5,093	73

* not elsewhere specified

Source: Author, based on INDEC, Argentina

Until 1995, the main export products to China were maize (15% of total exports) and wheat. Other important lines of export products corresponded to wool tops and non-carded cotton (23% of total exports to China). Soybeans and crude soybean oil contributed, in that year, to 19% of total exports. However, with the exception of wool tops,[14] the importance of China as a buyer was still relatively low, e.g. China's share in total soybean and crude soybean oil exports was around 4.1 and 2.6% respectively.

During 1996 exports to China doubled. Two thirds of this increase was explained by the growth in the export of oilcake, pellets and other solid soybean residues (that increased from US$ 10.1 million to US$ 224 million) and the remaining 33% by the growth of crude soybean oil exports (+ US$ 107 million). From then until 1999, crude oil and soybean pellets became the main export products to China.

The situation reversed in that year, and soybeans reached first place in the export basket to China, a position that they have sustained until now. As seen below, this shift in the trade pattern resulted from the development of the Chinese vegetable oil industry. The consequence was a reduction in the value-added of Argentina's exports to China, at least within this sector.

Soybeans have contributed strongly to the growth of Argentina's exports to China throughout the period 1995–2007. During those years, total exports to China rose from US$ 285 million to US$ 5.16 billion (FOB). As seen in Table 11, 53% of the increase in exports was explained by soybeans while another 30% corresponded to crude soybean oil.

In addition, as seen in Table 12, the growth of Argentina's soybean exports was almost entirely explained by the increase in exports to China. As a matter of fact, while soybean exports to the rest of the world rose only slightly between 1995 and 2007, exports to China increased by over US$ 2.6 billion. As a result, China accounts for almost 77% of Argentina's soybean exports at present, against a 19% share in 1995.

To explain why these changes took place we must understand what happened to the Chinese oilseed processing industry in recent years. In the late 1990s the Chinese authorities decided to foster the development of a domestic soybean crushing industry aiming at self-sufficiency in this key input for animal feeding. To reach this objective, a number of measures were implemented to stimulate domestic production and increase the competitiveness of the Chinese crushing industry.

14 China also had an important share in frozen fish, rolls of iron and alloy and tankers, among other products.

Table 11: Argentina's exports to China by product (contribution to the increase of exports to China), 1995–2007

SITC 5 digits	Description	USD million	%	% Accumulated
2222	Soybeans	2,640.6	53.2	53.2
42111	Soybean crude oil, whether or not degummed	1,496.6	30.1	83.3
3330	Petroleum oils and oils obtained from bituminous minerals, crude	421.0	8.5	91.8
61142	Other bovine leather and equine leather, without hair on parchment-dressed or prepared after tanning	136.7	2.8	94.6
2831	Copper ores and concentrates	56.4	1.1	95.7
42151	Crude oil	34.6	0.7	96.4
61141	Other bovine leather and equine leather, without hair on tanned or retanned but not further prepared, whether or not split	30.8	0.6	97.0
01235	Poultry cuts and offal (other than liver), frozen	25.5	0.5	97.5
5799	Waste, parings and scrap, of plastics other	23.6	0.5	98.0
03639	Other molluscs and aquatic invertebrates, frozen, dried, salted or in brine, including flours, meals and pellets of aquatic invertebrates other than crustaceans, fit for human consumption	20.6	0.4	98.4
8823	Photographic film in rolls, sensitized, unexposed, of any material other than paper, paperboard or textiles; instant print film in rolls, sensitized, unexposed	16.9	0.3	98.8
1212	Tobacco, wholly or partly stemmed/stripped	14.1	0.3	99.0
	Total increment	4,964.9		

Source: Author, based on INDEC

Table 12: Increase in soybean exports by destination (1995–2007)			
	World	China	Rest of the world
Var. in US$ million	2,899	2,641	259
% change	641	12,140	150
Source: Author, based on data from INDEC			

As a result of these incentive measures, there was a process of strong investment in modern plants. Most of these plants are located in the coastal region (near the harbors) to guarantee easy access to the raw material (around 64% of soybean processed in China comes from abroad).[15]

Soybean crushing in China grew from an average of 6.1 million tons in 1989–1990 to 38.05 million tons in 2007–2008 (data from the US Department of Agriculture). In 2004–2005 China had already become the second flour and oil producer in the world behind the US. Table 13 summarizes the main changes in the Chinese oil industry during the last decade. Crushing capacity and flour and oil production have increased notably during this period. As a result, only a slight growth has been recorded in oil imports and flour imports have fallen, while soybean imports have grown rapidly in order to meet the demand of the processing industry.

It is important to explain why flour imports decreased while those of oil kept growing although at a lower pace: the fact is that soybean oil production faces limitations due to some technical constraints in the production process.[16] Since the growth rate of Chinese soybean oil production is lower than that of oil consumption, the gap must be filled by imports (see Table 14 where the changes in the share of imports within Chinese consumption may be observed for the different products of the soybean chain).

This also suggests that in the near future China will keep importing soybean oil to supply the growing domestic demand.

These changes have naturally had an impact on exports from Argentina to China. Soybean exports have grown significantly since 1999 (from US$ 90 million in 1999 to US$ 1.42 billion in 2006). At the same time, exports

15 As mentioned above, China is the first soybean importer in the world. In 2007–2008 its share in world soybean imports was 45.17%.

16 Nearly 18% of the soybean is oil, another 7% corresponds to the shell (which is used for fuel production) and the rest is the so called residue – flours and pellets –. This means that only a small part of the crushing process results in oil production.

Table 13: Changes in the Chinese soybean value chain, 1995–2008 (in thousand metric tons)			
	1995–1996	**2007–2008**	**Accumulated variation (%)**
Production			
Soybeans	13,500	14,300	5.93
Soybean flour	6,051	30,170	398.60
Soybean oil	1,150	6,800	491.30
Crushing capacity	7,470	38,050	409.37
Imports			
Soybeans	795	34,000	4176.73
Soybean flour	1,179	300	-74.55
Soybean oil	1,445	3,000	107.61
Domestic consumption			
Soybeans	14,073	48,250	242.86
Soybean flour	7,123	29,820	318.64
Soybean oil	2,575	9,790	280.19
Source: Author, based on the US Department of Agriculture			

Table 14: Share of imports in Chinese domestic consumption (1995–2008)				
	1995/1996	**2000/2001**	**2006/2007**	**2007/2008**
Soybeans	5.6	49.6	64.0	70.5
Soybean flour	16.6	0.7	1.2	1.0
Soybean oil	56.1	10.0	20.8	30.6
Source: Author, on the basis of the US Department of Agriculture				

of flour and pellets – which were of some significance between 1996 and 1998 – have almost vanished. Soybean oil exports to China increased from US$ 25 million in 1995 to US$ 630 million in 2006. In turn, Argentina's share in China's soybean imports is 20% (US$ 1147 million), ranking third behind Brazil (US$ 3.02 billion) and the US (US$ 2.7 billion) (COMTRADE 2006). Soybeans are the only item in which Argentina has a significant share in Chinese imports.

Apart from soybeans, Argentina exports crude petroleum oil, copper ores, dressed leather parchment, iron or steel tubing and drill pipes for oil or gas, bovine leather with different levels of processing, liquefied butane gas, semi-bleached or bleached wood pulp, wool tops and crude sunflower oil, among its main products. These product lines accounted for almost 95% of total exports to China in 2005.

In conclusion, it is evident that the export basket to China has a very low degree of diversification. In fact, this situation has got worse over time: the top five products accounted for 90% of total exports to China in 2005, whereas in 1995 this proportion was 63% (Figure 3). It is also important to highlight the role played by China in the exports of some key products. While the average share of China in Argentina's exports during 2005 was 7.8%, China accounts for more than 70% of the total export of products such as soybeans (75%), copper waste and plastic scrap (which together account for more than half of exports to China). China's share is also high in the export of soybean oil, some types of leather and fish derivatives unfit for human consumption (see Table 15).

In recent years, and after diplomatic negotiations, Argentina obtained the opening of four important export markets: fresh and thermo-processed meat (eleven companies were authorized to export meat to China; but the appearance of foot-and-mouth disease in February 2006 closed the Chinese market again[17]), poultry (since 2005, 16 firms are authorized), citrus fruits (since February 2005) and tobacco (since October 2006, though there are no exports yet). This could bring new opportunities to diversify the export structure, although it will take many years to gain a place in the Chinese market. Furthermore, as can be seen in the above list, exports only include resource-based products.

Summing up, we may conclude that up until now Argentina is far from having taken advantage of the vast opportunities that have opened up in the Chinese domestic market to export industrial products; and instead, shows an export pattern which is increasingly based on primary and natural resource-based products. These trends are not exclusive to Argentina, and in fact the same trends are observed in other Latin American countries.

17 In March 2007, Argentina was declared free of foot-and-mouth disease with vaccination by the Chinese Sanitary authority.

Table 15: China's share in Argentina's total exports, 2005 (5-digit SITC)

Share in overall exports	SITC	Selected products	China (US$ million)	World (US$ million)	Average share (%)
More than 70%	222.2	Soya beans	1,744 (55% of exports to China)	2,301	75.8
	579.9	Waste, parings and plastic scrap			
	288.21	Copper waste and scrap			
	531.19	Other synthetic organic colouring matter			
	514.55	Aromatic polyamines and their derivatives			
More than 30 and less than 70%	421.11	Soybean crude oil, whether or not degummed	742 (23%)	2,228	33.3
	611.41	Other bovine leather and equine leather, without hair on (tanned or retanned but not further prepared, whether or not split)			
	081.42	Flours, meals and pellets of fish or of crustaceans, unfit for human consumption			

Table 15 (cont.): China's share in Argentina's total exports, 2005 (5-digit SITC)

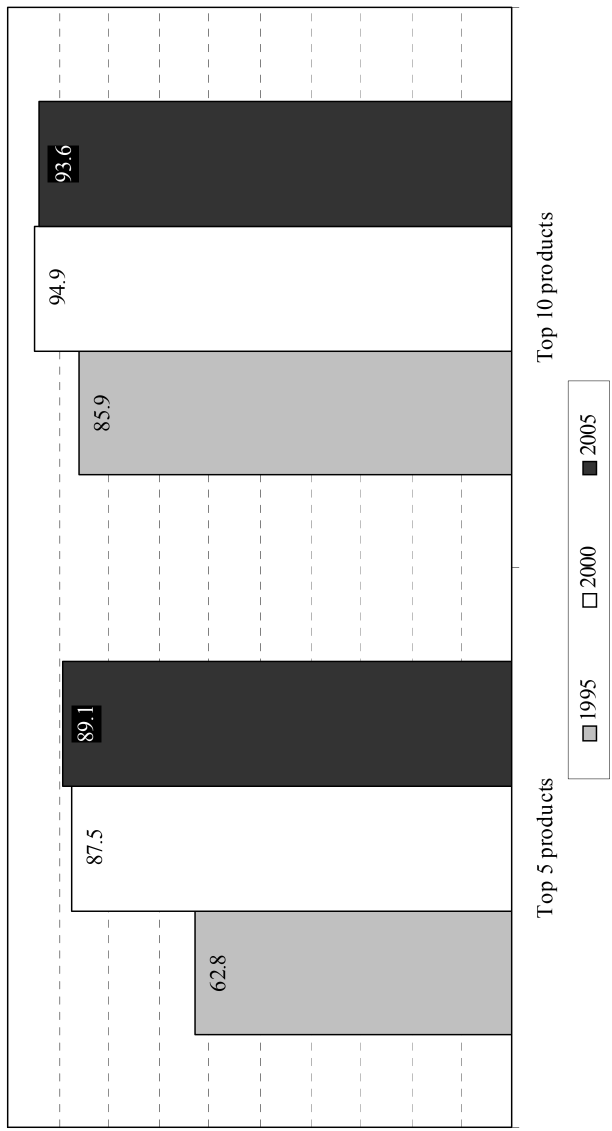
Share in overall exports	SITC	Selected products	China (USD million)	World (US$ million)	Average share (%)
More than 30 and less than 70% (cont.)	634.91	Hoopwood; split poles; piles, pickets and stakes of wood, roughly trimmed but not turned, bent or otherwise worked, suitable for the manufacture of walking-sticks, umbrellas, tool handles or the like			
	212.1	Mink skins, raw, whole, with or without head, tail or paws			
More than 10% and less than 30%	283.1	Copper ores and concentrates	362 (11%)	2,630	13.8
	611.42	Other bovine leather and equine leather, without hair on (parchment-dressed or prepared after tanning)			
	342.5	Butanes, liquefied			
	251.51	Chemical wood pulp, soda or sulphate, semi-bleached or bleached (coniferous)			
	268.73	Wool tops and other combed wool			
	012.35	Pork, fresh, chilled or frozen			

Table 15 (cont.): China's share in Argentina's total exports, 2005 (5-digit SITC)

Share in overall exports	SITC	Selected products	China (USD million)	World (USD million)	Average share (%)
Less than 10%	333.0	Petroleum oils, crude	333 (11%)	21,226	1.6
	679.13	Casing, tubing and drill pipe of a kind used in drilling for oil or gas, of iron or steel			
	421.51	Sunflower crude oil			
	673	Flat-rolled products of iron or non-alloy steel, not clad, plated or coated			
	034.28	Other fish, frozen (excluding livers and roes)			
	036.39	Other molluscs and aquatic invertebrates, frozen, dried, salted or in brine, fit for human consumption			
	081.31	Oilcake resulting from the extraction of fats or oils from soybean oil			
	112.17	Grape wine			
	057.21	Lemons and limes, fresh or dried			

Source: Author, based on INDEC, Argentina

Figure 3: Diversification of Argentina's export to China: Share of main products (SITC5-digit) in exports (%)



Source: Author, based on INDEC, Argentina

As Blázquez-Lidoy / Rodríguez / Santiso (2006) point out, given the trade pattern of Latin American countries with China, the possibility (in the short term) of increasing their exports is confined to a narrow range of products. At the same time, an increase in trade with China would require greater specialization in these (low value-added) goods instead of advancing along the value chain. Therefore, the challenge is seemingly that of finding ways to penetrate in other market segments, possibly on the basis of product differentiation in natural resource-based goods, since it is in this area where China identifies Argentina as a competitive producer. So far though, this has not occurred, due, among other reasons, to the fact that these differentiated or niche goods are often produced by small and medium-sized firms in Argentina, which are precisely those that find more barriers (cultural, linguistic, financial, regulatory, etc.) to competing in the Chinese domestic market.

1.2 Imports from China

There is a popular belief in Argentina that China is mainly an exporter of (cheap and low quality) consumption goods. This reputation – or myth – seems to be more a consequence of the past than a reflection of the present situation.

In effect, China's exports to Argentina are at present composed not only of consumer goods, as may have been the case in the past, but also of machinery and capital goods, with an increasing level of quality (see Table 16).[18]

18 The question about the quality of China's manufactures is at the centre of debate today. As Hexter and Woetzel (2007) mention, *"today China is open for business, and competition from both multinationals and local companies is increasing. Strategies based on creating and sustaining privileged access look more and more outdated. (...) In other words, China has turned a corner, from an emerging market, where local context drives most strategic and operating decisions, to a maturing one, with world-class execution a cornerstone for success"*. The expansion of multinationals is changing the morphology of Chinese industry and companies need to ensure that their organizations develop, produce and sell goods as effectively and efficiently as possible. For instance, Alcoa introduced its Alcoa Business System at its Shanghai manufacturing plant in 1998. Modeled on Toyota's integrated lean operations, the system helped boost the company to a global leadership position in its sector during the 1990s. Within six years of beginning the transformation of the Shanghai plant, Alcoa shortened lead times by 30 to 50 percent, doubled sales volumes (for domestic sales and exports alike), and greatly reduced inventories. GE has introduced its Six Sigma quality control standards at its lighting division's plants there. Citigroup and HSBC have extended their leadership-training and development processes and systems to China. Cleveland-based Preformed Line Products (PLP), a telecommunications hardware supplier, is another company that has introduced world-class lean techniques in its manufacturing operations in China.

Table 16: Argentina's imports from China by end use (selected years)

	1995	2000	2004	2005	2006	2007	Contribution to growth
							2007–2000 (%)
Capital goods	14.5	22.3	26.6	30.2	31.2	33.7	36.3
Accessories and components of capital goods	5.5	10.6	15.7	17.3	16.9	27.9	29.0
Intermediate inputs	19.7	19.2	29.8	26.3	24.5	14.9	16.2
Consumption goods	60.3	47.4	26	24.9	27.1	23.5	18.5
Others	0	0.53	1.96	1.36	0.33	0	0
Total	100	100	100	100	100	100	100
Capital goods + accessories and components	20	32.9	42.3	47.4	48.1	61.6	65.3

Source: Author, based on INDEC, Argentina

Due to this evolution, China greatly increased its share in Argentina's import of capital goods and their accessories from 1.5% in 1995 to 11.7% in 2007.

This does not mean that China is not exporting consumption goods to Argentina anymore. As a matter of fact, as can be seen in Table 16, 23.5% of total imports in 2007 were consumption goods. But this figure must be compared with that of 1995, when consumption goods were more than 60% of Chinese imports. At any rate, given the strong growth in all kinds of imports from China, its share in Argentina's total consumption goods imports has also increased (Table 17).[19]

19 In fact Argentina's consumer goods imports increased only 13% between 2000 and 2007 (between 2000 and 2006 they had fallen almost 14%). In this context, of consump-

Table 17: China's share in Argentina's imports by end use (%)			
	1995	**2000**	**2007**
Capital goods	1.9	4.3	13.1
Intermediate inputs	1.7	2.6	7.8
Accessories and components of capital goods	1	2.8	9.4
Consumption goods	11.6	11.9	23.0
Others	0.1	1	0.05
Capital goods + accessories and components	1.3	3.7	11.7
Total	3	4.6	11.4
Source: Author, based on INDEC, Argentina			

From a product line perspective (SITC 5-digit), imports from China are heavily concentrated in machinery and transport equipment. Not only have machinery (electric and non-electric) and transport equipment imports been growing rapidly in absolute values (from US$ 185 million in 1995 to US$ 315 million in 2003, US$ 657 million in 2004 and US$ 1.17 billion in 2005), but their share in total imports from China has increased dramatically from only 7% in 1995 to 47% in 2003 and 57% in 2005.

In contrast, imports belonging to "light" industries, including textiles, apparel, clothing, toys, plastic manufactures and the like recorded a slight fall between 1995 and 2005 from US$ 218 to 215 million, and their share in total imports shrank from 40% to 10% in those years. To a great extent these changes are a reflection of the transformation of China's productive and specialization patterns.[20]

Another noteworthy sector for our analysis is chemicals, whose share in total imports from China increased from 10% to 14% between 1995 and

tion goods imports from China grew 126%, which clearly shows that China displaced other suppliers in these product lines.

20 The predominance of commodities and raw materials within China's exports that prevailed in the 1960s and the 1970s has shifted to high value added manufactures since the 1980's. According to Cesarín (2007) in 2005 these products contributed 91% of total Chinese exports whereas in the mid-1980s their contribution had been of 36%.

2005 after having reached 25% in 2003. Additionally, the contribution of metals and their manufactures to total imports rose from less than 4% to nearly 8% between 1995 and 2005.

If we analyze the composition of imports within the leading import sector – machinery and transport equipment – in 2005, 28% of these corresponded to computers and their parts and accessories, while 25% of these imports were associated with consumer electronics (TV, audio, radios) and telecommunications equipment. Other groups of products with high import levels are electric and non-electric machinery (20% and 13% of total machinery and transport equipment imports respectively).

Turning now to an analysis by product line, we observe that in 2005 the first ten items contributed with more than 30% of total imports from China, while 20 product lines were responsible for almost 42% of that total. Fourteen of those 20 product lines belonged to machinery and transport equipment. Among the products with higher imports are parts and accessories for computers (4.5% of total imports from China), other organic-inorganic compounds – mostly sodium glyphosate, an herbicide used with genetically modified soy – (4.4%), ferro-alloys (4.1%), input or output units for computers (3.9%) and video recording apparatus (2.8%). This is a very different structure than that prevailing in 1995, when the first import items were toys, radio receivers and footwear.

If we compare the years 2004–2005 with 1994–1995, an increase is observed from less than US$ 590 million to almost US$ 1.7 billion, on a yearly average. Almost 30% of this approximate US$ 1.1 billion increase is explained by the first five items mentioned above, which were those with the highest absolute growth levels. In contrast, the items with the highest absolute decrease were toys representing animals or non-human creatures (US$ 8.8 million), toys n.e.s. (US$ 7.6 million), cotton shirts (US$ 7.2 million), dolls (US$ 6.8 million) and shirts not made of cotton (US$ 6.3 million).

As we have mentioned, the share of China as a supplier to Argentina has been on a rise in recent years. Table 2 showed that China is currently the third import supplier, while it ranked eighth in 1995. Moreover, between 1995 and 2007 imports from China increased more than 700%, whereas imports from Brazil – the biggest economy in Mercosur and the first commercial partner of Argentina – increased only 248% (see Table 18).

Table 18: Evolution of Argentina's imports from China and Brazil (%)

	Variation 2007/1995 (%)	Variation 2007/2001 (%)
China	737.8	377.6
Hong Kong	-55.8	-22.4
China + Hong Kong	649.7	362.0
Brazil	247.9	177.7

Source: Author, based on INDEC

Table 19 shows the main changes that took place in Argentina's imports between 2001 and 2007 regarding the import origin of the ten products that experienced the largest growth (in absolute terms).

We may conclude that between 2001 and 2007 China increased its market share in almost all of the listed products (remember they are the ten positions which recorded the largest absolute increase in imports between the years under analysis). The other side of the coin of China's increasing share is the sharp fall of USA and the UE-25 shares in these products.[21] Most observers agree that this process of displacement of the traditional suppliers (e.g. USA and UE-25) will continue in the future.

In the same vein, Table 20 shows that in some product lines China is one of Argentina's most important suppliers (radio receivers, toys, baby carriages, etc.). As mentioned before, during recent years China has displaced other important suppliers to Argentina in a few specific products. As an example, between 2003 and 2006 China replaced Brazil as the first supplier in many product lines, including those in which the Mercosur partner previously accounted for more than 50% of imports, e.g. TV sets, laser printers, chemical products, vacuum machines, etc.[22] (abeceb.com 2007).

21 Notwithstanding, another study carried out by abeceb.com (2007) shows a slightly different situation for the period 2003-2005; that is to say, the period immediately after the devaluation of the Peso.

22 Products in which Brazil accounted for less than 50% of Argentina's imports and have been substituted by China were, amongst others: PET, electronic devices, toys, hard disks, etc.

Table 19: Share in Argentina's imports of selected products by country/region (2001–2007)*

2 digit code	Description	China		Brazil		USA		EU-25	
SITC Rev 3		2001	2007	2001	2007	2001	2007	2001	2007
78	Road vehicles	2.3	5.2	40.1	61.5	6.7	2.5	35.2	11.2
76	Telecom, sound equipment, etc	7.5	47.6	20.4	14.2	26.8	4.3	17.2	2.6
72	Special industrial machines	0.7	7.0	17.5	32.5	27.5	17.7	51.5	25.9
67	Iron and steel	2.0	4.9	50.0	57.5	5.0	2.9	16.0	14.8
51	Organic chemicals	6.4	26.8	12.6	21.6	39.5	23.9	15.3	14.3
57	Plastics in primary forms	0.1	2.2	33.8	49.2	27.0	21.3	13.0	11.4
79	Other transport equipment	0.0	0.6	6.9	5.5	77.9	62.9	9.0	25.3
74	General industrial machines	6.8	25.1	16.5	16.0	22.4	16.9	27.0	28.5
28	Metalliferous ore scrap	0.9	0.3	94.0	87.6	0.4	0.2	0.0	0.3
71	Power generating machines	0.9	4.2	27.2	34.0	16.2	13.1	29.0	27.2

* Selected products correspond to the ten products with highest increase (in absolute terms) in imports.

Source: Author, based on INDEC

Table 20: China's share of Argentina's total imports by product at 5 digit of SITC 2005 (FOB values)

	China (USD million FOB)	World (USD million FOB)	Average share (%)	Main products (SITC 5d)
More than 90 %	111.6	116.1	96.1	Radio-broadcast receivers
				Table, floor, wall, window, ceiling or roof fans with self-contained electric motor
				Toys representing animals or non-human creatures
				Baby carriages and parts thereof, n.e.s.
				Electric space-heating apparatus
More than 50 % and less than 90 %	585.8	863.6	67.8	Ferro-alloys, n.e.s.
				Video-recording or reproducing apparatus
				Digital automatic data-processing machines
				Motor cycles and cycles fitted with an auxiliary motor not exceeding 250 cc
				Other radio-broadcast receivers
				Coke and semi-coke
				Toys, n.e.s.
Between 30 % and 50 %	612.7	1,643.4	37.3	Parts and accessories suitable for use with machines of sub-groups 751.1, 751.2, 751.9
				Other organo-inorganic compounds

Table 20 (cont.): China's share of Argentina's total imports by product at 5 digit of SITC 2005 (FOB values)

	China (USD million FOB)	World (USD million FOB)	Average share (%)	Main products (SITC 5d)
Between 30 % and 50 % (cont.)	612.7	1,643.4	37.3	Automatic data-processing machines, whether or not presented with the rest of a system and whether or not containing storage units in the same housing
				Storage units, whether or not presented with the rest of a system
				Television picture tubes colour
				Other apparatus for carrier-current line systems
				Telephone sets
Less than 30 %*	757.6	24,6789*	3.1	Parts and accessories suitable for use with the apparatus of division 76
				Compressors used in refrigerating equipment
				Transmission apparatus incorporating reception
				Television receivers, colour
				Data-processing equipment, n.e.s.
				Static converters (e.g., rectifiers)
Total (FOB)	2,067.6	27,302	7.6	

* Includes products not imported from China

Source: Author, based on INDEC, Argentina

1.3 Argentina's protectionist measures against China

In recent years the expansion of China has posed a threat of potential damage to domestic production in some critical sectors that compete with imported products. This situation is repeated in many other Latin American countries. In this sense, Facchini et al. (2007) mention that requests for explicit protection have become more and more common among LAC countries and that governments have responded using antidumping and safeguard rules and other instruments (such as quantitative restrictions, technical regulations and *ad valorem* equivalents of non tariff barriers). In an econometric analysis, these authors found that, on average, tariffs and non tariff barriers tended to be higher for goods that were heavily imported from China to LAC countries.

Worries about China were intensified during 2007, due mainly to two factors. First, the growing share of China in Argentine imports and the continuous reduction of trade surplus with that country. In 2007 exports to China grew a remarkable 48% vis-à-vis 2006, but imports increased by 63%. The trade surplus with China almost disappeared in 2007 and in fact the trade balance turned negative in the first six months of 2008, with a deficit of US$ 536 million (Table 21).

Table 21: Argentina-China bilateral trade, 2004–2008 (US$ million)

	2004	2005	2006	2007	2008*	Var % 07/06	Var % 06/05
Exports to China	2627.9	3154.3	3508.2	5186.6	2769	47.8	11.2
Imports from China	1401.8	2237.1	3121.9	5092.7	3305	63.1	39.5
Trade balance	1226.0	917.2	386.3	93.9	-536	-75.7	-57.9

* First six months

Source: INDEC, Argentina

Second, there are also concerns about the bilateral trade pattern. We have mentioned previously that imports from China are almost entirely of manufactured goods, while the opposite occurs with Argentina's exports. This difference is clearly reflected in the average price of Argentina's imports and exports to and from China, which could be taken as a proxy for the value-added of trade. As seen in Table 22, the average price per ton

Table 22: Average prices of exports and imports (US$ / Tn)		
	Exports to China	Imports from China
1999	296	3,451
2000	235	2,827
2001	207	3,124
2002	277	1,344
2003	299	2,026
2004	368	2,560
2005	310	3,187
2006	336	3,469
2007	400	3,397
Source: Author, on the basis of INDEC, Argentina		

of exports to China is ten times lower than the average price per ton of imports from China.

In this context, it is not surprising to find that many companies and business chambers in Argentina have denounced China during the last decade- for unfair commercial practice and its potential damage to local production.[23] As seen in Table 23, according to the data provided by the National Commission of International Trade (CNCE) – the agency responsible for decisions on antidumping – an average of 18 antidumping measures were effectively applied to China each year between 1998 and 2005. With 21 cases, China outranked the countries with the greatest number of effective antidumping measures applied in 2007 (the second was Brazil with 10 cases), and occupied second place when measured by the amount of imports involved (Brazil being the first with 36.5% of total imports). In 2007, imports from China under antidumping measures reached US$ 137 mil-

23 The application of safeguard measures is pertinent in situations of fair trade, where the growth of imports could cause serious damage to a domestic industry directly competing with an imported product. Measures are aimed at preventing the damage and providing the national industry sufficient time to adapt its production under the new circumstances. Competitiveness conditions within the domestic market must be re-established as fast as possible. Safeguards are measures on a specific product, independently of where it comes from, and they must be applied during the period needed to prevent or to repair the damage and to facilitate readjustment of the industry.

lion; that is to say 2.7% of all imports from China in that year (Figure 4 and Table 23). The weight of China in these statistics reflects not only the impact of its exports on the industrial structure but the lobbying activity of the main Chambers and local companies to prevent the dumping of Chinese imports into the domestic market.

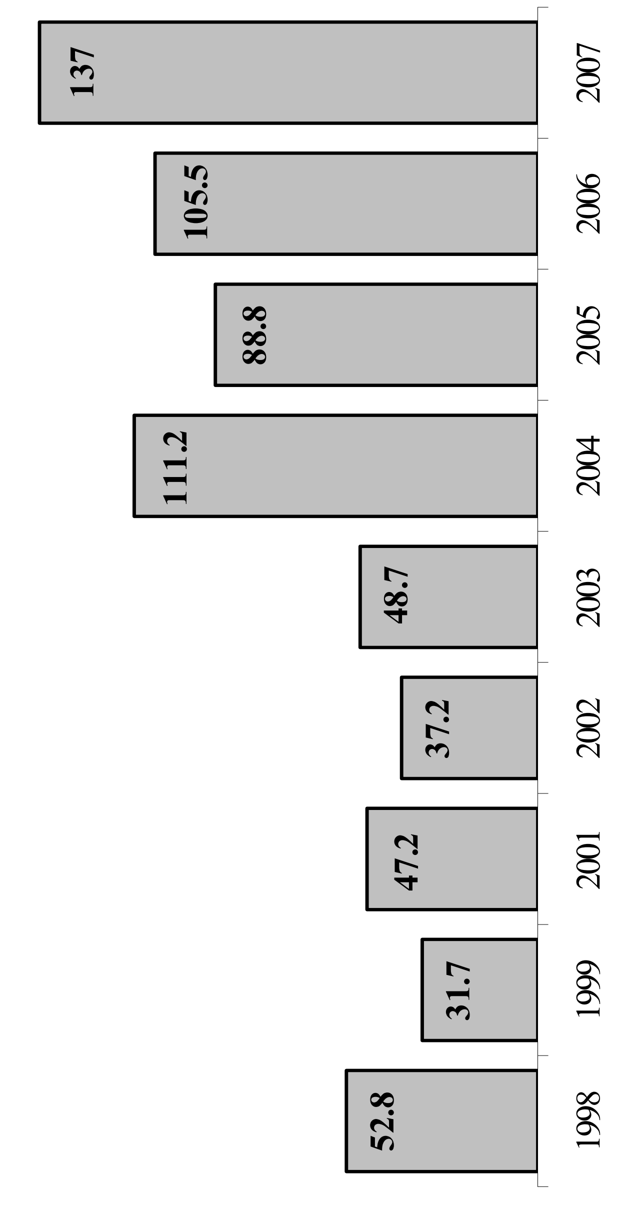
Information from 2007 indicates that, among the Chinese products with antidumping measures in force were stainless steel pipes, steel chains, connection terminals, microwave ovens, bicycles, irons, measuring tapes, heaters and cards.

Table 23: Antidumping and safeguard measures adopted by Argentina (available years), FOB values (%)

Year	Number of cases of anti-dumping or subsidies adopted		Share of China in total imports investigated (%)		Investigated imports / total imports from China (%)	Imports from China/World imports (%)
	China	World	Number of cases	US$		
1998	17	63	27	27	4.9	3.7
1999	17	48	35	12	3.5	3.9
2001	17	98	17	15	4.8	5.2
2002	19	98	19	21	12.1	3.7
2003	n/a	n/a	n/a	n/a	7.2	5.2
2004	19	82	23	31	8.6	6.2
2005	21	81	26	24	4.3	8.2
2006	21	79	27	27.7	3.4	9.1
2007	21	73	29	30	2.7	11.4

Source: Author, based on CNCE and INDEC, Argentina

Figure 4: Imports from China involved in antidumping measures effectively adopted, available years (US$ million)



Source: Author, based on CNCE, Argentina

Due to intense pressure from the domestic industrial sector, in August 2007 the Argentine government established a set of measures aimed at restricting imports from Asian countries, particularly from China. The new measures intensified customs control with the aim of preventing disloyal practices that could have a negative effect on many industrial sectors. The first measure to be applied was the establishment of "specialized customs", an instrument that results in a much more careful control of imported products. This measure was applied to a range of products considered as the core threat of China's imports: plastic products, leather products, textile and footwear, metal tools, electric machines, tires, optical and clockwork instruments and toys.

In the case of leather products, the Argentine government established additional restrictions such as the obligation to present documentation authorizing the import of this kind of product from Asian countries (the so called "Note of Diverse Imported Manufactures"). Similar measures have been taken to protect the footwear industry. In this case, the local government stipulated that imports that are specifically addressed to local final consumption must present a "Note of Footwear Parts Imports"

Besides these norms, the official General Customs Agency has introduced additional measures against countries from Group 4 (Democratic Korea, Republic of Korea, China, Philippines, Hong Kong, India, Indonesia, Malaysia, Pakistan, Taiwan, Thailand, Singapore and Vietnam). Extra documentation from these countries will be required when declared prices are below the "official value" established by this Agency.[24]

The other industrial sector that is strongly protected by these new measures is textiles. The multilateral Agreement on Textiles and Clothing (ATC) concluded in January 2008. This agreement – established by the WTO in 1995 – allowed Argentina and many other countries to use a special safeguard mechanism to protect their local industries during a "transition period" (which lasted more than ten years). On the other hand, on December 31st, 2008 the Textile Chapter of the Working Party Report expired; a document that was signed by China and all the members of WTO in October of 2001, one month prior to the signing

24 Undervaluation of imports is one of the disloyal practices most denounced by local firms.

of China's Protocol of Accession to the WTO. This chapter established that any member of the WTO may impose special safeguard mechanisms in cases of serious damage or threat of damage to domestic textile producers. Given the situation, Argentina has far fewer instruments to protect its industry against Chinese competition. Therefore, the Argentine government decided to include this sector under the protectionist plan launched in August 2007. With this in view, the government is analyzing the possibility of introducing other measures related to the quality of imported textiles, and the General Customs Agency has been studying the case of United Kingdom, which imposed new sanitary restrictions on Asian textiles in 2007 based on health concerns.[25]

The adoption of protectionist measures against Chinese competition may be understood especially from the point of view of the (negative) effects of said competition on domestic employment; and, as seen before, Argentina is not the only country adopting protective measures against China. It is clear from all this that China's emergence is here to stay, and this creates the challenge of how to face the competition from now on. If the only answer is protectionism it will be very difficult to overcome this challenge. Hence, other policies are required beyond these defensive measures, both in restructuring the existing activities that face Chinese competition and in fostering new activities which may already present or develop competitive advantages *vis-à-vis* China (more on this in the concluding section).

1.4 Effects of trade with China

The increasing significance of China as a trade partner of Argentina has different and often contrasting effects. On one hand, sales to China generate significant amounts of money for the State insofar as they are subject to high export taxes. Furthermore, the presence of China as a global economic power has contributed to some extent to the improvement in the terms of trade for many developing countries, including Argentina. On the other hand, the increasing number of manufactured

25 In this regard, it may also be mentioned that as was the case in many other countries, Mattel had to recall some toys made in China from the Argentine market due to health hazards.

product imports from China may be a threat to domestic employment. All these subjects are analyzed in the following sections.

Government revenues

The impact of trade with China on Government revenues began to be significant in April 2002, when Argentina's Government imposed a tariff on exports called "retenciones". From 1995 until then, export tariffs had been applied only to specific products, and in our analysis, the most relevant of these were soybean, sunflower beans and leather with different degrees of processing; and revenues from tariff on exports were practically negligible (the average annual revenue from exports to China was around US$ 8.5 million).

As a consequence of the 2001 crisis and with the strong depreciation of national currency, President Duhalde decided to generalize the application of tariffs on exports to the entire range of products in order to prevent a rise in domestic prices. The adopted measure included a three-level scheme: the upper tariff corresponded to natural resource-based products (petroleum oil, oilseeds and cereals), the middle tariff went to food and consumer goods (dairy, meat, fruit, vegetables, etc) and the lower tariff[26] corresponded to manufactured goods. Although these measures were thought to be temporary, they are currently still in force, though they have suffered some changes in recent years.

These changes may be observed in the figure below. It is clear that those products which have more weight in the export basket to China – soybeans and soybean oil – are those with the highest export tax levels as well as those in which the increase in said taxes has been higher (Table 24).

26 Average export tariffs were around 20%, 10% and 5%, respectively.

Table 24: Evolution of export taxes

	2002	2004	2006	2007	Jan-08	Mar-08
Soybean	23.5	23.5	23.5	27.5	35	**Mobile Scheme** with initial rise. Grain 41.8%, Derivatives 38.8
Soybean Derivatives	20	20	20	24	32	
Wheat	20	20	20	20	28	**Mobile Scheme.** 27.1%
Corn	20	20	20	20	25	**Mobile Scheme.** 24.5%
Oil	20	24	45	**Mobile Scheme.** 48%		
Fuel	5	5	5			
Milk	5	5	10	10	10	10
Meat	5	5	15	15	15	15
Regional Products (Fruits, Vegetables, etc.)	10	10	10	10	10	10
Manufactured Goods	5	5	5	5	5	5

Source: M&S Consulting

As a result, tax collection derived from exports to China has not only grown in absolute terms but also *vis-à-vis* total export tax collection in Argentina. As seen in Table 25, tax collection associated with exports to China was around 12% of total export tax collection up to 2006 (while China's share in total exports was about 7–8% during those years), but in 2007 there was a sharp increase and it reached almost of a fifth of that total.[27]

Table 25: Fiscal revenues for taxes on exports, 1995–2007 (US$ million)

	China		World		China / World (%)	
	Exports	Export taxes	Exports	Export taxes	Exports	Export taxes
1995	285.7	0.7	20,963.1		1.4	
1996	607.4	2.3	23,810.7		2.6	
1997	871.0	0.0	26,430.9		3.3	
1998	681.8	3.1	26,433.7		2.6	
1999	507.9	5.5	23,308.6		2.2	
2000	796.9	18.0	26,341.0		3.0	
2001	1,122.6	28.0	26,542.7		4.2	
2002	1,093.5	155.1	25,650.6	1,521.7	4.3	10.2
2003	2,440.8	390.5	29,938.8	3,070.7	8.2	12.7
2004	2,627.9	413.5	34,575.7	3,424.0	7.6	12.1
2005	3,154.3	522.4	40,351.9	4,220.0	7.8	12.4
2006	3,508.0	581.0	46,570.0	4,745.7	7.5	12.2
2007	5,186.6	1,273.9	55,933.4	6,512.6	9.3	19.6

Note: Revenues on tariffs are calculated as follows: t*X/(1+t), where t is tariff on exports and X is exports.

Source: Author, based on data from INDEC, CEP and M&S Consulting (www.mysconsultores.com)

27 In 2006 the weighted average export tax for exports to China was around 17%, while for exports to the rest of the world the corresponding figure was lower than 10%.

In spite of the importance of China in fiscal revenues, it is clear that its main impact does not come from being a major market for Argentina's agricultural (e.g. soybean) exports but because of the impact of China's demand on international prices. In effect, the notable increase of the latter (at least until the current crisis) is the main reason behind the strong growth of export tax revenues (see Table 26).

Table 26: International prices of the soybean complex: Argentine harbors FOB, 1990–2008 (US$ / Tn)

	Soybean	Soybean flour	Soybean oil
1990	215.1	178.8	425.7
1991	213.8	168.8	416.8
1992	212.1	181.0	396.4
1993	226.8	182.1	442.8
1994	233.9	167.4	586.2
1995	231.8	167.3	604.6
1996	285.5	243.9	515.0
1997	296.5	252.9	544.8
1998	221.8	150.1	610.8
1999	175.3	132.6	402.5
2000	187.4	166.6	311.5
2001	171.5	160.2	312.9
2002	198.0	156.4	420.4
2003	238.6	182.2	517.0
2004	267.7	192.3	543.3
2005	230.7	174.6	460.4
2006	233.8	175.0	511.5
2007	317.9	239.8	774.6
2008	456.3	354.1	1110.8

Source: Author, on the basis of information from CIARA

This clearly shows that to the extent that there are alternative markets for exports that are currently sent to China, the apparent "fiscal dependence" on China does not exist. And this is really the case since the products which are exported to China are agricultural commodities that could be sold in other markets with relative ease.

Terms of trade

During recent years Argentina's terms of trade have improved substantially. This is perhaps one of the most significant effects of China's global expansion insofar as its growing demand for primary products, natural resources, food, minerals and fuels, along with other factors, has helped maintain and even increase the prices of those commodities, favoring countries such as Argentina which are major exporters of such products.

As seen in Table 27, the purchasing power of Argentina's exports increased three-fold between 1995 and 2008. This is the result of the sustained increase in export prices – essentially associated with the soybean complex: between 2000 and 2008, the export price index for oilseeds, vegetable oils and pellets grew by 107.7%, 219.9% and 82.6%, respectively. The improvement in Argentina's terms of trade generated a trade gain of more than US$ 17 billion (at constant prices of 2003) in 2008; that is around 40% of total exports corresponding to that year.

Some authors – e.g. Kaplinsky (2006) – state that the downward trend of manufacturing prices – especially those in which China is a major producer – and the upward trend of some commodity prices (including both "soft" and "hard" commodities) will keep operating in the near future. Quoting Bloch / Sapsford (2000) Kaplinsky argues that these trends could be more a secular change than phenomena associated with a specific business cycle. If this forecast holds true, this is clearly a positive factor for a country such as Argentina. In any case, the evolution of international prices is not only associated with China's emergence but also with other factors (including, for instance, adopted policies adopted regarding biofuels), and will of course be affected by the ongoing world economic crisis and its further impact.

Notwithstanding the future evolution of world prices, it is clear that the improvement in the terms of trade that benefited Argentina in recent years

Table 27: Evolution of Argentina's terms of trade (selected products 1995–2008)

	Unit	1995	2000	2007	2008	Var. % 2008/2000
Exports (A)	Constant prices (1993) US$ million	19,267.60	26,878.60	41,617.10	41,961.63	56.1
Export price index						
General level	Base 1993=100	108.8	98	134.4	168.2	71.7
Primary products	Base 1993=100	114.4	90.7	133.4	187.6	106.8
Oilseeds	Base 1993=100	97.3	84.2	129.5	174.9	107.7
Agricultural manufactures	Base 1993=100	103.1	82.7	122.5	169.2	104.6
Vegetable oils	Base 1993=100	135	72.7	156.7	232.6	219.9
Oilseed pellets and other products	Base 1993=100	77.7	88.6	117.4	161.7	82.6
Leather	Base 1993=100	99.7	95.3	96.7	96.8	1.5
Import price index	Base 1993=100	106.9	92.4	107.2	118.8	28.6
Terms of trade index (B)	Base 1993=100	101.8	106.1	125.4	141.6	33.5
Purchasing power of exports (C)=(A).(B)/100	Constant prices (1993) US$ million	19,614.40	28,518.20	52,176.70	59,419.30	108.4
Gain (or loss) of trade (D)=(C)-(A)	Constant prices (1993) US$ million	346.8	1,639.60	10,559.60	17,457.67	964.8

Source: Author, based on INDEC

is not the result of "virtuous" structural factors (e.g. the technological upgrade of its exports basket), but the consequence of changes in the international markets. History teaches us that this kind of dependence could be dangerous from the point of view of the sustainability of development processes. Therefore, it may be wise to take advantage of this improvement in terms of trade to foster the development of some activities which could help to transform the specialization pattern of the Argentinean economy (and China may well help with this transformation given the enormous potential of its domestic market). We return to these issues in the concluding section.

Employment

The third variable which it is important to analyze from the point of view of the impact of China on Argentina is employment, both in those sectors which have been favored by access to China's market, and in those that face competition with China's imports.

Following Jenkins and Sen (2006), to analyze the impact of trade with China on employment we use a Chenery-type exercise in order to learn about the sources of employment changes in the industrial sector. This exercise is inspired by a growth accounting methodology used by Chenery in which changes in production are attributed to changes in domestic demand and export and import penetration, according to the following equation:

$$Q_{it} = D_{it} + X_{it} - M_{it}$$

where:

D_{it} is domestic demand of industry i at time t

Q_{it} is domestic production of industry i at time t

X_{it} is exports of industry i at time t

M_{it} is imports of industry i at time t

Then, changes in employment can be decomposed as follows:

$$\Delta L_i = l_{i1}(1-m_{i0})\Delta D_i + l_{i1}\Delta X_i + l_{i1}(m_{i0} - m_{i1})D_{i1} + (\Delta l_i)Q_{i0}$$

where:

L_{it} is employment in industry i at time t

$$l_{it} = \frac{L_{it}}{Q_{it}}$$

$$m_{it} = \frac{M_{it}}{D_{it}}$$

Hence, changes in total employment may be attributed to the impact of changes in domestic demand on employment (first term of the equation), the effect of changes in exports (second term), the impact of changes in import penetration (third term) and the effects of productivity changes (final term).

According to the objective of our analysis, which is to learn about the impact of trade with China, changes in import and export penetration will be decomposed as follows:

$$\Delta L_i = l_{i1}(1-m_{i0})\Delta D_i + l_{i1}\Delta X_i^{Ch} + l_{i1}\Delta X_i^{RW} + l_{i1}(m_{i0}{}^{Ch} - m_{i1}{}^{Ch})D_{i1} + l_{i1}(m_{i0}{}^{RW} - m_{i1}{}^{RW})D_{i1} + (\Delta l_i)Q_{i0}$$

where:

X_{it}^{Ch} is exports to China of industry i at time t

X_{it}^{RW} is exports to the rest of the world of industry i at time t

M_{it}^{Ch} is imports to China of industry i at time t

M_{it}^{RW} is imports to the rest of the world of industry i at time t

In this new equation the second term measures the impact of changes in exports to China and the third term the effect of changes in exports to the rest of the world. The fourth and first terms, in turn, represent the impact of changes in imports from China and from the rest of the world, respectively.

The limitations and assumptions of this analysis must be highlighted. Although others could be mentioned, at least five facts must be considered in this regard. First, it assumes that productivity changes are independent from changes in other variables (including trade). Second, as no updated input-output data are available, only direct effects on employment can be captured, while indirect effects are not taken into account. Third, when analyzing the impact of changes in imports (exports) from (to) China separately from those coming from the rest of the world, we are not sure to what extent increased imports from China displace imports from elsewhere or domestic production, or whether increased exports to China might have been destined for other countries. Fourth, we are not taking into account other effects of trade with China that go beyond those that can be associated with direct imports (exports) from (to) said country (for instance, the fact that China's demand may have impacted positively on the export prices of our commodities). Last but not least, this exercise assumes that the ratio labor/production is equal for production sold in domestic market and abroad.[28]

With these comments in mind, now we analyze the results of our calculations. Table 28 summarizes the results for the industrial sector as a whole (in fact, the relatively few branches where there is no trade with China were removed) and for each manufacturing branch. The analysis is carried out at 3-digit level of the International Standard Industrial Classification (ISIC), revision 3. The period under study is 2001−2006.

When looking at the results for the industrial sector as a whole, it becomes clear that, in the context of a significant increase in industrial employment, the only factor that has a negative impact on employment is increased import penetration with China. The positive contribution of imports from the rest of the world reflects a kind of "import substitution" effect, although as we said before, we do not know whether increased imports from China could have been supplied from elsewhere or if they are displacing domestic production. Anyway, what these figures reflect is the fact that China has been gaining a share in the total of Argentina's industrial imports.

The negative impact of growing imports from China cannot be compensated by the relatively small contribution of increased exports to the country. Hence, the net effect of trade with China on employment is clearly negative.

28 This is an important assumption taking into account that at this level of disaggregation, within a sector many different products coexist, and it is therefore likely that many of them have different labor ratios.

Table 28: Employment changes in Argentina's industrial sector: The impact of trade with China (number of employees)

Group	Description	ΔL Total	ΔL China	Domestic demand	China's exports	Rest of the world's exports	China's imports	Rest of the world's imports	Productivity
151	Production, processing and preservation of meat, fish, fruit, vegetables, oils and fats	**34,182**	**5,543**	7,117	5,572	38,703	-28	1,574	-18,756
152	Manufacture of dairy products	**-267**	**23**	-11,148	23	4,143	0	84	6,631
153	Manufacture of grain mill products, starches and starch products, and prepared animal feeds	**4,167**	**-29**	-2,579	1	2,135	-31	59	4,582
154	Manufacture of other food products	**14,033**	**-37**	2,387	-10	13,335	-27	2,978	-4,629
155	Manufacture of beverages	**4,817**	**24**	-5,362	24	3,502	0	207	6,446
171	Spinning, weaving and finishing of textiles	**5,319**	**-531**	7,139	-475	2,336	-55	-2,712	-914
172	Manufacture of other textiles	**2,286**	**-257**	252	2	1,672	-259	-1,743	2,362
173	Manufacture of knitted and crocheted fabrics and articles	**2,702**	**248**	2,535	-6	236	254	588	-904
18A	Manufacture of wearing apparel; dressing and dyeing of fur	**14,530**	**432**	-32,112	-5	3,886	437	612	41,712
191	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery and harness	**6,079**	**859**	-36	1,141	3,351	-282	-252	2,158

Table 28 (cont.): Employment changes in Argentina's industrial sector: The impact of trade with China (number of employees)

Group	Description	ΔL Total	ΔL China	Domestic demand	China's exports	Rest of the world's exports	China's imports	Rest of the world's imports	Productivity
192	Manufacture of footwear	**-1,675**	**-1,328**	4,691	2	999	-1,330	226	-6,264
20A	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	**12,838**	**123**	21,037	209	8,245	-86	692	-17,259
210	Manufacture of paper and paper products	**4,141**	**-29**	1,399	9	2,140	-38	260	371
221	Publishing	**-75**	**-67**	-8,988	0	864	-67	279	7,837
222	Printing and service activities related to printing	**-2,899**	**-16**	522	1	352	-16	94	-3,851
232	Manufacture of refined petroleum products	**521**	**8**	1,374	9	1,495	-1	-458	-1,898
23A	Manufacture of coke oven products	**110**	**10**	232	0	37	10	-229	60
241	Manufacture of basic chemicals	**1,119**	**-308**	4,611	52	1,420	-360	1,016	-5,620
242	Manufacture of other chemical products	**10,891**	**-463**	-5,427	76	7,219	-539	-4,579	14,140
243	Manufacture of man-made fibres	**-724**	**-73**	328	3	-506	-75	-404	-69

Table 28 (cont.): Employment changes in Argentina's industrial sector: The impact of trade with China (number of employees)

Group	Description	ΔL Total	ΔL China	Domestic demand	China's exports	Rest of the world's exports	China's imports	Rest of the world's imports	Produc-tivity
251	Manufacture of rubber products	**1,687**	**-222**	3,003	7	2,174	-230	-451	-2,817
252	Manufacture of plastics products	**11,632**	**-400**	11,445	0	3,725	-400	-666	-2,471
261	Manufacture of glass and glass products	**685**	**-61**	1,675	0	248	-60	-7	-1,171
269	Manufacture of non-metallic mineral products n.e.c.	**17,457**	**-675**	24,032	4	4,028	-679	439	-10,365
271	Manufacture of basic iron and steel	**1,023**	**-262**	8,629	-98	1,031	-164	326	-8,700
272	Manufacture of basic precious and non-ferrous metals	**352**	**-39**	1,758	1	1,587	-40	73	-3,027
281	Manufacture of structural metal products, tanks, reservoirs and steam generators	**6,441**	**-21**	5,317	0	1,186	-21	-83	42
289	Manufacture of other fabricated metal products; metal working service activities	**6,310**	**-490**	12,638	-6	1,163	-484	-166	-6,835
291	Manufacture of general purpose machinery	**10,689**	**-1,730**	9,038	38	3,530	-1,768	215	-364
292	Manufacture of special purpose machinery	**13,464**	**-31**	16,972	-13	-548	-18	16,986	-19,914

Table 28 (cont.): Employment changes in Argentina's industrial sector: The impact of trade with China (number of employees)

Group	Description	ΔL Total	ΔL China	Domestic demand	China's exports	Rest of the world's exports	China's imports	Rest of the world's imports	Productivity
293	Manufacture of domestic appliances n.e.c.	**3,333**	**-21**	4,532	0	367	-21	769	-2,314
300	Manufacture of office, accounting and computing machinery	**1,927**	**-15,306**	1,163	-1	-108	-15,305	8,251	7,928
313	Manufacture of insulated wire and cable	**-660**	**-101**	1,409	0	0	-101	243	-2,210
31A	Manufacture of electric motors, generators and transformers, and manufacture of electricity distribution and control apparatus	**4,459**	**-1,858**	5,259	2	881	-1,860	3,219	-3,043
31B	Manufacture of accumulators, primary cells and primary batteries, and manufacture of electric lamps and lighting equipment	**1,878**	**-2,870**	80	0	1,147	-2,870	-1,147	4,668
323	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods	**2,076**	**-2,119**	1,662	1	550	-2,120	901	1,082

Table 28 (cont.): Employment changes in Argentina's industrial sector: The impact of trade with China (number of employees)

Group	Description	ΔL Total	ΔL China	Domestic demand	China's exports	Rest of the world's exports	China's imports	Rest of the world's imports	Productivity
32A	Manufacture of electronic valves and tubes and other electronic components, and manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	**-380**	**-4,997**	4,306	-2	-169	-4,995	-1,351	1,831
33A	Manufacture of medical appliances and instruments and appliances for measuring, checking, testing, navigating and other purposes, except optical instruments; manufacture of optical instruments and photo-graphic equipment, and manufacture of watches and clocks	**1,398**	**-928**	1,272	13	2,784	-941	-1,294	-436
341	Manufacture of motor vehicles	**1,258**	**-35**	4,733	9	5,349	-44	-3,429	-5,359
342	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	**982**	**-45**	4,594	0	457	-45	151	-4,175

Table 28 (cont.): Employment changes in Argentina's industrial sector: The impact of trade with China (number of employees)

Group	Description	ΔL Total	ΔL China	Domestic demand	China's exports	Rest of the world's exports	China's imports	Rest of the world's imports	Productivity
343	Manufacture of parts and accessories for motor vehicles and their engines	**14,533**	**-190**	15,347	7	11,022	-196	-6,490	-5,157
351	Building and repairing of ships and boats	**3,574**	**-3**	3,257	1	718	-4	2,788	-3,184
359	Manufacture of transport equipment n.e.c.	**53**	**-2,107**	862	0	62	-2,107	1,757	-521
35A	Manufacture of railway and tramway locomotives and rolling stock, and manufacture of aircraft and spacecraft	**-123**	**0**	522	0	-94	0	-385	-166
361	Manufacture of furniture	**2,706**	**-986**	-26,667	-18	-901	-968	-3,528	34,788
369	Manufacturing n.e.c.	**246**	**-3,202**	-3,706	2	1,237	-3,205	-2,614	8,531
	Total	**219,096**	**-34,567**	**101,103**	**6,575**	**136,989**	**-41,142**	**12,796**	**2,775**

Source: Author, based on CEP

What happens when the results are analyzed by industrial sector? The whole positive impact of exports to China on employment is concentrated in only two sectors: the food processing and leather industries. On average, both industries have relatively low labor intensities. On the other hand, as the export of textile products to China fell – and considering this is a labor intensive activity –, there was an ensuing negative contribution to employment in this sector.

In the case of imports, negative figures appear in almost all sectors, reflecting the growing widespread penetration of industrial imports from China. Different sectoral situations may be distinguished in this regard. On one hand, among the few activities in which employment fell, it is in the shoe sector – another labor intensive activity – that the negative impact of China's imports is most relevant (nearly 80% of employment reduction in that industry may be attributed to China's import competition). In the publishing industry there is also a great impact of China on employment reduction, but absolute figures are very low.

In the case of electric components and TV, and radio and communication transmitters, the negative impact of China's imports on employment is far greater than the total employment reduction. Moreover, the figure for employment reduction attributable to increased imports from China is higher than total employment at the beginning of the period under study (2001). How can we interpret these figures? In this case, domestic demand grew significantly while local production fell. The growing gap was covered by imports, among which China's share increased markedly during the period under analysis. As in this particular case, it is uncertain whether, in the absence of competition from China, domestic production could have met increasing demand. It could be perhaps the case that the negative effect on employment would have been observed anyway with imports from other countries.

The case is similar for the manufacture of accounting, office and computing machinery, in which there was an increase in employment but a very strong negative effect of import penetration from China. As in the case above, growing domestic demand goes hand in hand with a fall in local production. Furthermore, imports from other countries diminished during the period under study. Again, we could ask the same question as in the preceding paragraph, and the answer would probably be the same. In fact, in both cases it may be that China's growing share in imports is to some extent a consequence of new production strategies by large TNCs in this sector on one hand, and the result of independent import decisions by local buyers on the other hand.

The sector that produces lamps, lighting equipment and batteries faced a very similar situation to that of the two industries mentioned above. However, in this case it is possible that domestic capabilities might have existed to meet the increased domestic demand, at least from a technological point of view. The same occurred in other sectors where there was a similar combination of events – falling production, growing demand, and increased share of Chinese imports. Some examples are: furniture[29] and a miscellaneous sector that includes sports goods, games and toys. All these cases had adequate local production capabilities in the past and some still do.

Finally, considering only those sectors in which absolute figures for employment reduction associated with increased Chinese competition are high (and in which the share of Chinese imports *vis-à-vis* domestic demand is also high), there are four more sectors in which there was both domestic production and an increase in demand between 2001 and 2006 and high rises in China's share of total imports. These are: general purpose machinery, electric machinery, transport equipment n.e.c. and TV and radio receivers and sound and video equipment. Considering that domestic production increased during the period under study it is also plausible that at least a part of China's negative impact on employment may reflect the displacement of local production.

In any case, it is clear that our thoughts about the counterfactual situation in the absence of increased competition from China are purely speculative and would need further research to confirm or reject them.

29 Production is measured in US dollars. Therefore, a part of the fall in local production in the sectors under analysis could be attributed to the impact of the 2002 devaluation on domestic prices nominated in US dollars. However, among the sectors analyzed in these paragraphs, in terms of quantities, local production only increased in furniture. In the other sectors the decrease was observed in quantities as well as in US dollars.

2 FDI flows and the incidence of China on Argentina's global positioning

China has become the principal destination of FDI towards developing countries.[30] According to the World Investment Report 2008 (UNCTAD 2008), it received almost US$ 73 billion in FDI in 2006 and over US$ 80 billion in 2007, while Hong Kong received US$ 43 billion and almost US$ 60 billion, respectively. This represents 4.6% of global FDI in 2007 and approximately 7.8% of FDI if we consider Hong Kong.

Although market seeking investments are also important, the growing attraction of China is to a large extent responsible for the trend towards production offshoring that has been observed world-wide for a couple of decades, and in recent years this phenomenon, that was limited to manufacturing industry, has spread to the services. This reconfiguration of global production resulted in changes in the division of labor, in trade flows and also in FDI flows. Why do we mention this? Because China emerges as one of the key players of the new global scenario and without doubt its attractiveness as a destination for FDI has an impact on other developing countries that also seek a place in this new scheme.

Argentina is outside of this process. First, as occurs in developed countries, some (so far only a few) Argentine companies are starting to relocate part of their production activities to offshore locations. This is particularly significant in some sectors, in which the organization of production allows for this type of division of labor and in which the Argentine companies have the size and, therefore, the capacity to undertake such a process.[31] China is one of the destinations to which these companies are directing their efforts, essentially motivated by efficiency seeking reasons. Thus, a growing number of Argentine companies see China not only as a market in which to place their export products, but also as a location in which to carry out production.

30 Globally, China ranks sixth as a destination for FDI after the US, UK, France, Canada and Netherlands.

31 It is important to note that the development of offshore-type activities - either within the corporation itself (captive offshoring) or outsourced (outsource offshoring) - requires an important degree of coordination between the supplier and the customer, and often also includes the transfer of technology and knowledge with different levels of codification, etc., so that it is unlikely that very small firms could carry out such processes.

Secondly, Argentina competes for a better insertion in the GVCs, both in manufacturing and services. Given that said insertion largely depends on the ability to attract investment from TNCs that dominate these chains the country must compete with other nations including, of course, China, to attract these investments.

In addition, China may become an important investor in the Argentinean economy, as expected from the publicity seen a few years ago. Moreover, investments from China could help Argentina to achieve a better integration in GVCs.

In the following sections we present a survey of the principal bilateral investment projects identified in our investigation and we also analyze some issues that are important in terms of the competition China might represent for Argentina in attracting investment and of its impact on the position Argentina could occupy in the future in the GVCs that are now being deployed worldwide.

2.1 Chinese FDI: Recent trends and major projects in Argentina

As we have mentioned, China has become one of the most attractive destinations for FDI flows in recent years. Argentina, in contrast, has remained outside the most significant investment flows. In 2007 the FDI received by Argentina reached only US$ 5.72 billion, a value that contrasts with the nearly US$ 10 billion it had received, on average, before the crisis of 2001–02 (or the US$ 24 billion registered in the 1999 peak), although it is above the depressed values of the triennium 2001–03 (around US$ 2.3 billion average) (Table 29).

Table 29: FDI flows: World total, China and Argentina (US$ billion)

	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
China	40.8	46.8	52.7	53.5	60.6	72.4	72.7	83.5
Argentina	11.9	3.2	2.1	1.7	4.6	5.3	5.0	5.7
World Total	1392.9	823.8	716.1	557.9	742.1	958.7	1411.0	1833.3
% China-World	2.9	5.7	7.4	9.6	8.2	7.6	5.2	4.6
% Argentina-World	0.9	0.4	0.3	0.3	0.6	0.6	0.4	0.3

Source: Author, based on UNCTAD (2003–2008)

In addition to Hong Kong (which represents nearly one third of total FDI in China), the largest investors in that country are Japan, US, Korea, Taiwan, Singapore, and Germany; with shares of 9%, 7%, 7 %, 5%, 4% and 2% of the total, respectively. Most investment is directed to coastal cities or the "second string" (Yearbook 2002–2006) while in terms of sectors, the manufacturing sector absorbs about 64% of resources (figures for 2006)[32] (Table 30).

Table 30: FDI flows into China by sector (2006)

Sector	% over total FDI entered into China
Manufacturing	63.6
Real estate	13.1
Leasing and business services	6.7
Transport, storage and post	3.1
Wholesale and retail trades	2.8
Production and supply of electricity, gas and water	2.0
Information transmission, computer services and software	1.7
Hotels and catering services	1.3
Construction	1.1
Agriculture, forestry, animal husbandry and fishery	1.0
Scientific research, technical service	0.8
Services to households and other services	0.8
Mining	0.7
Financial intermediation	0.5
Culture, sports and entertainment	0.4
Management of water conservancy, environment and public facilities	0.3

Source: Author, National Bureau of Statistics of China (2007)

32 According to the Ministry of Commerce of China, nearly 24 million Chinese are working in foreign enterprises, contributing with more than 10% of the country's total urban employment (www.service.china.org.cn).

According to the Economist Intelligence Unit (EIU / CPII 2006), although China remains open to foreign investors, in recent years there is some saturation of FDI that is affecting various industries and could also reduce flows in the coming years. The reason for this change is found, according to the work above, in the intense price competition and the increased value of raw materials, which has cut profit margins in some sectors. Another factor that may also have an impact is the (expected) alignment of the corporate tax rate faced by domestic companies with respect to foreign firms (in early years the former have been systematically higher than the latter).[33]

In this respect, the OECD (2007) mentions that, although China is still at the top of the list of preferred locations for FDI flows, other developing countries are becoming increasingly attractive to foreign investors, a subject to which we will return later in this section.[34]

Beyond these considerations, there is almost unanimous agreement in the specialized literature that FDI will continue flowing into China, partly because there are important sectors of the economy – especially in services – which are going through a process of opening to FDI as a result of WTO accession.

By contrast, Chinese investment abroad is still relatively weak when compared to its presence in trade flows[35], although it has grown rapidly in recent years and spread to a wider range of activities and countries, partly as a result of the government support that some domestic companies are receiving in order to become internationalized. Therefore, in general there

33 Foreign companies operating in China are taxed at a rate of 15%, while local firms pay 33% (EIU 2006).

34 Inasmuch as labor costs in other countries - such as India or Vietnam, which have also embarked on a process of openness to FDI - are lower than in Chinese coastal areas, they might be able to divert part of the FDI directed to cheap-labor-intensive sectors now going to China.

35 It is necessary to mention some issues related to FDI statistics. According to The Economist Intelligence Unit, while Chinese FDI abroad is much less than the FDI received by that country, the first of these figures is undoubtedly much higher than official statistics indicate. According to this source, the reason for this would be that some government agencies – such as the Chinese Ministry of Commerce – have historically underestimated the outflows of FDI because they include only those investments that have been conducted with official approval.

appears to be consensus that the presence of Chinese companies in FDI flows will increase sharply in coming years.

According to official statistics, the Chinese non-financial investment amounted to US$ 26.5 billion in 2007, 50% more than in 2006 (US$ 17.6 billion). By late 2007, the accumulated stock of Chinese FDI abroad exceeded US$ 118 billion – Table 31 – with about 10,000 companies operating in 173 countries (MOFCOM 2007). With these figures, China would be located in 19th place globally as an investor, accounting for 1.12% of FDI flows in 2007 and approximately 0.61% of the accumulated stock of global FDI (UNCTAD 2008).

Table 31: Chinese foreign direct investment in the world (US$ million)

	Flows					Stock
	2003	2004	2005	2006	2007	By late 2007
Total	2,854.7	5,498	12,261.2	17,634	26,506.09	117,910.5

Source: MOFCOM (2007)

Hemerling, Michael et al. (2006) characterize the process of Chinese FDI as occurring in four waves: the first one – between 1986 and 1996 – was mainly focused on overseas investments in order to find attractive financial returns for Chinese firms. The second wave that these authors identify lies between 1996 and 1999 and was primarily driven by the return of Hong Kong to China, so that many investments flowed from the *mainland* to Hong Kong, while many Chinese companies took control of the island's assets. The third wave began in 2000 and was characterized by the expansion of domestic Chinese firms through the purchase of the assets of many foreign companies with whom *joint-venture* type arrangements had been made. Finally, the fourth wave emerged almost at the same time, when China joined the WTO, and it is characterized by a strong expansion of FDI into a larger number of sectors and countries. This fourth wave is mainly dominated by investments in two sectors of the economy: technology and communications and natural resources (Hemerling / Michael / Michaelis 2006).

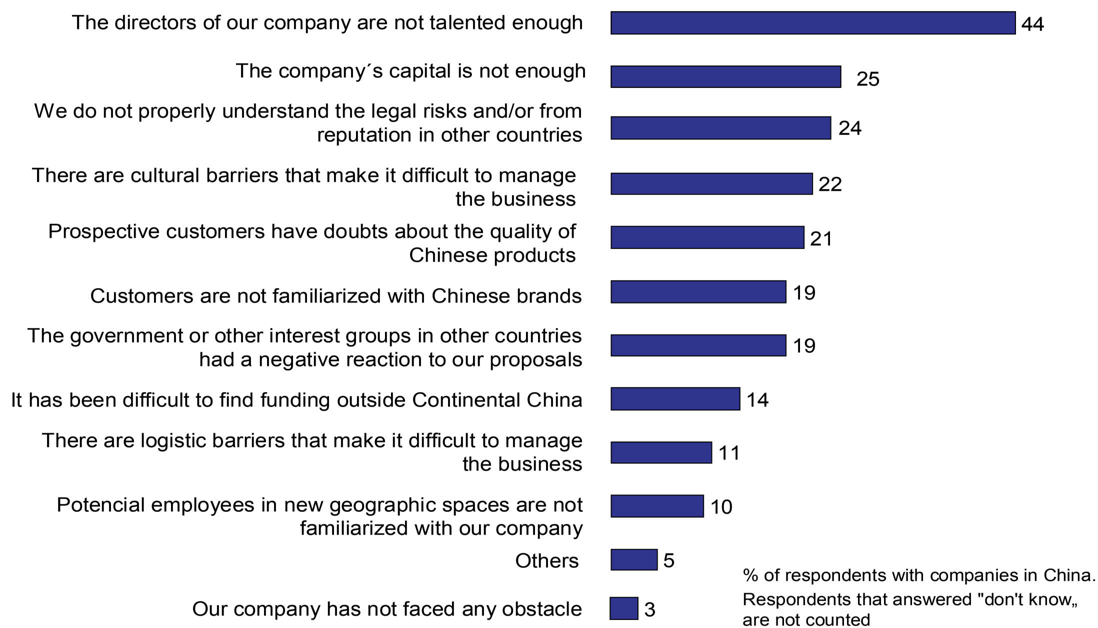
This last wave is particularly relevant for Argentina because many Chinese companies have expressed interest in investing in the country following the logic of the search for natural resources. But more generally, this wave of Chinese investment has two remarkable features: the emergence of a new generation of successful Chinese companies in the domestic market that want to become global players[36], and the strong support of the Chinese government, which has a national interest in expanding business abroad and has attempted to create "champions" for this purpose (Hemerling / Michael / Michaelis 2006). Indeed, since the Quinquennial Plan 2001–2005, the government encourages FDI in order to reduce dependence on the domestic market and, at the same time, build a global reputation for Chinese industry (the so-called "going global strategy"). In addition, this strategy also gives China access to the ownership of certain natural resources and commodities, such as oil or other metals (EIU / CPII 2006).

Finally, China's hunger for expansion has been strengthened by the interest of some TNCs in reviewing their investment strategies and eliminating unprofitable units, all of which have stimulated the process of M&As. In this regard, according to EIU / CPII (2006), the M&As operations in which China was involved increased from US$ 1.3 billion in 2004 to US$ 4 billion in 2005.

The assumption that Chinese FDI abroad will continue to increase is reflected, for example, in recent surveys conducted by McKinsey & Company (2008), where three out of five executives of the surveyed Chinese companies said that their long-term goal is to turn the company into a global competitor. In this way, the main obstacle faced by China, according to these executives, is the lack of skills and talents in the field of management, as can be seen in the following graph.

36 These companies have advantages because of the scale of the Chinese market, the innovative capabilities that many of them have evolved over recent years and the experience gained working in joint-ventures with multinational companies established in China.

Figure 5: What barriers, if any, has your company had to deal with to undertake activities outside Continental China?



Source: McKinsey & Company (2008)

Chinese companies interested in investing abroad have found a number of problems in host countries. In some cases, this was due to the fact that many companies have a low technological level, which could lead to a low level of competitive advantages abroad. In addition, many companies lack the experience to work abroad. Some companies have found problems with the domestic legislation of host countries (OECD 2007). Furthermore, as mentioned by some authors, the fact that the main investors are companies with State participation is also a negative factor, as there are no clear mechanisms for monitoring such investments.

Likewise, companies investing abroad need to learn how to do business according to local conditions. In this sense, the Chinese government and Chinese TNCs are trying more and more to understand and implement internationally recognized standards for doing business *(Responsible Business Conduct)* and to better integrate their operations to the host countries' economies (OECD 2007).

As previously mentioned, the interest of China in investing abroad is now focused on certain sectors which are considered strategic. In Table 32 it can be seen that the bulk of Chinese FDI in recent years was concentrated in mining, retail and wholesale, business services and manufacturing.

In this context of expansion of Chinese FDI, the interest in Latin America seems to have increased in recent years, although the continent's share in China's outward FDI is still low (Table 33). According to Cesarín (2007), this growth reflects a particular interest in China for closer ties with the region to strengthen its influence in relation to the US.[37]

According to data provided by Ancochea (2007), during the first quarter of 2006 the bulk of Chinese FDI that was directed to Latin America went to the sectors of copper, oil, steel and transportation. However, as seen below, FDI flows that have entered into Argentina are still low compared with the weight that China has in the field of trade.

It must also be said that some specialists consider China has some features that differentiate it from other investors. For example, Beijing enthusiastically supports trade agreements with developing countries, while Western

37 In the same sense, Malik (2006) mentions that China is taking advantage of the historic rivalry that has always existed between US and Latin America.

Table 32: Destination of Chinese foreign direct investment, 2004–2007 (% of total)					
Sector	**2004–2007**	**2004**	**2005**	**2006**	**2007**
Agriculture, forestry, husbandry and fishing	2.0	5.3	0.9	0.9	1.0
Mining	25.5	32.7	13.7	40.3	15.3
Manufacturing	11.2	13.7	18.6	4.3	8.0
Power and other utilities	0.7	1.4	0.1	0.6	0.6
Construction	0.7	0.9	0.7	0.2	1.2
Transport, warehousing and postal service	10.4	15.1	4.7	6.5	15.3
IT	0.5	0.6	0.1	0.2	1.1
Wholesale and retailing	15.8	14.5	18.4	5.3	24.9
Residential and catering trade	0.0	0	0.1	0.0	0.0
Finance	5.7	nc	nc	16.7	6.3
Real state	1.5	0.2	0.9	1.8	3.4
Leasing and business services	24.1	13.6	40.3	21.4	21.2
Science research, service and geo-survey	1.0	0.3	1.1	1.3	1.1
Residential services and other services	0.7	1.6	0.5	0.5	0.3
Total	100	100	100	100	100
Source: MOFCOM (2007)					

companies are often constrained in doing business due to issues related to human rights, the existence of repressive policies or of unacceptable labor standards, etc. in host countries. Furthermore, Chinese State enterprises, using credit lines given by the government, are much less limited by rent-seeking considerations and are certainly backed by the government's strategy to establish a foothold in countries with strategic resources for future Chinese growth (Malik 2006).

Table 33: Destination of Chinese foreign direct investment (% share)

Region/Country	Flows					Stock
	2003	2004	2005	2006	2007	2007
Asia	52.72	54.82	36.57	43.46	62.60	67.18
Africa	2.62	5.77	3.19	2.95	5.94	3.78
Europe	5.08	2.86	3.23	3.39	5.81	3.78
Latin America	36.37	32.06	52.74	48.03	18.50	20.95
Latin America without Cayman and Virgin Is.	0.77	1.66	0.63	0.56	1.60	1.07
Argentina	0.04	0.02	0	0.04	0.52	0.13
Brazil	0.23	0.12	0.12	0.06	0.19	0.16
Cayman Is. and Virgin Is.	35.6	30.4	52.11	47.47	16.89	19.88
Chile	0.01	0.01	0.01	0.04	0.01	0.05
Cuba	0.05	--	0.01	0.17	0.02	0.06
Mexico	0	0.49	0.03	--	0.06	0.13
Venezuela	0.22	0.08	0.06	0.1	0.26	0.12
North America	2.02	2.3	2.62	1.46	4.25	2.75
Oceania	1.19	2.19	1.65	0.72	2.91	1.55
Total	100	100	100	100	100	100

Source: Author, based on MOFCOM (2007)

To summarize, there appears to be general consensus on the fact that one of the main objectives of Chinese FDI in Latin America (and in other continents like Africa) has been, and still is, to ensure basic supplies such as natural resources. In line with this type of "resource-seeking" investment, Jenkins and Dussel Peters (2006) highlight the particular interest of China in the sectors of oil and mining, to which we add the basic infrastructure sector related to the provision of those resources. The case of "market-seeking" investments seems to be much more limited and, clearly, it is not a major driver of Chinese investment in Argentina, although it may be more influential in the case of Brazil, given the size of its market. However, other considerations – such as reducing transportation costs and tariff or legal barriers – could also play an important role in this process.

In the case of Argentina, it is clear that the country is an attractive investment location in the areas of mining, oil and fishing, as well as in certain sectors such as basic infrastructure due to Chinese interest in controlling certain communications networks, energy and transport to guarantee the supply and commercialization of these natural resources. However, despite this interest, as far as we know there have been few projects that have actually materialized up until now. One possible explanation for this involves several arguments. First, it is likely that there is a shortage of information on Argentina in China (business practices, legal rules, banking, etc.), something that Chinese businessmen who come to the country usually complain about. Also, Argentina is seen as a risky country. The extreme volatility experienced by the macroeconomic variables in recent years has raised serious questions about institutional stability, economic performance and legal certainty in the future. Furthermore, according to some interviewed informants, doubts about policy changes ranged from trade rules – such as trade tariffs – to the tax burden, the banking system, investor protection laws, etc. (all significant differences from a case such as Chile[38] for example). In this sense, people consulted for this research agreed that the Chinese government is reluctant to engage in long-term or high risk investments in our country unless they include some form of state guarantee (and possibly subsidies).

Finally, it is not quite clear what Argentina's strategy towards China is, in both trade and investment. While there seems to be an interest in attracting investment into the country, there is no deliberate policy for doing so, which contrasts with the actions undertaken by other regional economies such as Chile, Brazil and Venezuela, where governments are explicitly encouraging Chinese investment in some strategic sectors.

In the case of Chinese investment in Argentina, unfortunately we have no official statistics. The best available information comes from the investment database of the Center of Production Studies (CEP) although

38 In August 2006, China and Chile signed a free trade agreement.

investment database includes not only effectively made investments, but also the announced projects that have not yet been executued. According to this source, Chinese investment projects in Argentina during the 1998-2007 period amounted to US$ 764 million, but as far as we know most of them have not materialized yet. Nevertheless, it is clear that the announced investments have increased sharply since 2002, something which shows, at least, a growing interest of China in establishing companies in the country. More than two thirds of the total announced investments belong to the trade sector, mostly supermarket chains, followed by construction (9.4%), automotive industry (8.3%) and mining (4.5%) (see Table 34).

Investment projects registered in the database correspond to investment advertisements appearing in newspapers, or surveys that are provided directly by the companies. Investments include expansions, greenfields and mergers and acquisitions.

Table 34: Chinese FDI in Argentina (announced projects) 1998–2007 (US$ million)

Agriculture and fishing	1.5
Food and drink	18.4
Automotive and autoparts	63.4
Trade	517.3
Construction	71.7
Electronics and appliances	28.9
Hotels and restaurants	10
Research and development (R&D)	1
Mining	34.4
Oil and gas	13.4
Other services	4
Total	764.1

Source: CEP's investment database

According to the Chinese Consulate for the Promotion of International Trade (CCPIT) there were approximately 30 Chinese companies in Argentina in 2003, with a total investment of US$ 25 million. The same source indicates that Argentina has about 279 investment projects in China, which totaled about US$ 70 million (People's Daily 2007). In any case, we are not able, from these figures, to distinguish between projects involving productive FDI and those solely for the establishment of commercial offices abroad.

Next, we present a survey of major investment projects by Chinese enterprises in Argentina. As we shall see, the majority of these initiatives have not yet been carried out.

Investments made

- Two Chinese electronic firms have been installed in Tierra del Fuego – an import tax-free zone – forming joint ventures with local companies to assemble TV sets, air conditioners and other electronic devices. One of these firms, TLC, plans to assemble plasma TV sets as a second activity in the country. The reason these companies invested in Argentina was to reduce transport costs by assembling locally the parts and components the firms produce in China, taking advantage of the import tax-free regime that exists in this province. Products are mainly sold in Argentina.
- Three fishing companies have been installed in Argentina since 1997 in the city of Mar del Plata, one of the most important fishing ports in the country. The core business of the firms is the capture, processing and export of fish and seafood to China and other markets, particularly Europe. It must be said that the level of local value-added is very low, since the companies process the seafood outside the country.
- Since 2004, two Chinese companies have been operating the iron mine of Sierra Grande, the largest subterranean iron ore mine in South America located in the province of Rio Negro. The first company operating the mine was Leng Cheng Mining, which invested US$ 20 million to reopen the mine (which had been closed for more than 10 years) and paid a US$ 6.5 million cannon to operate the mine. In 2006, 70% of the mine was sold to China Metallurgical Group Corporation (MCC). As might be expected, the company's project is export-oriented (Comini 2007).

- The Chinese company Huawei has been in Argentina since 1999. This is a company dedicated to the sale of telephone equipment that has recently installed a shared service center in the country that is globally responsible for the company's Chinese-Spanish translations. The company has over 150 employees.
- Two Chinese telephone companies have been established recently to retail telecommunication equipment, imported entirely from China.
- Chinese CDC Software acquired 10% of the Argentine subsidiary of CMT Latin America. This was the first Chinese investment in the software sector in Argentina (Comini 2007).
- There are more than 3,500 Chinese supermarkets operating in Argentina. Most belong to Chinese immigrants from the province of Fujien[39] who came in the last ten years attracted by better living conditions. Supermarkets have strong purchasing power because they pay cash and form pools of buyers (CASRECH 2007). According to CEP's investment database, during the last five years China invested more than US$ 400 million in this sector.
- A local company, Servimagnus SA, and Chinese Growing Shanghai Dredging – the largest dredging company in the world – signed an agreement to dredge rivers and harbors at the port of Buenos Aires City. The Chinese company will contribute with know-how and technology through Harbor Engineering Co.
- There is a maritime company that was established during the 1990s, which rents containers for ship cargo. Another company, Bactssa, has operated part of the Buenos Aires Port since 1994 (CEP Investment Database).
- China has some other businesses in Argentina related to transport material, railway material, locomotives and wagons, but these have been sporadic commercial operations up until now. Furthermore, according to the Sino-Argentine Chamber of Commerce and Industry, during 2004 some investments were made in the telecommunications area in the city of Calafate, Santa Cruz.

39 The province of Fujien is known as "the Sicily of China" due to the presumed existence of businesses associated or controlled by the Mafia.

Investment announcements

- Sanhe Hopefull Grain and Oil Co Ltd., a Chinese oil company, aims to operate – in association with the local holding SOCMA – the railway company Belgrano Cargas SA, which is responsible for transporting a considerable amount of the soybean produced in Argentina to the ports. Both companies participated in the public bidding process and will be working on the due diligence for the next six months. The agreement with the government includes a public subsidy equal to the wages of the company's 1,500 employees and an additional monthly amount of US$ 7 million. This venture also includes the lorry drivers and railway unions.

- The Chinese automotive company Chery announced its plan to install a plant to assemble automobiles (with a production capacity of 25,000 vehicles per year) for the Mercosur market in Uruguay by 2007, as well as its intention to expand its production to Argentina in the future. This investment is a joint venture with the local group SOCMA, formerly the manufacturer of FIAT in Argentina. With this agreement, Chery will become the first Chinese car manufacturer to produce abroad.[40]

- A Chinese state-owned mining enterprise intends to operate a deposit of iron ore in the Patagonia region and there is an aim to invest in an oil exploration project through an agreement between Enarsa (Argentina's state-owned energy company) and China-Sonangol International Holding.

- The China Metallurgical Group Corporation (MCC) presented the best offer in the bidding process for the acquisition of two new power plants in the province of Buenos Aires. The firm's proposal was around US$ 217 million. This company owns the iron ore mine of Sierra Grande (Comini 2006).

- According to press information, the main Chinese motorcycle exporters to Latin America, Loncin Group, Lifan and Zongshen, plan to install – in association with local companies – some plants in Latin America, in order to reduce transport costs, communications problems and bureaucracy and legal impediments (CRI 2007).

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40 According to press releases the company has other similar projects in Russia, Egypt, Iran, Malaysia and Indonesia.

- In the same sector, the Chinese company Maverick is planning to install a plant to assemble motorcycles in San Juan through a joint venture with the local firm Di Bella, importer and representative of Maverick cycles in Argentina since 1998. The estimated investment is around US$ 4 million and the project includes the production of three different motorcycle models and a four-wheel cycle (La Nación, 27 Aug. 2007).
- A Chinese automotive company, National Automobile Industries, announced in 2007 its intention to install an assembly plant in Mendoza to produce commercial vehicles. According to press information, other areas of Chinese interest in the province are solar energy, railway machinery and finances.
- In March 2007, two Chinese companies, CETC International and CEIC, presented an offer in the bidding process for the acquisition of four 3-D radars to be used for air traffic control (Xinhuanet 2007).
- In 2007 the province of Santa Cruz opened a bidding process for the construction of a coal thermal power station in Río Turbio, with an estimated investment of US$ 500 million over almost four years. Two of the six groups participating in this competitive bidding include Chinese companies, one of them is a joint venture between the local IECSA, a SOCMA Group-owned company, and Guodian; and the other group is integrated by the China National Machinery & Equipment Corporation. This firm is also aiming to participate in the construction of an electric power station in Bahia Blanca (Clarín, 7 Apr. 2007).
- Oliva (2005) mentions other projects that were announced during the last decade: the interest of Chinese companies in investing in the meat industry, a joint venture between Chinese and local capitals to build a tobacco company and the announcement of construction of a grain port in Santa Fe. As far as we know, none of these projects have been implemented yet.
- According to Blázquez-Lidoy / Rodríguez / Santiso (2006), China is committed to investing in the construction of a highway from Argentina to Chile in order to facilitate the transportation of raw material.
- A consortium formed by two Argentine companies – Oxipetrol and Petroterra – and JHP from China, presented an offer for prospecting

and operating a hydrocarbon area in the province of Salta (La Nación, 10 July 2006).

- According to the Sino-Argentine Chamber of Commerce and Industry, a Chinese firm is analyzing an investment in the electrification of a metropolitan railway line.
- The Confucius Institute is planning to open an office in Argentina.
- Sanhe Hopefull Grain and Oil Company visited the northern province of Jujuy to evaluate possible investment areas of interest, in particular related to the mining sector. As mentioned above, this company aims to operate the Belgrano Cargas railway (Comini 2007).
- The China Communication Construction Group (CCCG) showed interest in participating in the hydroelectric project of Portezuelo in the province of Mendoza. The project would begin at the end of 2007 and would take more than five years to come into operation (Comini 2007).

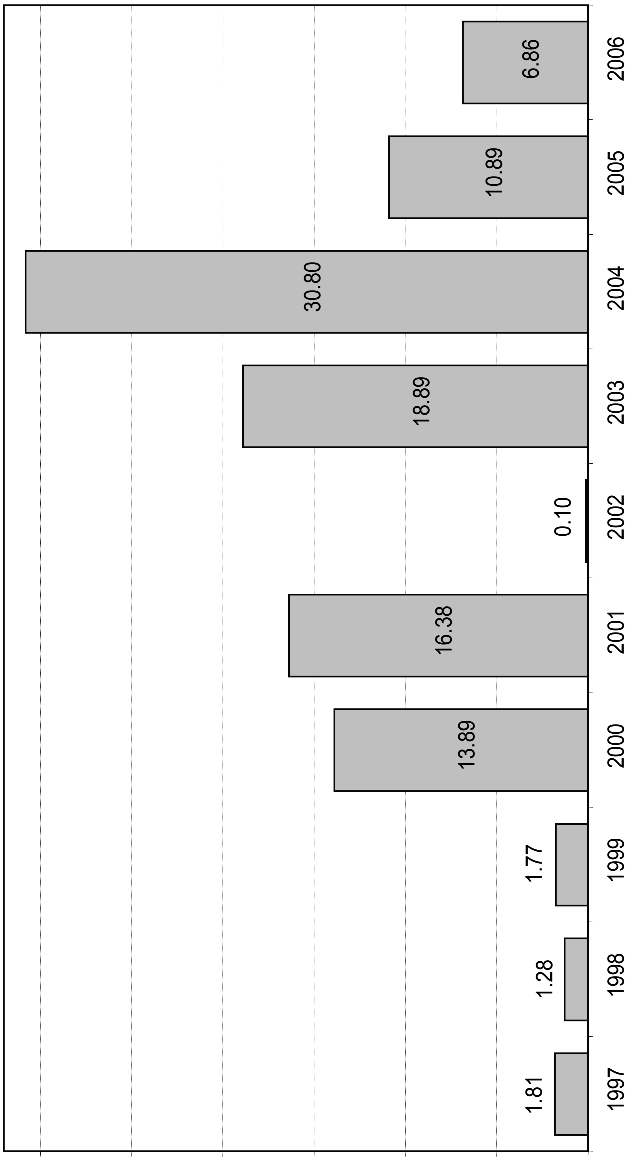
2.2 Argentine FDI in China

According to the National Bureau of Statistics of China, Argentine FDI in China reached nearly US$ 95 million during the period 1997-2005. The investment accelerated towards 2000 and had a peak in 2004 with over US$ 30 million. According to the same source, FDI was US$ 6.86 million in 2006 (Figure 5).

As mentioned above, a number of companies established in the country have begun to outsource some of their production in China. This policy is due, in some instances, to market research (or what might be called market-seeking FDI), while in other's the reason lies primarily in the pursuit of efficiency gains or the capture of certain assets that are considered strategic by the company. Beyond the motivations, several enterprises have tried to establish affiliates in China, although, presumably, there are few cases of manufacturing plants; and up to now the opening of trade representations is much more numerous. Among the firms that have been established in China, we can mention the following:

- The chemical company Atanor, formerly an Argentine company and today controlled by DA International, spent US$ 23 million to build a

Figure 6: Argentine FDI flows into China, 1997–2006 (US$ million)



Source: National Bureau of Statistics of China (2002–2007) large-scale chemical plant for the production of glyphosate in the province of Anhui, by means of an agreement with the Chinese Anhui Huaxing Chemical Industry Company. The total amount of the project is estimated at US$ 45 million. If this project is carried out it will be the largest investment from an Argentinean company in China and will employ more than 300 people. The next step of the project includes the construction of a second herbicide production plant. The new company, named Anhui Xingnor Chemical, will be managed by a Chinese engineer trained in Atanor.

- The holding PGC (Pescarmona Group) bought the multinational company GE Hydro (General Electric Hydro) in 2007. Through this acquisition, IMPSA will become the third world producer of hydroelectric turbines and will enter China, where GE Hydro has one of its biggest production plants. This plant, located in the city of Hangzhou, has the most sophisticated standards of quality and technology in its class.[41] PGC is an Argentine multinational company with a presence in business areas such as hydroelectric power generation and equipment, port systems, automobile parts, and control systems among others.
- The Argentine multinational Tenaris is building a local manufacturing facility of premium connections and couplings in Qingdao, China. The estimated annual production capacity of the plant is around 50,000 tons. Tenaris has been supplying seamless products for the Chinese market since 1990 and in 2003 established a service yard at Tanggu to provide supply chain and pipe management services to customers.
- The wine industry was one of the first sectors to invest on China. In 2003, a vineyard named San Huberto was established in Beijing to produce wine through an agreement with a Chinese company. Prior to

41 This company has been doing business with Asia in the hydroelectric turbine and gantry-crane sectors. The firm produces in Mendoza, Argentina and exports its products to Malaysia, where they are assembled and finished and then exported as an Asiatic product, which means they can obtain financing from the Asian Development Bank. The company lost the opportunity to sell turbines for the Three Gorges hydroelectric dam due to lack of financing (Argentina is not member of the Asian Development Bank).

this, in 2002, Norton vineyard built a winery to produce wine for the local market.[42]

- The holding SOCMA plans to settle in China with several real estate projects. One of these is the construction of a commercial centre in Beijing with a shopping mall and commercial offices. The objective of this project is to develop a kind of Argentine Centre in China similar to those that other countries have recently built in China (e.g. the German Center) (La Nación, 21 Apr. 2007).
- A similar project is led by another Argentine holding, Eurnekian Group, which is analyzing the possibilities of setting up an office center in Shanghai to be used by technological firms (La Nación, 21 Apr. 2007). In addition, the firm is negotiating some other business related to genetics and biogenetics (e.g. the sale of genetically modified bovine embryos).
- The multinational food company Arcor has installed a sales office in China but has no production in that country. The company is facing problems with property rights in the Chinese market, particularly due to the counterfeiting of its products.
- The holding Bulgheroni, dedicated to oil businesses in Argentina, is aiming to close a deal in China to transport gas from Turkmenistan to Europe (Clarín, 6 May 2007).

2.3 China's impact on the integration of Argentina into global value chains

We have already seen that Argentine-Chinese bilateral investments have, up to now, been limited. This section briefly examines the issue of investments from another angle: does Argentina compete directly with China in attracting investment from third countries?

Some recent studies have shown that China's rise, on average, has not affected the FDI received by Latin American countries so far (García-

42 The Chandon winery intended to penetrate the Chinese wine market but met with poor results. Apparently the high quality niche is occupied by other countries, amongst them Chile (which has been working hard to improve the quality of its wines and to increase the scale of production in recent years), Spain and Portugal.

Herrero / Santabarbara 2007; Eichengreen / Tong 2005). In the case of Argentina this is explained if one analyzes the type of FDI entering into the country from the 90s onwards, as seen below.

To address the issue, from our point of view it is necessary to differentiate FDI according to its objectives and the sectors in which it operates. A first category pertains to FDI in manufacturing industry. In the case of Argentina, the available evidence suggests that the bulk of investment came with the aim of taking advantage of the domestic market (Chudnovsky; López 2006). While in some sectors, efficiency-seeking FDI – in which multinational corporations seek to specialize its diverse subsidiaries with the objective of generating gains in competitiveness through intra-corporation exchange – was also important, it was basically limited to the Mercado Común del Sur (MERCOSUR) area.

In other words, the FDI received by Argentina has been weakly integrated into global value chains shaped in recent decades mainly due to the boost of the big TNCs that dominate global markets in a large number of manufacturing activities. This is related to the fact that the search for lower labor costs has not been a significant factor in attracting FDI to the industrial sector in the country, as well as the evidence which indicates that FDI has not been directed to labor-intensive sectors (Chudnovsky / López 2006).

This pattern contrasts sharply with that of FDI received by China. Although market-seeking FDI has also been important in this case, cost reduction has been a significant motive as well, attracting investments to carry out certain stages of the manufacturing production processes – understood in the broadest sense, from the design to marketing of respective goods – in which the availability of labor is critical for competitiveness.[43]

In fact, the FDI received by Argentina also contrasts, at this point, with that received in Mexico and the Caribbean Basin, where investments were mainly efficiency-seeking on a similar basis to the above mentioned case for China. In contrast, FDI in Argentina was relatively poorly articulated with GVC or internationally integrated systems of production. In contrast,

43 According to Gaulier / Lemoine / Ünal-Kesenci (2005) European and American FDI in China is more linked to the aim of exploiting the country's domestic market, while that of Asian origin is more associated with cost factors and to export objectives.

its dominant logic was national/regional. From this point of view, it seems natural to find that China has not diverted investment from Argentina.

If now we analyze the bulk of FDI in service sectors in the case of Argentina (which corresponds to privatized public services, banking and trade), competition between the two countries is not expected either, as motivation has been almost solely centered around domestic markets in these cases.

In terms of FDI channeled to natural-resource intensive sectors – significant in Argentina in oil and mining, and in certain branches linked to the agricultural/agroindustrial complex – rather than competition, we could expect to some extent that China might have promoted increased FDI in Argentina in view of the need to seek resources to export to China. The available evidence does not allow us to evaluate the extent to which this effect may have been significant in practice, although one could certainly expect its importance to grow in the future, if recent trends continue.

Finally, there are a number of service activities, the importance of which has been growing in recent years *pari passu* their increased tradeability on an international scale, where certain competition with China may emerge. We refer to services associated with software and computing, but also to others in which Information and Communication Technologies (ICTs) facilitate the remote supply of different service activities (accounting, human resource management, finance, architecture and engineering design, medicine, etc.). Here, truly global value chains have been created, and forecasts indicate that the international market will continue growing at very high rates in the coming years[44], as has been happening recently.[45] See López / Ramos / Torre (2008).

In principle, we may think that since these services can be entirely, or almost entirely, supplied long-distance, via the use of ICTs, all the investors can virtually choose any location to export the service from, provided those locations have the required conditions to carry out said activity effi-

44 The offshoring of business services (BPO) alone was estimated at US$ 28 billion in 2008, according to a report from NASSCOM and Everest Research Institute (2008). That figure could triple by 2012 according to the same source.

45 Available estimates indicate that world service exports of around 1.5 billion dollars in 2000 increased to 2.4 billion dollars in 2005.

ciently (which usually implies, among other factors, the availability of human resources with a certain level of skills at competitive costs, as well as physical infrastructure and appropriate technology).

In other words, while it is not usual to find Argentina competing directly with China in attracting investment in manufacturing, traditional services or natural resources, this may occur with greater intensity in the case of this type of export-oriented services. This possibility, of course, is not merely theoretical. Almost all international consultants who produce reports and analyses on the outsourcing and offshoring of service activities (McKinsey, AT. Kearney, Gartner, KPMG) develop comparative rankings in which they contrast the advantages and disadvantages of a large number of developing nations aiming to attract investment in these areas.[46]

Note also that these investments are much more mobile than those associated with manufacturing, traditional services or natural resources, as indicated by the following quote:

> *"Companies running Shared Services Centres (SSCs)47 should regularly re-evaluate their location decisions. Therefore, it appears likely that preferred off-shoring locations will change if relative cost advantages of existing off-shore locations diminish and companies can achieve additional cost reductions by moving their SSCs to new, even cheaper locations."* (KPMG 2007, 4)

China – like India – has vast reserves of human resources[48], making it an attractive location for businesses which require large amounts of labor. While this might suggest that the country focuses its service export activities on segments of lower-complexity (where labor costs are the determi-

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46 In one of these rankings, prepared by A.T. Kearney in 2007 taking into account factors such as costs, human resources, business environment and others, China appeared in 2nd place, behind India, in contrast to Argentina that was in 23rd place.

47 Shared service centers are specialized units that work in the context of a particular transnational corporation dedicated to providing a range of services - accounting, financial, human resources, information technology, customer relations, logistics, data management, stock control and shopping, among others - to the corporation as a whole or for specific areas of the same company.

48 Just to mention one example, it is estimated that there were over 400 thousand engineering graduates in China during 2005 (Wadhwa et al. 2007), although some of these resources have less training than their counterparts in countries such as Argentina.

nants of competitiveness), in fact the magnitude of human resources at its disposal, together with the existence of deliberate policies aimed at the development of local capabilities, also allow it to move forward in areas of greater complexity. Just to cite one example, China leads the ranking of preferred countries for offshoring R & D activities within the developing world, according to United Nations Conference on Trade and Development (UNCTAD) data (and it is third world-wide, after the US and Britain). Argentina, like the rest of Latin America, practically does not appear in this ranking.

Therefore, China does pose a challenge for Argentina in this case, as well as for other countries that aspire to compete in these markets. Clearly, Argentina can not compete with China – or India, the main exporter in this type of services – based on labor costs, or in activities which require large amounts of human resources. At the moment, the potential attraction factors of the country – in addition to the level of qualification of its human resources, a factor that is appreciated by foreign firms – lie in aspects such as time zone (which is relatively aligned with those of the United States and not many hours behind Western Europe, allowing a good control of suppliers by the companies of developed countries that have their services offshored), as well as on aspects related to the cultural proximity with developed countries *vis-à-vis* the nations of Asia. However, these advantages may be insufficient to position the country as an attractive location for FDI, not only in quantitative but also qualitative terms; i.e., to attract more investments that may be channeled in the country towards the development of high value-added activities.

Indeed, the challenge for Argentina in this area is not much different from the case of FDI in the manufacturing sector. In both cases it is a matter of achieving better insertion in the respective GVCs, which does not mean competing on the basis of labor costs, but offering differing assets and capabilities that allow the country to locate itself, in a stable way, in those chains (beyond the wage level), and obtain larger spillovers from the respective investments.

Conclusions

China has become a key trading partner for Argentina; at present it is the country's second destination for exports and the third source of imports. This position is the result of the rapid growth of bilateral trade flows, which were very low just two decades ago.

Nowadays China is a key partner not only for Argentina, but also for a large number of countries, both developed and developing. In other words, there is no evidence to suggest that Argentina became particularly significant for Chinese foreign trade – beyond a slight increase of the Argentine participation in Chinese imports – and the growing importance of bilateral trade is part of similar general trends observed elsewhere.

From the point of view of Argentina, however, trade with China has had considerable effects. Regarding exports, it is not apparently the case that China's emergence has had a direct impact on their growth, but mainly an indirect effect via price increases. In other words, Argentina's exports to China are highly concentrated in the soybean complex and, to a much smaller extent, in a small group of primary and natural-resource intensive products, which are commodities that Argentina may also sell to other destinations. The positive effect of China, then, is primarily a result of the impact of Chinese demand on the prices of these commodities (and, by the way, it generates a benefit in terms of raising taxes on exports; almost 20% of withholding taxes originated directly from exports to China, but the total impact is probably greater due to the price effect).

However, Argentina is not taking advantage of the opportunities offered by China in other markets. Needless to say Argentina can not compete in China – and indeed in any other market – in low-skill labor-intensive activities. But Argentina could export goods to China in which the differentiation, the design or the availability of certain capabilities are an important competitive factor. Clearly, this is not easy insofar as the weak presence of such assets is a more general problem of Argentina's export pattern, and considering that exporting to China involves overcoming cultural, geographic and regulatory barriers which are certainly greater than those existing in other destinations.

In any case, it is important to emphasize the fact that opportunities exist. Note that only 5% of Argentine exports to China are manufactured goods, not dependent on agricultural raw materials, while total Chinese imports rise to almost 80%.

Moreover, even within the group of primary exports, the articles Argentina sells to China have a low presence of the already mentioned "soft commodities" (Kaplinsky 2006), i.e. products where, although the natural resource availability is key, differentiation is introduced and there are therefore barriers to entry, making competition go beyond price. As the author indicates, while per capita income in China continues to grow, it is expected that opportunities to sell differentiated products (primary and industrial) will grow strongly, and Argentina should be prepared to seize those opportunities.

The limited diversification of exports to China is replicated at the firm level. Just 20 companies account for almost 90% of sales to China, while at the level of Argentine total trade the proportion is 50%. In other words, up to now, there are very few Argentine companies which have been able to make significant inroads in the Chinese market.

If we now turn to imports coming from China, besides their great dynamism, their composition clearly shows the progressive enlargement of the areas in which China has become a major worldwide supplier. In just 10 years, Chinese imports went from being mainly consumer goods (60% of purchases in 1995) to having capital goods as its main item (more than 30% in 2007). This is evidence of the increased competitiveness of China in a range of industries where, while it still has the advantage of cheap labor, the mastery of certain technologies is also required.

On one hand, China has reduced the price of imports for Argentina as long as it remains a cheaper supplier than other trade partners; i.e., the positive effects of China on Argentinean terms of trade are present in imports as well as exports. However, there is also evidence to suggest that trade with China has been, on average, a destroyer of employment. This result is not surprising if one takes into account that: i) China has been gaining weight in Argentina's imports at the expense of other countries and domestic production (especially in labor-intensive industries); ii) Argentine exports to China are concentrated in sectors with relatively little labor-intensity. Although the exercise from which this affirmation arises is a first approach that only considers the direct effects of trade with China; it is a warning of the more general problem of Argentina's pattern of specialization and its employment content.

Moreover the trade surplus with China has tended to evaporate dramatically, after several years of significant positive balances. Although primarily motivated by sectoral pressures, the authorities' reactions against the strong growth of Chinese imports has been, up to now, directed to protectionist measures, both commercial and technical.

In contrast with events at the trade front, relations between Argentina and China in terms of investment are very small so far. Argentine investments in China are marginal, and while Argentina presents investment opportunities in areas of Chinese interest (access to natural resources and exploitation of the potential domestic market), a limited number of projects have materialized so far. At present we are a long way from the US$ 20 billion of Chinese investment in the country expected a few years ago.

Meanwhile, although Argentina does not usually compete with China in terms of attracting FDI from third countries in manufactures or natural resources (and it is even possible to expect a positive effect in terms of attracting Chinese FDI to Argentina with the aim of exporting natural resource intensive goods), a more direct competition exists in tradable services. International markets for these services have been growing at very rapid rates, and this is largely the result of offshoring processes led by TNCs that dominate these markets.

Given that investments in services are more footloose than in the case of manufacturing or natural resources, and exports are less dependent on geographical distance, in many cases these countries virtually compete against the rest of the world for the attraction of FDI. China is a formidable competitor in this context, since it relies on vast amounts of labor that enable the country to develop not only low value-added activities, but also others with greater technological complexity, including R&D activities.

Moreover, it is expected that China (like other East Asian countries in the past) will continue to climb up the industrial and services global value chains towards activities in which labor costs would not be the only important factor. In this context, the question that Argentina faces, as along with many other countries, is: what is its place in a world where the expansion of the Chinese development process seems inevitable?

The answer to this question is in fact beyond issues specifically related to trade with China, as it raises the question of the Argentine specialization pattern and the need to reduce its degree of "commoditization”, for macroeconomic and structural reasons as well.

This paper has not addressed the first of these issues, but certainly an important part of the recent dynamism of several Latin American countries, including Argentina, is associated with the increased demand from China and India for food and raw materials. This fact is welcome, but as experience teaches us, growth processes that are heavily dependent on external circumstances which can be reversed are subject to strong fluctuations and crises. The current crisis clearly shows the perils involved in said strategy. Accordingly, the sustainability of the growth process requires reducing this dependency through the diversification of the export pattern.

From the structural point of view, there are issues that have to do with the negative impact on domestic production and employment arising from Chinese competition, as well as with the missed opportunities to export higher value-added goods to China.

In the first case, it is clearly necessary to move from a "defensive" protectionist approach to an "offensive" one, seeking to convert the affected industries into niches where competition with China is less intense. In the second, we need policies that attempt to find segments in which Argentina may compete, based on differentiation or specific skills, in the manufacturing and services global value chains. In the future, then, the public policy agenda should probably pay more attention to these issues in order to improve the cost-benefit balance of trade with China and increase the degree of sustainability of the development prospects of Argentina in a world which is much more competitive than at any other time in the modern era.

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Daniel Saslavsky / Ricardo Rozemberg

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Introduction

Since the emergence of China as a major player in world trade and investment, there is much interest in how its irruption would impact on the developing economies. As part of that interest, this chapter focuses on the impact of China's emergence on Brazilian trade and investment flows.

The chapter is divided into six sections. The first section describes the trade links between both economies, in order to measure the growing importance of China for Brazilian exports and imports. The second section focuses on the impact of China on Brazilian terms of trade and job creation. The third section applies a constant market share methodology in order to examine the degree of competition between Brazilian and Chinese goods in third markets. The fourth section focuses on trade costs stemming from bilateral flows and the adoption of other restrictive measures – such as antidumping or safeguards – that affect free flows of trade. In this chapter, we also provide an estimation of trade costs using tariff line data for freight payments. In addition, we include a brief description of all bilateral agreements and trade-restricting measures that have been adopted. The fifth section includes a description of bilateral FDI flows and announced investment projects in both countries. The final section presents the conclusions.

1 Trade links between China and Brazil

The emergence of China as a global player has been one of the most salient economic features of the last 25 years. Starting with a steep reform process in 1978, China gradually opened up to trade and investment flows, and has experienced unprecedented growth rates since then. Among other things, China's accession to the World Trade Organization (WTO) in 2001 reinforced that process, by locking in binding agreements with fellow members and opening further to international trade and foreign investment.

As Blazquez-Lidoy / Rodriguez / Santiso (2004) suggest, China's share in world trade increased five-fold between 1990 and 2002, from 0.9% to almost 5%. By 2006, China had already become the third largest importer worldwide, with almost 9% of worldwide imports. For some developing countries, China's growing demand for primary products, foods and metals became an essential part of their trade balance, impacting positively on quantities demanded and prices, and ultimately on government revenues. In parallel, Chinese exports also grew at astonishing rates during the last decades, multiplying its share in world exports almost eight times. According to WTO statistics, China became the world's third largest exporter in 2006, with more than 8% of total exports.

Under these circumstances, other countries began to see China's expansion not as a blessing but as a threat in their own countries, and in third markets too. Sensitive, labor-intensive sectors competing with imports from China were particularly affected. In destination markets, manufacturing exports such as textiles, light machinery, etc., also became targets for "low-wage goods" exported from China. These sets of events turned the attention of the world to measuring the potential impact of China on the developing economies. Ultimately, this growing interest materialized in a myriad of research agendas in academia and multilateral institutions that continues today.[1]

In the light of current developments, the role of China in the world economy is under close scrutiny. The early thinking suggested that developing economies heavily dependent on Chinese demand could "decouple" from negative events in the rest of the world. Even when this is no longer probable, it is true that China is likely to continue to grow at higher rates than the industrialized world for the next few years.

The macroeconomic performance of Brazil and China during the 1990s were very different. As Barbosa (2006) points out, their policies to enter global markets were developed on the basis of a "diverse, if not opposing, set of assumptions and premises". Accordingly, the "fundamental difference between both countries seems to reside in the nexus between exports and investment", which allowed China's productive capacity to increase. In contrast, Latin American economies – including Brazil – were greatly

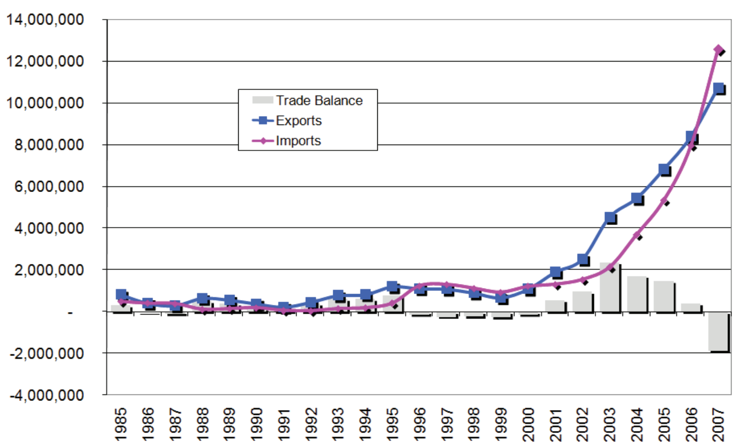
1 See IDB (2004) for example.

affected by exchange rate volatility and sudden stops in capital inflows during the period, impacting negatively on economic growth.

Historically, trade links between China and Latin American countries have been rather weak. However, during the last twenty years, Brazilian exports to China rose from less than US$1,000 million in 1985 to more than US$10,000 million in 2007. In the same period, imports increased from barely US$500 million to over US$12,000 million.

As shown in Figure 1, China's recent surge in international markets had a great impact on Brazil's external sector. Trade between both countries was limited until the mid-1990s when exports to China remained under US$1,000 million. After that, Brazilian exports to the Asian country began to expand considerably, reaching almost US$2,000 million in 2001. A path-breaking trend emerged in the last six years, causing external sales to the Chinese market to increase more than four-fold to over US$10,000 million.

Figure 1: Brazil's trade balance with China (000 US$)



Source: Based on COMTRADE data

In terms of the trade balance, during the last twenty years Brazil has been able to maintain a small but positive surplus with China, with the exception of the years 1996–2000, and more recently in 2007. Indeed, Table 1 shows that export growth to China outpaced total export growth over the last 30 years. During the 1999–2007 period, Brazilian exports to China grew by 41% on an annual basis compared to 16% for total external sales. On the other hand, imports from China increased by 38% during the same period, while total imports only expanded by 11% annually.

Table 1: Growth rates of Brazilian exports and imports by destination, 1975–2007

	EXPORTS			IMPORTS		
	World	China	ROW*	World	China	ROW
1975–1985	11%	28%	11%	1%	84%	0%
1986–1998	7%	7%	7%	12%	9%	12%
1999–2007	16%	41%	16%	11%	38%	10%

* Rest of the world

Source: Based on COMTRADE data

As seen, the importance of China as a trading partner for Brazil has been increasing over the last ten years. According to Table 2, its share of total exports rose from 1.8% in 1998 to almost 6.7% in 2007, whereas its share of Brazilian imports grew from 1.9% to 11.7% in the same period. However, these changes in market shares do not fully depict China's strategic relevance for Brazil. Put in other terms, the Chinese market has become the third most important destination for Brazilian exports and the second most important supplier of its imports in merely ten years.

Table 2: China as a trading partner for Brazil

	Exports to China		Imports from China	
	Share of total exports	Position as destination (ranking)	Share of total imports	Position as supplier (ranking)
1998	1.8%	14	1.9%	12
1999	1.4%	15	1.9%	14
2000	2.0%	12	2.2%	11
2001	3.3%	6	2.4%	9
2002	4.2%	4	3.4%	7
2003	6.2%	3	4.7%	5
2004	5.7%	4	6.3%	4
2005	5.8%	3	7.8%	4
2006	6.1%	3	9.6%	3
2007	6.7%	3	11.7%	2

Source: Based on COMTRADE data

China's growing importance in total trade flows was not an isolated phenomenon in an increasingly globalized economy. In turn, the last ten years witnessed an outstanding expansion of world trade and Foreign Direct Investment (FDI) flows. As shown, during the 1999–2007 period, Brazilian exports to the world increased by 237%, or by US$112,000 million. Accounting for China's contribution to the growth of Brazilian exports between 1999 and 2007, we conclude that almost 10%, or US$10,000 million, of this increase comes from the Asian partner's expansion.

Table 3: China's contribution to Brazil's total export growth

	Total export growth (000 US$)	Export growth to China (000 US$)	Total export growth (%)	Contribution to total export growth from China
1975–1985	16,969,278	750,224	196%	4%
1986–1998	28,349,572	493,167	127%	2%
1999–2007	112,985,312	10,072,684	237%	9%

Source: Based on COMTRADE data

1.1 Brazilian exports to China

Export growth was not accompanied by an increase in the number of exporting companies to China between 2002 and 2006. While the number of total exporting firms went approximately from 19,000 to 23,000, that of companies exporting to China was reduced from 2,510 (representing 13% of total firms) to 2,213 (9% of total exporting firms). In addition, as Table 4 shows, over 1,000 large companies accounted for 94% of total Brazilian exports to China in 2006. That is, 46% of exporters to China were large companies, 25% were medium-sized and 18% were small companies.

While the total number of large exporting firms increased by almost 15% between 2002 and 2006, the number of companies exporting to China almost doubled from 593 to 975. Consequently, since the value of large companies' exports to the Chinese market increased by 241% (from US$2.321 million to US$7.935 million), the entrance of new firms to the export business with China was accompanied by an increase in the average size of exports (from US$3.9 million to US$9.1 million per company). As in the case of Argentina, the relatively high concentration of exports in a small number of (large) companies is directly related to the composition of the export-based oilseed cluster in Brazil, which is dominated by multinational companies. On the other hand, higher transport costs and other transaction costs such as language and different business cultures, make the Chinese market a difficult destination for small and medium enterprises (SMEs) in general.

Table 4: Brazilian exporting companies to China

Rank within size type	DEST. COUNTRY (2006)	2006 Firms No.	2006 Firms % World	2006 Firms % China	2006 Exports US$ M	2006 Exports % World	DEST. COUNTRY (2002)	2002 Firms No.	2002 Firms % World	2002 Firms % China	2002 Exports US$ M	2002 Exports % World
All exporters		**23,113**	**100**	**…**	**137,807**	**100**		**19,617**	**100**	**…**	**60,362**	**100**
Exporters to China		**2,123**	**9.2**	**100**	**8,402**	**6.1**		**1.005**	**5.1**	**100**	**2,521**	**4.2**
INDIVIDUALS		**633**	**2.7**	**…**	**203**	**0.1**		**368**	**1.9**	**…**	**59**	**0.1**
3	USA	161	0.7	…	18	0.0	ARG	38	0.2	…	5	0.0
7	ARG	61	0.3	…	12	0.0	CHN	6	0.0	0.6	2	0.0
4	CHN	46	0.2	2.2	16	0.0	USA	97	0.5	…	10	0.0
MICRO FIRMS		**5,769**	**25.0**	**…**	**272**	**0.2**		**4,578**	**23.3**	**…**	**220**	**0.4**
1	USA	1,516	6.6	…	47	0.0	USA	1,138	5.8	…	44	0.1
2	ARG	815	3.5	…	24	0.0	ARG	725	3.7	…	22	0.0
14	CHN	170	0.7	8.0	6	0.0	CHN	148	0.8	14.7	5	0.0

Table 4 (cont.): Brazilian exporting companies to China

SMALL FIRMS		**6,023**	**26.1**	**…**	**2,115**	**1.5**		**4,836**	**24.7**	**…**	**1,166**	**1.9**
1	USA	1,885	8.2	…	471	0.3	USA	1,399	7.1	…	280	0.5
2	ARG	1,429	6.2	…	162	0.1	ARG	662	3.4	…	49	0.1
3	CHN	388	1.7	18.3	98	0.1	CHN	258	1.3	25.6	37	0.1
MEDIUM FIRMS		**5,908**	**25.6**	**…**	**9,254**	**6.7**		**5,695**	**29.0**	**…**	**4,655**	**7.7**
1	USA	2,244	9.7	…	2,208	1.6	USA	1,965	10.0	…	1,213	2.0
2	ARG	2,137	9.2	…	848	0.6	ARG	1,340	6.8	…	284	0.5
5	CHN	544	2.4	25.6	347	0.3	CHN	398	2.0	39.6	156	0.3
LARGE FIRMS		**4,780**	**20.7**	**…**	**125,963**	**91.4**		**4,140**	**21.1**	**…**	**54,314**	**90.0**
1	USA	2,391	10.3	…	21,781	15.8	USA	2,038	10.4	…	13,813	22.9
2	ARG	2,142	9.3	…	10,692	7.8	CHN	593	3.0	…	2,321	3.8
3	CHN	975	4.2	45.9	7,935	5.8	ARG	1,700	8.7	59.0	1,993	3.3

Note: Microfirms are those with at most 10 (5) employees and a maximum of 400 (200) thousand US$ worth of exports for manufacturing (commerce and services) sector. Small firms have at most 11–40 (6–30) employees and a maximum of US$3.5 (1.5) million worth of exports for manufacturing (commerce and services). Medium firms have at most 41–200 (31–80) employees and a maximum of US$20 (7) million worth of exports for manufacturing (commerce and services). Large firms have more than 200 (80) employees and more than US$ 20 (7) million worth of exports for manufacturing (commerce and services).
http://www.desenvolvimento.gov.br/arquivos/dwnl_1197919311.pdf

Source: Based on SECEX data

Table 5: Brazil's exports: Composition by sector

	World				China					
	2000		2007		2000			2007		
	US$ million	%	US$ million	%	US$ M	%	Share in sector	US$ M	%	Share in Sector
Food and beverages	10,167	18%	34,599	22%	377	35%	4%	3,251	30%	9%
Industrial supplies	22,817	41%	63,809	40%	575	53%	3%	6,212	58%	10%
Fuels	866	2%	13,199	8%	36	3%	4%	840	8%	6%
Capital goods	5,733	10%	15,768	10%	42	4%	1%	230	2%	1%
Transport equipment and parts	10,116	18%	22,871	14%	50	5%	0%	193	2%	1%
Other consumption goods	4,344	8%	6,965	4%	4	0%	0%	12	0%	0%
Other goods	1,076	2%	3,438	2%	0	0%	0%	10	0%	0%
Total	55,119	100%	160,649	100%	1,085	100%	2%	10,749	100%	7%

Source: Based on COMTRADE data

However, is Brazil as important to China as China is to Brazil? In contrast to the strategic importance of the Chinese market for the Brazilian economy, Brazil is not a significant partner for China. According to our own calculations based on UN COMTRADE, exports to Brazil represent less than 1% of total Chinese exports since the late 1980s, while Brazil's share of Chinese imports only exceeded that value in recent years.[2]

In terms of Brazil's exports by sector to China, two main features arise: first, they are based on natural resources and raw materials, particularly in the metal mining, food and fuel sectors. Second, as mentioned, they are concentrated in a few products with a low level of processing. As seen in Table 5, Brazil's export bias towards natural resource-based products is even greater in the case of China: while the shares of food and industrial supplies in Brazil's exports to the world add up to 22% and 40% in 2007, those percentages rise to 30% and 58% for exports directed towards China.

It is noteworthy that the Sino-Brazilian bilateral trade resembles a North-South type of trade pattern, even though some still regard China as a Southern country. According to the bilateral trade balance shown in Table 6, Brazil was able to overturn its trade deficit with China, thanks to metals and other inedible crude material exports that increased from US$318 million in 1997 to US$5,681 million in 2006. From another perspective, manufactured goods and machinery imports from China also grew at outstanding rates, from US$138 million and US$382 million to US$1,037 million and US$4,337 million respectively. Indeed, this huge import surge in manufactures is the main culprit in Brazil's negative trade balance by sector with the Asian country. Consequently, the bilateral trade pattern between these two countries is as much a "North-South" type as that with any other industrialized economy.

More recently, a relatively small basket of products has greatly contributed to the growth of Brazilian exports during the 2001–2006 period, when total exports increased from US$57,000 million to US$135,000 million. As seen in Table 7, a large increase in exports was explained by oil (from US$720 million to US$6,900 million), soybeans (from US$2,725 million to US$5.663 million) and iron ore (from US$1,916 million to US$5,750 million). These products are part of the top five list of goods exported to

2 See Puga (2004) for a more detailed explanation.

Table 6: Bilateral trade by category (US$ million), 1997–2006

	1997			2006		
	Exports	Imports	Balance	Exports	Imports	Balance
Food and live animals	285	40	244	137	73	64
Beverages and tobacco	12	1	12	78	0	78
Crude materials, non-edibles, except fuels	318	13	305	5,861	40	5,821
Mineral fuels, lubricants and related materials	0	80	-80	836	136	700
Animal and vegetable oils, fats and waxes	264	0	264	116	1	115
Chemicals and related products n.e.s.	29	140	-111	259	800	-540
Manufactured goods classified chiefly by materials	81	138	-57	634	1,037	-403
Machinery and transport equipment	59	382	-323	457	4,337	-3,879
Miscellaneous manufactured articles	36	524	-487	19	1,566	-1,547
Others	0	0	0	5	0	4
Total	1,085	1,317	-232	8,402	7,989	413

Source: Based on COMTRADE data

Table 7: Brazil's top exports to the world by product, 2001–2006

2001			2006		
Product SITC	Description	Exports (000 US$)	Product SITC	Description	Exports (000 US$)
7923	Airplanes & other aircraft	2,808,453	3330	Crude oil	6,894,527
2222	Soybeans	2,725,507	2815	Iron ores & concentrates, not agglomerated	5,750,495
08131	Oilcake & other solid residues of oil from soybeans	2,065,192	2222	Soybeans	5,663,424
7812	Motor vehicles for the transport of persons, n.e.s.	1,951,380	7812	Motor vehicles for the transport of persons, n.e.s.	4,597,283
2815	Iron ores & concentrates, not agglomerated	1,916,898	06111	Cane sugar, raw, in solid form, not containing added flavoring/coloring matter	3,935,802
Total top five 11,467,430			Total top five 26,841,531		
Total exports 57,098,433			Total exports 135,188,344		
As % of total 20%			As % of total 20%		

Source: Based on COMTRADE data

the world which accounted for almost 20% of total exports between 2001 and 2006. However, other important products are present too in this export basket; these are automobiles, oilcakes and residues from soybeans, and sugar cane.

On the other hand, as Paiva Abreu (2004) suggests, Brazilian exports to China have traditionally been concentrated in a few commodities, such as soybeans, soybean oil, wood pulp, iron ores and iron ore pellets. According to Table 8, soybeans and iron ores are the top traded products with China between 2001 and 2006. In this period, iron ore exports increased almost eight-fold, from US$340 million to US$2.141 million; whereas soybean exports rose from US$537 million to US$2.431 million.

Table 8: Brazil's top exports to China by product, 2001–2006

2001				2006	
Product SITC	Description	Exports (000 US$)	Product SITC	Description	Exports (000 US$)
2222	Soybeans	537,663	2222	Soybeans	2,431,569
2815	Iron ores & concentrates, not agglomerated	340,139	2815	Iron ores & concentrates, not agglomerated	2,141,645
S2816	Iron ore agglomerates (sinters, pellets, briquettes, etc.)	142,493	3330	Crude oil	835,846
25152	Chemical wood pulp, soda/sulfate, bleached, non-coniferous	122,464	2816	Iron ore agglomerates (sinters, pellets, briquettes, etc.)	487,812
7812	Motor vehicles for the transport of persons, n.e.s.	81,604	25152	Chemical wood pulp, soda/sulfate, bleached, non-coniferous	347,783
Total top five 1,224,363			Total top five 6,244,655		
Total exports to China 1,901,333			Total exports to China 8,397,178		
As % of total 64%			As % of total 74%		

Source: Based on COMTRADE data

Finally, comparing Brazilian export concentration to China *vis-à-vis* the world's, it is quite clear that the ten leading products have a much larger share in exports to the Chinese market than they do in total exports. That is, between 70% and 80% of sales to China are concentrated in ten products, while those of total exports add up to 30%.

Table 9 identifies the top products exported to the Chinese market, showing their share in total Brazilian sales abroad. As we can see, China represents 43% and 37% of total Brazilian exports of soybeans and iron ores, respectively. As we have seen in Table 7, these products are extremely important for Brazilian exports (ranked second and third among the leading products exported to the World in 2006). This demonstrates conclusively that Chinese import demand for primary goods is central to Brazilian foreign sales.

Table 9: Top products exported to China by share in overall exports (2006)

SITC	Selected products	China (US$ '000)	World (US$ '000)	Share of China in Brazil's overall exports (%)
2222	Soybeans	2,431,569	5,663,424	42.9%
2815	Iron ores & concentrates, not agglomerated	2,141,645	5,750,495	37.2%
3330	Crude oil	835,846	6,894,527	12.1%
2816	Iron ore agglomerates (sinters, pellets, briquettes, etc.)	487,812	3,198,375	15.3%
25152	Chemical wood pulp, soda/sulfate, bleached, non-coniferous	347,783	2,428,551	14.3%
61143	Hides & skins not further prepared in wet state	212,318	654,056	32.5%
2484	Wood of non-coniferous species detailed in heading 247.5, sawn/chipped lengthwise, sliced/peeled, whether/not planed, sanded/end-jointed, of a thickness exceeding 6 mm	154,269	571,094	27.0%

Table 9 (cont.):	**Top products exported to China by share in overall exports (2006)**			
61144	Hides & skins not further prepared in dry state	140,980	995,136	14.2%
42111	Soybean oil, crude, whether/not degummed	113,120	828,702	13.7%
67159	Ferro-alloys, n.e.s.	97,969	590,920	16.6%
71322	Reciprocating internal combustion piston engines for propelling vehicles of division 78, group 722 & headings 744.14, 744.15 & 891.11 of a cylinder capacity exceeding 1,000 cc	89,068	599,395	14.9%
1212	Tobacco, wholly/partly stemmed/stripped	77,511	1,580,625	4.9%
27313	Granite, porphyry, basalt, sandstone & other monumental/building stone, n.e.s., whether/not roughly trimmed/merely cut, by sawing/othw., into blocks/slabs of a rectangular (including square) shape	74,661	200,283	37.3%
57111	Polyethylene having a specific gravity of < 0.94	62,999	536,807	11.7%
6111	Cane sugar, raw, in solid form, not containing added flavoring/coloring matter	54,792	3,935,802	1.4%
591	Orange juice	43,663	1,468,748	3.0%
2831	Copper ores & concentrates	34,187	519,968	6.6%
2513	Chemical wood pulp, dissolving grades	32,589	49,915	65.3%
2852	Alumina (aluminum oxide), other than artificial corundum	32,367	1,087,972	3.0%
67121	n/a pig-iron containing by weight 0.5%/less of phosphorus	31,017	1,637,332	1.9%

Table 9 (cont.):	**Top products exported to China by share in overall exports (2006)**			
74315	Compressors of a kind used in refrigerating equipment	29,919	642,956	4.7%
76493	Parts & accessories suitable for use solely/principally with the devices & equipment of groups 761 & 762 & subgroups 764.3 & 764.8	27,810	154,393	18.0%
57112	Polyethylene having a specific gravity of 0.94/more	27,728	418,732	6.6%
61145	Leather further prepared after tanning/crusting, including parchment-dressed leather	26,400	194,176	13.6%
57511	Polypropylene	26,154	194,538	13.4%
Source: Based on COMTRADE data				

Chinese demand is also crucial regarding other products such as chemical wood pulp, granite and other minerals, hides and skins, and wood of non-coniferous species, with shares of 65%, 37%, 32% and 27% of total exports for each product. For some agricultural products however, such as sugar, tobacco and orange juice, China accounts for a very limited share of Brazil's total exports.

As mentioned earlier, Brazilian exports to the Chinese market are dominated by the agroindustrial sector and mining multinational firms. Table 10 shows the list of exporting companies by the size of their exports to China. Companhia Vale do Rio Doce (CVRD), Archer-Daniels-Midland Company (ADM) do Brasil, Bunge, Cargill, Louis Dreyfus and Petrobras stand out among the others. Other companies in the second tier of export value (US$50 million to 100 million) appear to be of significance also, particularly cellulose and paper producing firms such as Aracruz, Votorantim, Celulose Nipo Brasileira, etc. However, we must mention that other important companies are located within the tier of US$10 million and 50 million exports to the Chinese market. These include Embraer (airplanes), Alliance One (tobacco), Volkswagen, General Motors, and Glencore (energy).

Table 10: Selected top Brazilian exporters to China, 2007	
More than US$100 million	**US$50–100 million**
Companhia Vale do Rio Doce	Aracruz Celulose SA
ADM do Brasil Ltda	Votorantim Celulose e Papel AS
Samarco Mineracao SA	Amaggi Exportacao e Importacao Ltda
Bunge Alimentos SA	Celulose Nipo Brasileira SA Cenibra
Caraiba Metais SA	Cia de Fomento Mineral e Participacoes CFM
Cargill Agricola S A	Coamo Agroindustrial Cooperativa
Companhia Brasileira de Metalurgia e Mineracao	Sementes Selecta Ltda
Bianchini sa Industria Comercio e Agricultura	Souza Cruz SA
Louis Dreyfus Commodities Brasil SA	Suzano Papel e Celulose AS
Mineracoes Brasileiras Reunidas SA MBR	
Nacional Minerios SA	
Petroleo Brasileiro SA Petrobras	
Source: Based on MDIC data	

Finally, in order to consider the effects of Sino-Brazilian trade patterns on the Brazilian production structure, we adopt here an approximation to the "market export basket" concept from Hausmann and Klinger (2006). Basically, we weight the average "distance" between two products (that is, how easy it is for a country to export a particular good given that it already exports the other product), with Brazilian revealed comparative advantages.[3] If the weighted distance decreases, the country is becoming more

3 See Hausmann / Klinger (2006) and Parks et al. (2007) for a detailed survey of this methodology. In order to understand this concept, we must introduce some basic concepts. In the first place, we obtained the proximity matrix, which consists of the proba-

competitive and/or moving towards a zone where products are more "interconnected". This is particularly true for the industrialized and more capital- and technology-intensive goods often exported by developed economies. As Guerson / Parks / Parra Torrado (2007) argue: *"The intuition behind the distance measure is that it reflects the degree in which a good exported by (a country) is in close proximity to the world's export basket, making it easier for firms to adopt new products and export them. Hence, under this framework, the probability of exporting a good in the future depends on how close is a good to the current country's export basket."*

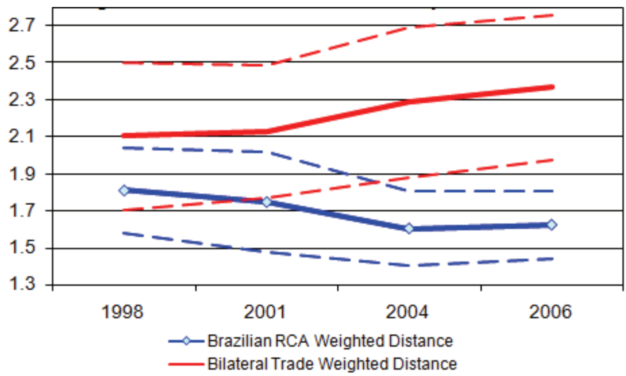
Looking at Figure 2, we can see that Brazil is moving closer to the world's export basket, since the average distance between 1998 and 2006 is declining (series called RCA Weighted Distance). As a counterfactual exercise, we calculated this distance again by weighting the proximity matrix with the bilateral Brazil-China complementarity index (series called Bilateral Trade Weighted Distance), indicating which goods match the Brazilian revealed comparative advantage in exports, and Chinese import patterns.[4]

Consequently, this indicator is a rough measure of what would happen with Brazilian distance to the world's export market if it became competitive only in those exports that complement China's imports structure. As we can see, if Brazil gradually adopted this export basket, the distance to the world's export basket would rise; a worse-off situation. A probable explanation for this is that since the Complementarity Index reinforces the North-South pattern, Brazil becomes now almost solely an exporter of raw materials and primary goods, therefore increasing its distance to the market export basket which is also made up of capital and technology intensive goods.

bility of exporting the good k given that the good j is exported, and vice versa. Since both conditional probabilities are not the same, the authors take the lesser of the two. This proximity or probability is an intuitive notion of how "close" products are in the product space. That is, when probabilities are high, this indicates that it is easier for one country to export a particular good given that it exports another one. Since this probability was calculated using all bilateral exports for all exporting countries, we consider this proximity as the average for the market.

4 See Balassa (1965).

Figure 2: Distance to the „market“ exports basket



Note: Dotted lines represent one standard deviation from the mean.

Source: Own calculations based on COMTRADE data and Rodrik's website 'Product Space and the Wealth of Nations'

1.2 Brazilian imports from China

The composition of Brazilian imports from China clearly departs from the popular belief that China is only an exporter of low quality consumer goods. Between 1998 and 2007, total imports increased by over 50%, from roughly US$60,000 million to over US$90,000 million. As Table 11 shows, Brazil currently imports industrial supplies (31% of total imports), capital goods (28%), fuels (19%), transport equipment and parts (12%), other consumption goods (6%) and food and beverages (4%).

Table 11: Brazil's imports from the world and China by economic use of goods

	2007		2001		1998	
	US$ million	%	US$ million	%	US$ million	%
WORLD						
Food and beverages	3,815	4%	2,969	5%	5,430	9%
Industrial supplies	28,473	31%	16,570	30%	17,980	30%
Fuels	16,949	19%	7,607	14%	5,549	9%
Capital goods	25,756	28%	18,367	33%	18,685	31%
Transport equipment and parts	10,813	12%	7,179	13%	9,255	15%
Other consumption goods	5,511	6%	2,850	5%	3,881	6%
Other goods	25	0%	61	0%	12	0%
Total	91,343	100%	55,602	100%	60,793	100%
CHINA						
Food and beverages	54	1%	12	1%	25	2%
Industrial supplies	1,886	24%	348	26%	256	23%
Fuels	132	2%	122	9%	101	9%
Capital goods	4,354	54%	552	42%	298	26%
Transport equipment and parts	378	5%	30	2%	21	2%
Other consumption goods	1,185	15%	263	20%	433	38%
Other goods	0	0%	-	0%	-	0%
Total	7,989	100%	1,328	100%	1,134	100%

Source: Based on COMTRADE data

Total imports coming from China increased almost seven-fold between 1998 and 2007, from roughly US$1,000 million to almost US$8,000 million. Compared to the total imports structure, Brazilian imports from China are relatively based on capital goods (54%), industrial supplies (24%) and other consumption goods (15%). Indeed, the single most important change in import pattern coming from China is the substantial decrease in the share of other consumption goods from 38% to 15% between 1998 and 2007. In turn, this decrease matches the expansion of the capital goods import share, which went from 26% to 54% during this period.

During the last eight to ten years, Brazilian imports more than doubled. As Table 12 shows, between 1999 and 2007, they increased by almost US$70,000 million. When calculating the contribution of Brazil's imports from China, we conclude that an US$11,000 million increase in foreign purchases from the Chinese market, represents almost 20% of total import growth during the 1999–2007 period. To a certain extent, this increase explains the increasing importance of China as a supplier for the Brazilian economy.

Table 12: China's contribution to Brazil's total import growth

	Total import growth (000 US$)	Import growth from China (000 US$)	Total import growth (%)	Contribution to total import growth from China
1975–1985	750,868	500,666	6%	67%
1986–1998	45,238,005	723,133	291%	2%
1999–2007	68,714,820	11,674,824	133%	17%

Source: Based on COMTRADE data

However, when we compute China's share in Brazilian imports by sector, we conclude that only a few sectors are really penetrating this market. Accordingly, Table 13 shows that the most affected sectors are capital goods (16.9%) and other consumption goods (21.5%) in 2007. However, a comparison with 1998 indicates that Chinese products increased their participation in total Brazilian imports in almost every sector.

Table 13: China's share in Brazil's imports by sector and economic use of goods

	2007	2001	1998
	%	%	%
Food and beverages	1.4%	0.4%	0.5%
Industrial supplies	6.6%	2.1%	1.4%
Fuels	0.8%	1.6%	1.8%
Capital goods	16.9%	3.0%	1.6%
Transport equipment and parts	3.5%	0.4%	0.2%
Other consumption goods	21.5%	9.2%	11.2%
Other goods	1.0%	0.0%	0.0%
Total	8.7%	2.4%	1.9%

Source: Based on COMTRADE data

In terms of the composition of the Brazilian import basket, a reduced number of goods explained a great deal regarding import growth in the period 2001–2006. During that period, total imports increased from US$55,000 million to US$91,000 million. As seen in Table 14, a large increase in imports was explained by oil (from US$3.194 million to US$9.063 million), petroleum oils (from US$2.905 million to US$4.294 million), and processors, controllers and memories (from US$1.401 million to US$2.847 million). These products are part of the top five imported goods from the world, which accounted for almost 20% of total imports between 2001 and 2006. Other important products are present too in this basket, such as motor vehicles and parts, and parts and accessories for audio, video and communications.

Table 14: Brazil's top imports from the world by product, 2001–2006

2001			2006		
Product SITC	Description	Imports (US$ million)	Product SITC	Description	Imports (US$ million)
3330	Crude oil	3,194	3330	Crude oil	9,063
3340	Petroleum oils	2,905	3340	Petroleum oils	4,294
7843	Motor vehicle parts and accessories	1,502	7764	Processors, controllers, memories	2,847
7812	Motor vehicles	1,402	7843	Motor vehicle parts and accessories	2,492
7764	Processors, controllers, memories	1,401	7649	Parts and accessories for audio, video and communications	2,412
Total top 5		10,404	Total top 5		21,108
Total imports		55,599	Total imports		91,340
As % of total		19%	As % of total		23%

Source: Based on COMTRADE data

On the other hand, imports from China have been traditionally concentrated in a small number of capital intensive goods such as parts and accessories for calculating machines, lamps, parts and accessories for audio, video and telecommunications; and more recently, microprocessors and memories, toys, instruments and transmission devices (see Table 15).

Table 15: Brazil's top imports from China by product, 2001–2006

2001			2006		
Product SITC	Description	Imports (US$ million)	Product SITC	Description	Imports (US$ million)
3250	Coke and semi-coke of coal	78	7649	Parts and accessories for audio, video and communications	858
7782	Lamps	76	7599	Parts and accessories for other electronic machines	365
7649	Parts and accessories for audio, video and communications	68	7764	Processors, controllers, memories	302
7599	Parts and accessories of calculating machines	41	8719	Instruments, optical devices and parts	290
8942	Wheeled toys, other toys and recreational models	36	7643	Transmission devices	210
Total top five		299	Total top five		2,026
Total imports		1,327	Total imports		7,988
As % of total		23%	As % of total		25%

Source: Based on COMTRADE data

2 Effects of trade with China

2.1 Terms of trade

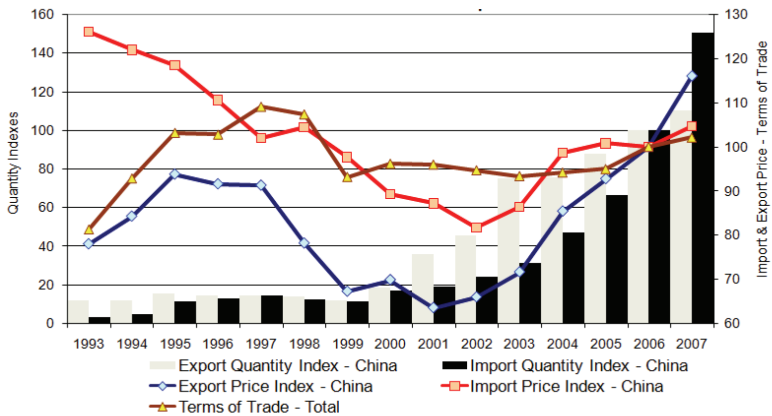
According to Deutsche Bank Research (2006), China's fast rising demand for commodities, spurred by industrialization and higher living standards had a significant impact on world commodity markets and prices as well as on the resource-rich regions of the world like Latin America. Chinese commodity imports have multiplied by 20 over the past two decades. However, commodity imports did not outgrow overall import demand, remaining at about one-third of total imports. According to the same study, crude oil, metal ores and plastic materials lead the list of China's top ten commodity imports. Together, these commodities account for roughly 40% of commodity imports and 15% of total imports. Finally, China is the world's leading importer of plastic materials, metal ores, oil seeds, textile fibers and pulp and paper.

Brazil is the number one exporter of iron ore world wide and the third largest supplier of the metal for China. Thus, Brazil and other Latin American countries (mostly Peru) supply more than a quarter of China's total iron ore imports. Since the late 1990s, soybean production in Brazil posted strong growth, in part driven by China's increasing demand. Again, as Deutsche Bank Research (2006) notes, between 1999 and 2004, China's soybean imports from Argentina and Brazil showed a ten-fold increase (accounting for more than 50% of China's total imports).

In addition, China's growing meat consumption is of great importance for Brazil. Being the second largest producers of meat, beef and veal, China's meat imports already add up to 11% of total purchases abroad. Finally, the above-mentioned study stresses that China is also the world's leading importer of pulp and paper, with Brazil accounting for 8% of Chinese imports. Again, when looking at the terms of trade, one must bear in mind the bilateral pattern of trade that closely resembles the so-called North-South type, where the Southern country (in this case Brazil) exports primary goods and raw materials and the Northern country exports manufactures of different technologies.

After reviewing China's importance for Brazil as a consumer of commodities, we turn to Figure 3 to describe the effects of growing Chinese demand on the Brazilian terms of trade. We do so by examining terms of trade *vis-à-vis* China, where a clear pattern of improvement appears from 2001 onwards. In a longer-term perspective, whereas import prices from China show a consistent negative trend throughout the 1985–2007 period export prices do not follow suit. In contrast, there appear to be three marked stages in the effects of terms of trade, mainly determined by export prices: the first stage from 1985 to 1995; the second, from 1995 to 2001; and finally, from 2001 until 2007.

Figure 3: Brazilian terms of trade and price indexes



Source: Based on FUNCEX data

As quantities from China rose almost three-fold between 2001 and 2007, it is quite clear that bilateral terms of trade were not only influenced by higher prices but also by real traded volumes with China.[5] According to the Brazilian Foreign Trade Studies Foundation (FUNCEX), export prices to China almost doubled from 2001 to 2007, while import prices only

5 Available at http://www.funcex.com.br/basesbd/down_base.asp?tp=4&arq_pdf= metodologia _2.pdf

increased by 19%, resulting in a 52% rise in bilateral terms of trade. Consequently, price increases in the major products exported to China may not be reflected in the change in Brazil's global terms of trade of only 6% between 2001 and 2007, due to a lower increase in the prices of products exported to the US and Argentina (11% and -10%, respectively). Apart from this, it is quite clear that in the case of some particular commodities, price increases – such as in the case of iron ores, which rose from 28 to US$83 per ton – did have a substantial effect on bilateral terms of trade, among other things.

Finally, one must consider that commodity prices have greatly suffered in 2008, as a consequence of the financial turmoil in the US and other industrialized economies. In general terms, soft commodities and metals – of particular significance for Brazilian exports – have declined by over 40% from their peak in 2007.

2.2 Employment effects

In order to measure the employment effects of trade with China, we follow Lopez and Ramos (Chapter 3, page 65−157), who in turn use Jenkins / Sen (2006) methodology. In a nutshell, they put forward a Chenery-type growth accounting methodology where changes in production can be decomposed in subsequent changes in domestic demand and trade flows.[6] We only reproduce here the final equation, which is calibrated using two different points in time, in this case 1998 and 2005.[7]

As in Lopez and Ramos (2008), we also disentangle trade effects on employment according to trading partners, in this case China and the rest of the world (ROW).

6 Other more recent methodologies depart from the classical optimization problem of the firm, introducing trade as part of the trade facilitation program, and obtain a labor demand equation where trade is an independent variable. For the Latin-American case see Fajnzylber / Maloney (2005) and Castro / Olarreaga / Saslavsky(2006).

7 As in the previous authors' work, this methodology is limited in a number of aspects. First, it assumes that productivity changes are independent from changes in other variables (including trade). Second, only direct effects on employment are calculated. Third, we do not account for other effects of trade with China, as in the terms of trade.

$$\Delta L_i = l_{i1}(1-m_{i0})\Delta D_i + l_{i1}\Delta X_i^{Ch} + l_{i1}\Delta X_i^{RW} + l_{i1}(m_{i0}^{Ch} - m_{i1}^{Ch})D_{i1} + l_{i1}(m_{i0}^{RW} - m_{i1}^{RW})D_{i1} + (\Delta l_i)Q_{i0}$$

Where:

X_{it}^{Ch} is exports to China of industry i at time t

X_{it}^{RW} is exports to the rest of the world of industry i at time t

M_{it}^{Ch} is imports to China of industry i at time t

M_{it}^{RW} is imports to the rest of the world of industry i at time t where:

D_{it} is domestic demand of industry i at time t

Q_{it} is domestic production of industry i at time t

X_{it} is exports of industry i at time t

M_{it} is imports of industry i at time t

L_{it} is employment in industry i at time t

$$l_{it} = \frac{L_{it}}{Q_{it}} \qquad m_{it} = \frac{M_{it}}{D_{it}}$$

In order to calculate the employment effects of trade using this methodology we retrieved employment and gross production value at the subsector level, using the *Pesquisa Industrial Anual* (Annual Industry Survey) from IBGE (National Institute of Geography and Statistics).[8] We completed the dataset transforming COMTRADE's trade data with a concordance table in order to match this information with production and employment data. Table 16 summarizes the results of our empirical exercise, in order to pin down the effects of trade with China on the Brazilian industrial sector.

8 See IBGE's website for data availability. ftp://ftp.ibge.gov.br/Industrias_Extrativas_e_de_Transformacao/Pesquisa_Industrial_Anual/Empresa2005. Using this source of information, we were able to retrieve gross production value (in local currency, converted to current US$) and employment for each subsector of the CNAE (National Economic Activity Classification). We only exhibit aggregated information at Chapter level for presentation purposes, since 3-digit CNAE Classification consists of over one hundred subsectors.

Table 16: Impact of trade with China on Brazilian employment, 1998–2005

CNAE	Description	Change in Employ-ment	Domestic Demand	Total trade with China	Exports to China	Imports from China	Exports to ROW	Imports from ROW	Productiv-ity
10	Mineral coal extraction	1,513	3,464	-382	0	-382	1	-1,171	-2,030
11	Oil and gas extraction	20,185	1,530	1,509	1,508	0	10,915	5,928	4,149
13	Metallic mineral extraction	14,349	11,483	5,790	5,831	-41	8,257	-1,416	-5,711
14	Non metallic mineral extraction	8,789	3,479	2,114	2,121	-7	7,759	2,313	-10,106
15	Food and beverages	374,838	109,220	1,543	1,757	-214	234,973	15,042	13,847
16	Tobacco	-1,188	7,293	0	0	0	-3,181	235	-4,277
17	Textiles	29,323	5,211	-6,768	729	-7,498	18,319	-4,808	18,185
18	Apparel	94,082	-6,048	-5,581	41	-5,623	8,067	4,389	95,702
19	Leather and footwear	129,142	23,510	551	6,344	-5,792	49,221	3,270	40,260
20	Wood products	34,492	9,095	5,572	5,618	-47	57,859	1,039	-25,632
21	Cellulose and paper	23,519	29,562	1,238	1,340	-102	7,164	3,929	-16,000
22	Editing, printing	-5,830	-15,024	-63	9	-71	1,556	2,229	5,629

Table 16 (cont.): Impact of trade with China on Brazilian employment, 1998–2005

CNAE	Description	Change in Employ-ment	Domestic Demand	Total trade with China	Exports to China	Imports from China	Exports to ROW	Imports from ROW	Productiv-ity
23	Coke and oil refineries	11,976	15,975	11	0	11	28,550	-2,704	-31,344
24	Chemical products	52,057	56,775	-2,840	284	-3,124	17,462	-6,179	-18,482
25	Rubber and plastic products	70,138	77,122	-1,721	226	-1,947	15,758	2,429	-24,754
26	Non metallic mineral products	40,131	24,518	-1,516	76	-1,593	26,351	2,513	-10,665
27	Iron and steel	36,066	40,430	240	938	-698	43,751	-5,459	-31,668
28	Metal products, excluding equipment and machinery	69,551	78,507	-2,684	206	-2,890	10,940	1,600	-19,615
29	Equipment and machinery	52,893	15,851	-6,055	1,830	-7,885	54,107	9,467	-25,281
30	Desktop machines and computers	23,875	13,658	-5,256	18	-5,274	922	10,372	7,132
31	Electrical products and machinery	21,961	10,494	-7,576	529	-8,105	21,724	2,085	-6,015
32	Electronic materials, devices, and telecommuni-cations equipment	12,611	18,945	-12,717	313	-13,031	10,402	-5,945	8,378

Table 16 (cont.): Impact of trade with China on Brazilian employment, 1998–2005

CNAE	Description	Change in Employ-ment	Domestic Demand	Total trade with China	Exports to China	Imports from China	Exports to ROW	Imports from ROW	Productiv-ity
33	Medical, optical and measuring devices and machinery	8,353	14,404	-8,640	209	-8,849	7,116	525	-12,654
34	Automobile production	109,531	102,105	321	1,069	-748	42,347	21,608	-57,435
35	Other transport equipment	57,937	38,149	-637	-10	-627	18,482	1,350	705
36	Furniture and miscellane-ous industries	16,029	-17,178	-4,573	129	-4,701	23,675	3,214	11,514
TOTAL		**1,306,323**	**672,530**	**-48,119**	**31,117**	**-79,236**	**722,497**	**65,855**	**-96,167**

Sources: Own calculations based on IBGE's *Pesquisa Industrial Annual* and COMTRADE

According to IBGE, the bulk of the industrial sector created over a million jobs between 1998 and 2006. We can further categorize this change into three main effects: domestic demand effects, trade effects, and productivity effects. Our estimations suggest that, in overall terms, 52% of job creation came from the increase in domestic demand; almost 57% came from trade; and there was a 3% decrease as a consequence of productivity gains. However, when we disentangle the effects of trade of China from those of the rest of the world, our figures indicate that trade with China is responsible for a 4% loss in Brazilian jobs: while exports created a 2.5% increase in employment, import growth caused a 6.1% decline in jobs for the industrial sector as a whole.

2.3 Government revenue

According to Brazilian official statistics, trade tax revenue in Brazil adds up to 12 to 17 billion Reais (US$ 6–9 billion), or 6% of total tax revenue.[9] Unlike Argentina, which depends heavily on export taxes, Brazilian trade taxes rely almost exclusively on imports.[10] As of 2004, export taxes have been levied on a small array of products: cashew nuts, tobacco, cigars, leather, paper for cigars, cylinders for cigar filters, and arms. Indeed, revenue from export taxes is almost negligible, accounting for less than 1% of total trade tax revenue.

Basically, import tax revenue in Brazil consists of tariff duties and a federal value-added import tax of 8.2% of the Cost, Insurance, Freight (CIF) import value in 2007. In addition, Brazilian states apply Value Added Tax (ICMS), a value-added tax on good and services. This tax is levied on both intrastate and interstate transactions and is assessed on every transfer or movement of merchandise. In general, rates are set at 17%–18% for imports, although preferential rates may be applied to products from certain states. Some products, such as foodstuffs, semi-manufactures, and equip-

9 http://www9.senado.gov.br/portal/page/portal/orcamento_senado/LOA/Execucao EDFS?p_ano=2008
Receita Administrada (total tax revenue) excludes Social Security and other revenue from public sources. When including those income sources, trade tax revenues only represent between 2–3% of the total.

10 During the period 2003–2007, trade taxes in Argentina added up to 9% of total revenue, but almost 6% correspond to export taxes or retenciones, and only 3% to import duties.

ment and commodities for the Manaus Free Trade Zone are exempt, as well as locally produced machinery. Even though ICMS is an important tax, totaling revenues of almost 190 billion Reais in 2007 and 2008 (almost 15% of total revenue), it is not possible to disaggregate how much is accounted for by imports.

According to the WTO's Trade Policy Review, Brazilian tariff exceptions to MERCOSUR's Common External Tariff (CET) can be obtained through the *ex tarifário* mechanism, a temporary reduction of import duties on capital goods, informatics and telecommunications goods and their parts, where there is no domestic production of those goods. This transitory mechanism was extended several times and is currently set to expire in December 2009 or June 2010, when no import duties will be charged for almost all goods of NCM (MERCOSUR's version of the Harmonized System) chapters 84, 85 and 90.[11] Furthermore, imports into the Manaus Free Trade Zone are exempt from the IPI, as are agricultural and food items, mineral products, fuels, chemicals, pharmaceuticals, fertilizers, hides and skins, rough wood, printed matter, and textiles and clothing.

Since Brazilian imports from China are mostly capital goods and industrial supplies from the electronics cluster – almost 60% in NCM Chapters 84, 85 and 90 – it is rather difficult to estimate trade revenue generated by imports which originated from China. In fact, technological firms like Alcatel, Hewlett-Packard, LG, Motorola, Nokia, Phillips, Samsung, and Sony stand out among the central importing companies from China, each with US$50 million or more worth of imports. Even when it is not possible to know how much these firms use the *ex tarifário* mechanism to import capital and intermediate goods, a considerable number of them do benefit from the tax exemptions granted in the Manaus Free Trade Zone, a very important industrial cluster near the Amazon.

According to the *Receita Federal* (the ministry in charge of tax revenue) almost 30% of imports from China were granted tariff-free market access to Brazil during 2002. Roughly, 20% is explained by the Manaus Free Trade Zone tax treatment, and the remaining 10% is due to other tariff

11 http://www.mdic.gov.br/sitio/interna/interna.php?area=5&menu=1851

suspensions.[12] Furthermore, the average MFN-applied tariff on Chinese goods was approximately 12%, where the real applied tariff amounted only 7%, causing a 7.7% revenue loss as a percentage of total imports.[13] Consequently, even though imports from China have grown significantly in recent years, the real impact on revenues is probably smaller in relative terms, compared to the impact generated by imports of consumption goods from other countries.

3 Competition in third markets

In order to measure competition effects in third markets, we turn to the well-known methodology of constant market share analysis put forward by Richardson (1971), and further applied by Roland Holst and Weiss (2005) and Weiss and Shenwen (2003). Applied to this particular case, it decomposes Brazilian exports to the USA and EU-27, *vis-à-vis* China's exports to those markets.

The first effect considers the change in the partner's total imports, assuming that Brazil maintains its market share constant in both (also referred to as the constant market share effect). The second compares Brazilian market share gains relative to those of China, both in the USA and EU-27. And finally, a third effect stems from the comparison of China's share gains against the rest of the world (including Brazil) in the partner's market.

As the mentioned authors note, a negative sign for the second term indicates a loss of competitiveness *vis-à-vis* China; however, this may be compensated by the movement of China's competitive position against the rest of the world. Countries for which the sum of these two effects is negative will be losing competitiveness.

As shown in Table 17, columns 1 through 3 add up to 100 as they reflect the three component effects, expressed as percentage of Brazilian export

12 To our knowledge, this is the only piece of public information that classifies imports from a particular country according to the tax treatment offered by the Brazilian government.
http://www.receita.fazenda.gov.br/aduana/ComerMercadBrasil/2002/BrasilChina/introducao.htm

13 Includes revenue loss from import duties and IPI tax on imports.

change to the EU-27. As can be seen, while all constant market share effects are positive, competitiveness effects are not. In fact, except for fuel exports, Brazilian goods have lost competitiveness *vis-à-vis* Chinese products in the EU-27. Nonetheless, Brazilian goods show a modest increase in overall competitiveness in the European continent, as the last column indicates. In aggregate terms, 75% of export growth to the EU-27 is due to increases in demand, and almost 23% to competitiveness improvements.

Table 17: Competition with China in third markets: EU-27, 2001–2007 (%)

		(1)	(2)	(3)	(2) + (3)
	% Change in Brazilian exports to EU-27	Constant market share effect	Brazil's market share-gains relative to China	China's market share gains relative to the ROW	China's total competitiveness effect
Food and beverages	116.1	92.2	-66.4	74.2	7.8
Industrial supplies	185.4	76.9	-124.0	147.0	23.1
Fuels	888.1	24.4	96.3	-20.7	75.6
Capital goods	168.2	50.0	-157.6	207.6	50.0
Transport equipment	91.8	93.3	-259.0	265.7	6.7
Consumption goods	153.6	82.7	-67.8	85.1	17.3
Other goods	149.7	25.1	-349.3	424.3	74.9
Total	160.7	76.5	-113.0	136.6	23.5

Source: Own calculations based on UN COMTRADE data

Now we turn to Table 18, where we compute the competitive position of Brazil against China in the US market. The most noteworthy result is that, apart from the export of fuels and other consumption goods, Brazilian products have lost relative market share in the US against Chinese imports. The rest of the table shows that Brazilian exports experienced significant competitiveness losses, especially in capital goods, transport equipment, and other goods. In aggregate terms, while overall competitiveness of Brazilian exports to the US increased, this effect only accounts for 10% of the change.

Table 18: Competition with China in third markets: USA, 2001–2007 (%)

		(1)	(2)	(3)	(2) + (3)
	% Change in Brazilian exports to USA	Constant market share effect	Brazil's market share gains relative to China	China's market share gains relative to the ROW (including Brazil)	China's total competitiveness effect
Food and beverages	135.4	51.8	-92.5	140.7	48.2
Industrial supplies	124.9	60.3	-94.9	134.6	39.7
Fuels	306.3	61.5	81.2	-42.6	38.5
Capital goods	34.9	160.2	-844.1	783.9	-60.2
Transport equipment	7.0	460.3	-4,730.0	4,369.7	-360.3
Other consumption Goods	-4.7	-1,431.9	3,020.3	-1,488.4	1,531.9
Other goods	1.9	1,452.3	-11,606.2	10,253.9	-1,352.3
Total	78.2	90.7	-169.7	179.0	9.3

Source: Own calculations based on UN COMTRADE data

Indeed, this is consistent with Chami Batista (2006). Using a similar methodology, this author finds that China accounted for 37% of Brazil's competitiveness losses in 1992–2004, a period in which Brazil was the fourth largest overall winner of competitiveness. In terms of products, the author points out that main losses included leather footwear, iron and steel products, air conditioning, plywood, data processing equipment and parts, wood furniture, and brakes.

4 Trade barriers and other trade costs

According to the Swedish National Board of Trade (2005) (henceforth SNBT), the rapid liberalization of trade during the early 1990s, aggressively lowering historically high tariffs, led to an increase of imports. Brazil bound its tariff lines in the Uruguay Round from 0%–55% for agricultural goods, and from 0–35% for manufactured goods. Brazil's main protection instrument is its tariffs, whose structure is set by the MERCOSUR Common External Tariff (CET). For most tariff lines, Brazil has bound the rates higher than the applied rates, where some still exceed bound levels. A number of sectors including sugar, automobiles and parts, capital goods, informatics, and telecommunication goods were temporarily excluded from the CET. However, the average applied Most Favored Nation (MFN) tariff is 12.6% for agricultural and 13.9% for manufactured goods. More importantly, half of all tariff lines carry rates ranging from 14–21%, and 9% still show rates higher than 21%, mostly affecting dairy products, beverages and spirits, tobacco, textiles, and machinery.

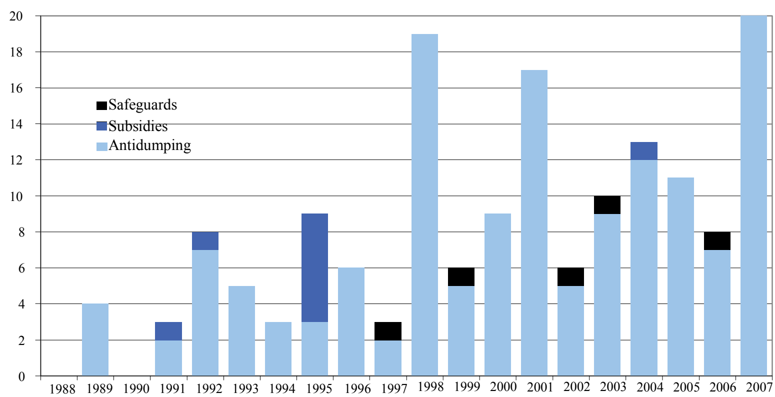
4.1 Antidumping and safeguard measures adopted by Brazil

As the SNBT points out, the overvaluation of the Real that occurred during the second half of the 1990s and the across-the-board tariff reduction created further incentives for imports. This in turn caused a chain reaction from Brazilian industrialists in favor of using trade remedies. Finally this led to the creation of a trained federal bureaucracy empowered to investigate the occurrence of dumped and subsidized imports into Brazil. By means of Federal Act no. 9019 of March 1995, the administrative procedure for antidumping investigations was created, defining the due authorities to conduct investigations on dumping and subsidies.

In spite of this, Brazil's first antidumping (AD) measure was taken in 1988. Since then AD has become Brazil's major instrument used for protection of domestic industries. In fact, Figure 4 highlights the number of measures taken by Brazil against imports since 1988, with antidumping measures the most significant in quantity (146 out of 155), followed by subsidies (9) and safeguards (5). In fact, according to the Ministry of Foreign Trade's (SECEX) Trade Defense Bureau (DECOM in Portuguese) almost 25% of all applied measures were against China, followed by the US and India, with 9% and 6.5% respectively.

As Figure 4 shows, trade measures against Chinese products peaked in 1998, 2001 and 2007. According to Paiva Abreu (2005), it is hard to support the idea that protectionist measures taken by the Brazilian authorities were targeting specific Chinese products compared to those of other origins. In fact, before the adoption of measures in 2003 affected imports were very small, even compared to the total value of imports from China at the time. Therefore, past Brazilian antidumping measures have only affected a small number of Chinese manufactured products of limited significance.

Figure 4: Brazilian antidumping and other measures adopted against China

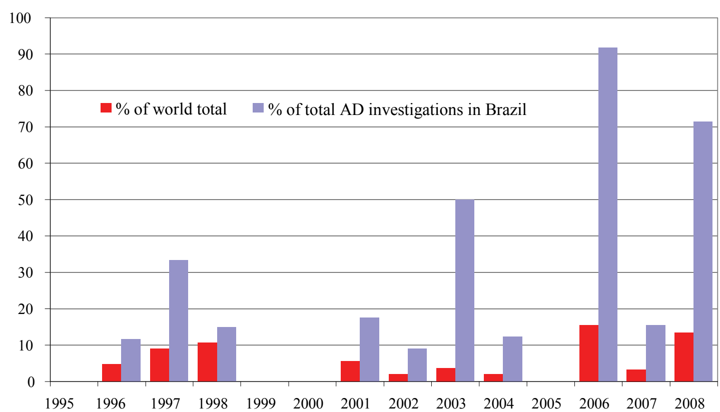


Source: Based on DECOM / SECEX 2007 Memoir

A more recent development in bilateral relations, however, related to the multilateral system, is the diplomatic Market Economy Status (MES) granted by Brazil to China (along with 20 other countries) in November 2004. If incorporated to the Brazilian legal body, MES would recognize "normal value" as the price of the good in the exporter's domestic market, a measure of particular importance in antidumping investigations. A non-MES, in contrast, allows the country imposing the remedy to take as normal value the price of that good in a third country market economy. Consequently, if prices are distorted because of state regulation in China, dumping margins (that is the margin between the actual prices of exports and the normal value) will be much harder to demonstrate under China's MES.

More recently, as Facchini et al. (2007) mention, requests for protection have become more common among LAC countries, and governments have chosen trade remedies such as antidumping and safeguard rules and other instruments (standards and technical regulations, non tariff barriers). In Figure 5 we can see the surge in Antidumping (AD) investigations against

Figure 5: Share of total AD investigations against China, initiated by Brazil: 1995–2007



Source: Based on CNI China Observatory

China in recent years. Although difficult to contrast with Paiva Abreu's (2005) initial assessment of the absence of discretionary AD policies against Chinese goods, it is quite clear that in relative terms, this country has a greater practice of initiating trade remedy investigations against China than it does against the rest of the world.

Fundamentally, while the share of China in total AD investigations does not exceed 20%, remedies applied to Chinese goods in Brazil reached almost 90%, and 70% during 2008. In relation to the previous paragraph, Table 19 shows the sector composition of AD remedies adopted by Brazil between 1995 and 2008. Basically, the bulk of investigations lies in optical, medical products, music instruments (33%), followed by chemicals (21%), machinery (15.2%) and metals (15.2%). Clearly, this mimics the pattern of bilateral trade and Revealed Comparative Advantage (RCA) in both countries. As China exports capital intensive goods, and Brazil exports primary goods, foods and raw materials, a higher concentration of AD investigations in the capital intensive sectors is expected, as turns out to be the case in the data on adopted measures.

Table 19: Distribution of AD investigations against China by sector (% of total)

Sector	Brazil	World
Optical, medical products, music instruments	33.3	9.7
Chemical products and plastics	21.2	28.1
Metals, stones and precious metals	15.2	22.8
Machinery, electronics and vehicles	15.2	13.6
Leather, skins, textiles, apparel and footwear	6.1	11.7
Animals, vegetables, foods and beverages	3.3	2.5
Woods, paper and cellulose	3	3.8
Cement, ceramics and glass	3	5.6
Mineral products	0	2.2
Total	100	100

Source: Based on CNI China Observatory

Finally, as Paiva Abreu (2005) notes, safeguards have affected Brazilian imports of toys since 1996. The import of toys increased very rapidly in 1994–-95 to reach US$139.6 million in 1995, of which China had a 54% share. In 2002, when the CET plus safeguard was 30%, total toy imports declined to US$33.4 million. Since the Brazilian toy industry applied safeguards against foreign toy manufacturers, including China, for ten years after the corresponding phasing-out period, Brazil's only recourse would be to establish parameters for negotiations of a restraint on Chinese toy imports into Brazil.

4.2 Import licensing

Brazilian administrative procedures for imports are broadly divided into three categories: imports exempted from licenses, imports under non-automatic licensing, and imports under automatic licensing. As a general rule, Brazilian imports are exempt from licensing, the only requirement for importers being to present the appropriate customs documentation, *declaracao de importacao*, to initiate due administrative processes. Besides this general rule, other imports are exempted from licensing, such as those using the temporary admission regime, other suspensions of tariff duties (*ex tarifário*), industrialized goods, and other related regimes.[14]

On the other hand, non-automatic licensing is imposed under a number of treatments such as tariff quotas for specific products, imports to free trade zones, duty free or export processing zones for goods subject to similarity assessments and/or subject to trade restrictive measures imposed by the Brazilian authorities (*medidas de defesa comercial*) and those under scrutiny for possible fraud, etc.[15]

As of August 2008, only 6% of all tariff lines are subject to non-automatic licensing (632 products).[16] Roughly 50% are linked to a price revision

14 Portaria SECEX N. 27, November 27, 2008. Section 3, Article 8.

15 See Portaria SECEX N. 27, November 27, 2008. Section 3, Article 8. However, according to the WTO's Trade Policy Review, Brazil imposes import licenses to approximately one third of all tariff lines, roughly 3500 products at the 8-digit level.

16 Here we only consider those import licenses which are administered exclusively by DECEX/SECEX, the Brazilian Trade Authority on these matters. The rest of the licences are subject to control by a large number of agencies, whose main focus is the industrial, environmental and health security of imports. Some of these agencies are the Na-

mechanism, applied beforehand to a list of sensitive products, where a number of inquiries are made to eliminate possible fraud and dumping. Another 25% of the remaining licenses are subject to technical regulations control, where the importers are forced to present special documentation issued by Brazilian quality control organizations. This is the case for toys and tires, among others.

A remaining 10% of all licenses are applied to trade restrictive measures already in place. For example, when countervailing duties are applied to a number of imported Chinese products, the Brazilian authorities request importers to submit proper documentation to ensure the origin of those products and to avoid triangulation. Finally, the rest of the licenses are applied in the case of textile imports from China and for the administration of tariff quotas.

4.3 Bilateral agreements on other trade-restricting measures

In October 2005, Brazil introduced new regulations to curtail the flow of Chinese-made textiles/clothing and other goods into the country. For textiles, there is a specific safeguard decree (5558/2005) that allows a suspension of imports for a maximum period of 200 days, applied until December 2008, while the restrictive procedure for all other sectors may be enforced until December 2013.

For sectors other than textiles, transitory safeguards of up to 200 days could be in place in those cases where a delay in taking effective measures could entail irreparable damage. Decree 5556/2005 also allows the possibility of applying safeguards in the case of demonstrated trade diversion, that is, when adopted measures against China by another WTO member threaten to increase Chinese exports to the Brazilian market, or effectively do so.

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tional Electric Energy Agency (ANEEL); National Department of Mineral Production; National Institute of Metrology, Normalization and Industrial Quality (INMETRO); Superintendency of the Manaus Free Trade Zone (SUFRAMA); National Petroleum Agency (ANP); Brazilian Health Surveillance Agency (ANVISA); Brazilian Institute of the Environment and Renewable Natural Resources; Ministry of Agriculture, Livestock and Food Supply; and the Ministry of Science and Technology.

In the case of textiles, the Brazilian Department of Commercial Defense in the Ministry of Development, Industry and Trade (MDIC) will have up to six months to investigate a petition, during which time preliminary consultations may be conducted with the Chinese authorities. These consultations on textile inflows are to be conditional on China immediately and voluntarily limiting Brazil-bound products so as not to exceed imports of the prior 12-month period by more than 7.5%.

Brazil's Chamber of Foreign Trade (CAMEX) is the overall regulating authority for both decrees. For its part, the Ministry of Foreign Trade (SECEX) is responsible for investigating petitions in the case of any sector filing a complaint. In parallel with ongoing investigations, SECEX will conduct its own investigations in order to reach a resolution of disputes.

Memorandum of Understanding in textiles

As of 2005, all import quotas negotiated under the Agreement on Textiles and Clothing (ATC) were subject to removal for all WTO members. In February 2006, Brazil and China signed a Memorandum of Understanding (MOU) concerning trade in certain textile and apparel products. The MOU established quota restrictions on a number of Chinese textile and apparel products, namely: silk fabrics, textured polyester filament yarn, synthetic fabrics, cut corduroy and other cut-weft pile fabrics, embroidery in the piece, knitted shirts, blouses and t-shirts, man-made fiber coats and jackets, and knitted sweaters and pullovers. These new quotas will remain in place through the end of 2008.

Furthermore, the MOU entails the adoption of voluntary export restrictions of Chinese exports in eight main categories on textile and apparel goods, for up to 76 tariff lines that cover almost 60% of Brazilian textile imports from China. It is noteworthy that all measures do not exclude the possibility of adopting safeguard measures at any time for those categories not included in this MOU. In order to control the implementation of the MOU, Brazil will set up a system of non-automatic import licenses.

Finally, other sectors also remained active in bilateral negotiations and dispute resolution between the two countries. Indeed in 2006 the Chinese and Brazilian toy industries publicly homologated an agreement between private parties to voluntarily restrict Chinese exports to Brazil. Had the agreement been negotiated between the Brazilian and Chinese governments, it would have amounted to a quantitative restriction in the form of a voluntary export restraint, which are generally prohibited under the General Agreement on Tariffs and Trade (GATT) rules.

4.4 Transport costs

It is not easy to measure the full extent of trade costs in Sino-Brazilian trade, since available sources of information are very scarce. In order to bypass this problem, we calculated a series of indicators using Argentinean import trade data as a proxy for our estimations, so we must take all results stemming from this analysis with proper caution.[17]

Our main assumption is that transport costs to Brazil or Argentina should not differ too much in relative terms *vis-à-vis* third countries. In order to solve all potential comparability problems we concentrated our estimations on relative measures for sectors where Brazilian and Argentinean imports from China are similar (as in the case of capital goods and parts). For this case we used two main indicators: transport costs as a share of FOB value for imports, and a measure of distance-adjusted freight costs per ton.

As we can see, Figure 6 exhibits freight costs as a percentage of free on board (FOB) value by origin of imports. Chinese cargo appears to be the most expensive amongst all trading partners for manufactured goods, with almost 15%, *vis-à-vis* Spain (over 10%). In contrast, in the case of machinery and transport equipment almost all Asian countries show higher trade costs than those of China, as in the case of Korea and Taiwan, and Australia and Netherlands for other non-Asian suppliers.

17 Official (MDIC) and Private (Nosis) sources of Brazilian trade statistic do not allow, as in the case of Argentina, to describe the freight costs at the most disaggregated measures of trade. The freight cost declared by the importer does not account for logistic costs associated with Customs' inefficiencies and specific port operation delays or other related problems. This leads us to better proxy trade costs from China for the Brazilian case.
In fact, since CIF values (FOB+freight+insurance) constitute the taxable amount for the importer, it is likely that more expensive freights – from more distant locations – are underreported by importers. The figures here constitute an average of air, land and sea transportation.

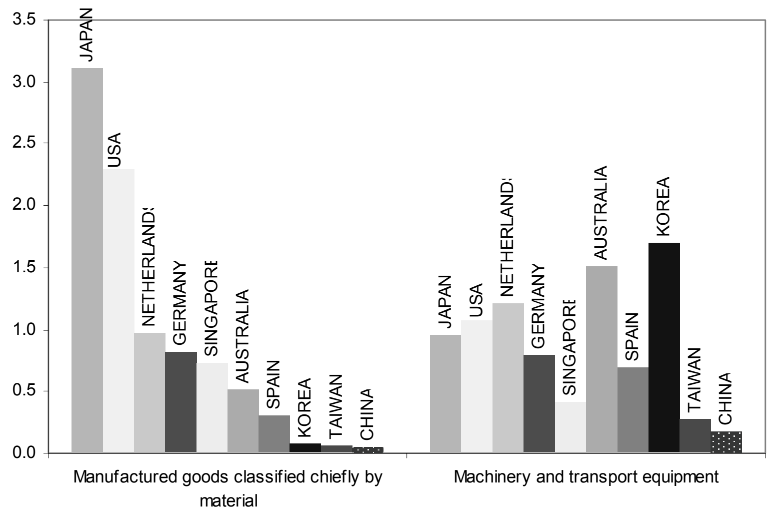
Figure 6: Freight costs (adjusted for distance and weight)

Source: Based on Argentine Customs Information

Another way of measuring trade costs is to compute freights per ton of imported cargo, adjusting this ratio according to distance. This is an imperfect way of including the consideration of freight rates, as distance is a part of the final transportation cost. As in any other product, supply and demand also govern the price of freights, where a particular origin may be closer but more expensive due to shipping availability, frequency or other infrastructure limitations.

As Figure 7 shows, it is quite clear that adjusting for distance and weight, trade costs from China are the lowest. However, it may not necessarily be the case that commercial freight rates between China and Brazil are the least expensive, since they ultimately depend on the actual excess demand of international transport cargo between the two destinations. Conclusively, Chinese imported goods have a lower value per ton relative to other suppliers, as in the case of Japan and USA, which export goods of higher

Figure 7: Freight cost adjusted by distance (adjusted by km)



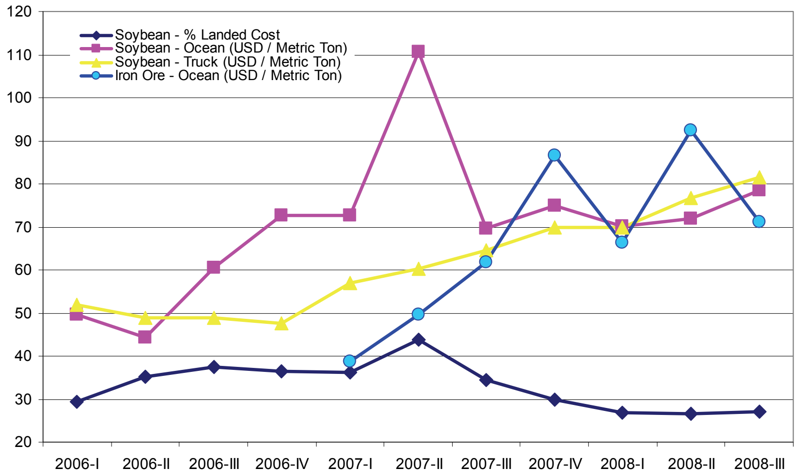
Source: Based on Argentine Customs Information

technological content, and greater in volume relative to their weight.[18]

However, the mentioned figures do not account for changes in freight costs over time. As Figure 8 shows, the substantial expansion of agricultural and iron ore exports (two of the most important commodities for Brazil) was accompanied by a nominal increase of 50% in sea and land transport freight rates for soybeans, and close to 75% for iron ores be-

18 Freight companies charge the maximum formula where weight and volumetric weights of cargo are computed, and according to the type of container and points of origin and destination.

Figure 8: Freight costs between China and Brazil: Soybeans and iron, 2004–2008



Source: US Department of Agriculture: Brazilian Export Soybean Transport Indicator Reports and Maritime Research Inc.

tween 2006 and 2008.[19] However, when measured as a percentage of landed costs, freight values were persistently lower as a consequence of the substantial hike in commodity and fertilizer prices. Finally, when measuring import freight costs from China, our calculations suggest that transport costs decreased from 11% to 9% (as % of CIF values) between 2004 and 2008.

As we have seen in previous sections, import prices from China increased more than 20% between 2004 and 2008. As a result, the relative price of manufactures and freight transport suffered substantial changes throughout the period. A good indicator of the evolution of freight rates is the Baltic

19 During the second quarter of 2007, ocean rates increased significantly. This more-than-two-fold increase in ocean rates was caused by a strong Brazilian export transportation demand, combined with increased global demand for bulk shipments such as coal and iron ores, and port congestion in Australia.

Dry Index (BDI), a traded index that proxies for the cost of booking cargo of various sizes to move raw materials across various ocean routes. The BDI can be interpreted as the equilibrium price of shipping raw materials, determined by the supply of cargo ships and the demand for transporting raw materials by ship, and also sensitive to changes in the price of oil.

Between 2004 and 2008, the BDI suffered massive corrections due to the increase in oil and commodity prices. However, the sharp slowdown in the worldwide industrial production growth rate in late 2008 and the consequent decline in oil prices contributed to a huge decline in the BDI from 11600 to roughly 700 points, the lowest in 20 years.

5 FDI flows between Brazil and China

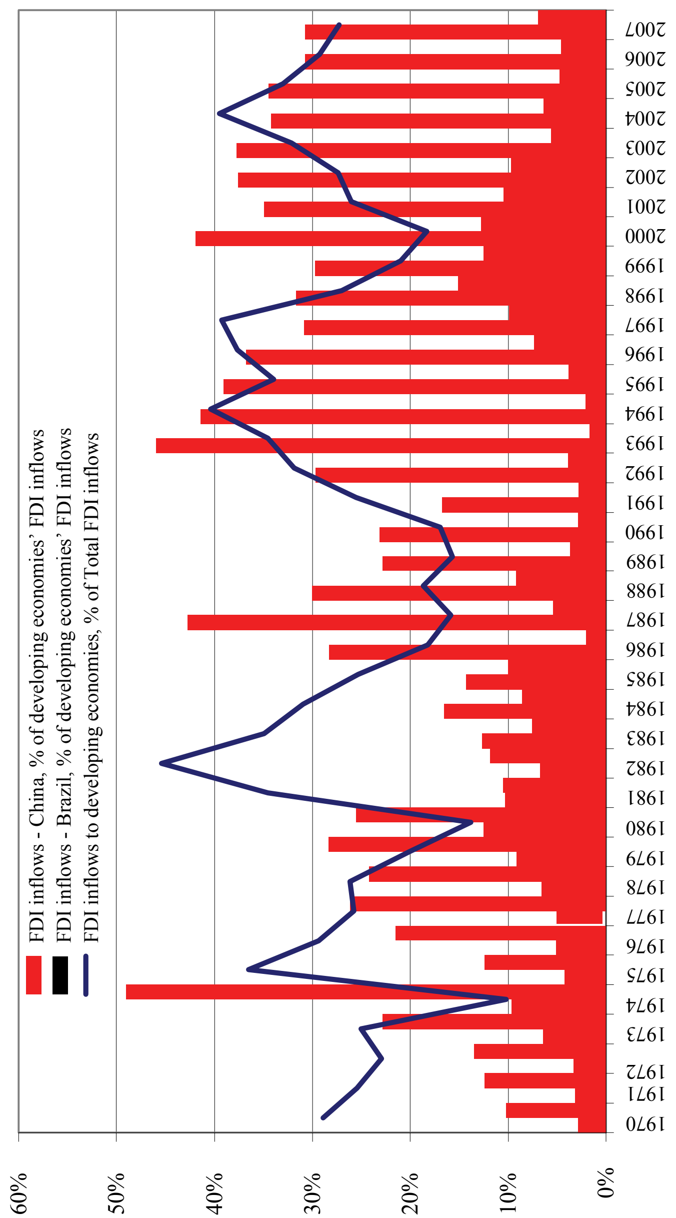
5.1 China and FDI inflows in Brazil

Over the last 40 years, developing countries became an increasingly important destination for FDI. As reported by United Nations Conference on Trade and Development (UNCTAD), in 2007 almost 30% of total direct investment flows were directed towards the developing world. As Figure 9 shows, between 1970 and the early 1980s Brazil was able to attract over 15% of FDI flows directed towards the developing markets, and 8% between 1985 and 2007. In contrast, China's foreign direct investment since the 1980s amounts to almost 35% of developing country inflows.

In the last years, Brazil has attracted FDI at a remarkable pace. Between 1994 and 2001, inflows increased by over 100%; and between 2001 and 2007, by almost 55%. Regarding the way in which direct investment inflows are distributed by country of origin, almost 65% of flows are concentrated in ten partners, all of them industrialized economies.[20] As Table 20 clearly exhibits, the United States and the Netherlands are the most important investor countries for Brazil, with more than 20% of flows between 2001 and 2007. Other important countries are Spain (8%), France (6%) and Germany (4.6%).

20 Except for Cayman Islands' flows that serve the purpose of an offshore platform for FDI, thanks to tax incentives provided to investing firms.

Figure 9: FDI inflows to emerging economies, world 1970–2007



Source: Based on UNCTAD data

Table 20: Brazil – Total FDI inflows by investor country (US$ million), 1990–2008

Country	**1990**	**1994**	**2001**	**2005**	**2006**	**2007**	**2008***
Total FDI inflows	1,008.0	9,026.0	21,041.7	21,521.6	22,231.3	33,704.6	28,881.4
Top 10 countries	654.7	5,179.1	17,405.5	15,466.4	15,757.6	23,504.1	18,852.3
China	0.1	0.0	12.3	3.7	4.1	24.3	31.5
Hong Kong	1.7	2.1	0.0	48.1	1.3	13.6	23.5
Macao	0.0	0.0	0.0	0.0	0.1	0.0	1.1
Shares: Top 10 countries							
USA	13.2%	40.7%	21.2%	21.6%	19.9%	17.9%	17.9%
Netherlands	-25.0%	0.8%	9.0%	14.9%	15.7%	24.1%	10.7%
Spain	1.3%	0.1%	8.3%	5.0%	8.9%	6.4%	9.3%
Cayman Islands	2.6%	4.7%	13.1%	5.7%	6.8%	4.8%	4.8%
France	9.2%	3.5%	9.1%	6.8%	3.3%	3.6%	5.7%
Germany	14.9%	4.5%	5.0%	5.9%	3.8%	5.2%	2.6%
Japan	13.2%	0.9%	2.1%	6.7%	5.8%	1.4%	4.4%
Portugal	0.2%	2.1%	3.9%	3.6%	2.9%	1.4%	3.2%

Table 20 (cont.): **Brazil – Total FDI inflows by investor country (US$ million), 1990–2008**

Country	1990	1994	2001	2005	2006	2007	2008*
Shares: Top 10 countries (cont.)							
Canada	39.3%	0.4%	8.0%	1.6%	1.4%	2.4%	4.8%
Switzerland	-4.0%	-0.5	2.9%	0.2%	2.3%	2.5%	1.8%
Total top ten	*65.0%*	*57.4%*	*82.7%*	*71.9%*	*70.9%*	*69.7%*	*65.3%*
China	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%
Hong Kong	0.2%	0.0%	0.0%	0.2%	0.0%	0.0%	0.1%
Macao	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

* January–September

Source: Central Bank of Brazil

As we can see, according to the Brazilian Central Bank (BCB), China's participation as an investor in Brazil has been, and still is, marginal or almost negligible. However, this number is probably underestimated according to the MDIC, given the fact that Chinese firms also invest through indirect routes coming from Hong Kong, Macao and tax havens in which Chinese companies are located (MDIC 2006).

In fact, when comparing with Chinese official statistics, we find sizeable discrepancies. According to China's Statistical Bulletin, FDI outflows to Brazil totaled US$15 million and 10 million in 2005 and 2006, compared to the US$3.7 million and US$4.1 million reported by the BCB. In spite of this, 2007 and the first three quarters of 2008 have shown a marked increase of Chinese FDI compared to previous years (of US$24 million and US$31 million, respectively) but this is still small in relative value.

If we look at total FDI inflows by sector, services and manufacturing account for the bulk of direct investment flows coming from overseas. A 54% share in services is mainly explained by the telecommunications sector (15%), electricity, gas and water (8%), and financial services (7%), among others. On the other hand, manufacturing accounts for 38% of total inflows, mainly coming from the food and beverages sector (9%), chemical products (6%), vehicles (5%), and metal industries (3%). Finally, agricultural and mineral extraction industries add up to 7% of the total FDI inflows between 2001 and 2006.

Furthermore, when looking at Chinese FDI inflows by sector, 37% is directed to fertilizers and agrochemicals, 14% to iron products, 14% to beer and malts, and 4% to wholesale and retail. Finally, other registered investments were destined for management consulting services (2%) and oil and gas (2%), among others.

Another source of FDI information can be found in the National Investment Registry (NRI) which states that the stock of announced investment projects by Chinese firms would total US$7.300 million between 2005 and 2007.[21] Accordingly, Table 21 shows the announced projects as published by the NRI, where the joint venture between Vale do Rio Doce (CVRD), Arcelor and Baosteel adds up to US$5.500 million, or 75% of the total projects by Chinese firms. Strikingly, due to the negative effects of the

21 http://investimentos.desenvolvimento.gov.br

recent financial crisis, both companies announced the suspension of the plant's construction, and the liquidation of the joint venture between CVRD and Baosteel.[22]

However, when we look at Chinese FDI in Brazil, we find that almost 90% of non-metal industries investment is directed to the electronics sector, 3% to telecommunications, and 2% to electrical appliances and motorcycles. Indeed, the bulk of the projects seems to be greenfield investments, with 74% of the total.

Out of this percentage, 95% is from the electronics sector and 4% from transport machinery (see Table 22). In contrast, 16% of announced projects are expansions to previous investments, mainly explained by the electronics sector (75%) and telecommunications (21%). Modernization investments only accounted for 10% of announced investments, and were directed towards projects in the electronic (75%) and electrical machinery (25%) sectors. Since NRI data does not follow the balance of payments methodology used to estimate FDI inflows, these figures should be taken cautiously, and as an indicative measure of private sector activity.

22 http://www.tradingmarkets.com/.site/news/Stock%20News/2196808/
Since all investment announcements are provided by the National Registry of Investments (NRI), and updated on a regular basis, it is extremely difficult to truly and independently assess whether investments were actually made or not up until today. Furthermore, this task is even more burdensome as the amount of investment is rather low for most project announcements.

Table 21: Chinese investment project announcements in Brazil, 2004–2007

Firm	Origin	Sector	Type	Amount (US$ M)	Start year
Green Electric	China	Electrical Machinery	Modernization	7.5	2007
Uniace Components of Amazonia	China	Electronics	Modernization	18.5	2007
H-Buster of Amazonia	Brazil/China	Electronics	Modernization	4.4	2007
Nova Trade/FYM	Brazil/China	Transport machinery	Greenfield	3	2007
Traxx Motorcycles (Jialing)	China	Transport machinery	Greenfield	5	2007
AOC (TPV Group)	China	Electronics	Expansion	20	2007
Digimedia	China/Korea	Electronics	Greenfield	78	2006
SVA	China	Electronics	Expansion	0.4	2006
SVA	China	Other	Expansion	1.9	2006
Roots Biopack	China	Paper	Greenfield	4	2006
Foxconn	China	Electronics	Greenfield	116.5	2006
TCL	China	Electronics	Greenfield	8	2005

Table 21 (cont.): Chinese investment project announcements in Brazil, 2004–2007

Firm	Origin	Sector	Type	Amount (US$ M)	Start year
AOC (TPV Group)	China	Electronics	Expansion	8	2005
TPV	China	Electronics	Expansion	2	2005
Gigabyte Technologies	China	Electronics	Expansion	6	2004
BV Steel Works (joint venture: Companhia Vale do Rio Doce/Baosteel/Arcelor)*	Brazil China Luxembourg	Metal industries	Greenfield	5,500	2004
AOC (TPV Group)	China	Electronics	Greenfield	3.4	2004
SVA	China	Electronics	Greenfield	9.9	2004
ZTE	China	Tele-communications	Expansion	10	2004
Companhia Vale do Rio Doce / Chalco*	Brazil/China	Metal industries	Greenfield/ expansion	1,500	2004

* As of March 2009, this joint venture is suspended.

Source: MDIC National Investment Registry

Table 22: Non metal-industry investment announcements in Brazil, by sector and type of investment, 2004–2007

Type	Sector	% Total	% of Type
Expansion	Electronics	12%	75%
	Other	1%	4%
	Telecommunications	3%	21%
Total expansion		16%	100%
Greenfield	Electronics	70%	95%
	Transport machinery	3%	4%
	Paper	1%	2%
Total greenfield		74%	100%
Modernization	Electrical machinery	2%	25%
	Electronics	7%	75%
Total modernization		10%	100%

Source: MDIC National Investment Registry

5.2 Brazilian investments in China

In Table 23 we present Brazilian outward FDI stocks by destination country. Tax havens such as Cayman and the British Virgin Islands are by far the most important destinations for investment flows. Other important destination countries are Denmark (7.6% of average stocks in 2001–2006), Spain (4.8%), United States (4.6%), MERCOSUR partners Uruguay and Argentina (3.6% and 3% respectively) and the Netherlands (2.4%). As we can see, even though Brazilian FDI stocks in China increased six-fold between 2001 and 2006 from US$15 million to US$93 million, these numbers are still insignificant in the Brazilian economy as a whole. On average, China received much less than 1% of Brazilian direct investments abroad.

Table 23: Brazilian outward FDI stock, 2001–2006							
	2001	2002	2003	2004	2005	2006	% Total 2001-2006
Total	**42,584**	**43,397**	**44,769**	**54,027**	**65,418**	**97,715**	**100%**
Cayman Islands	14,785	16,465	15,097	13,930	15,113	20,284	27.5%
British Virgin Islands	7,109	5,416	6,314	6,254	7,333	10,345	12.3%
Denmark	16	8	10	6,460	9,466	10,361	7.6%
Spain	1,657	2,953	1,775	2,934	3,324	4,221	4.8%
United States	1,401	1,830	2,100	2,552	4,163	3,942	4.6%
Uruguay	3,121	1,547	2,810	1,657	1,748	1,743	3.6%
Argentina	1,625	1,503	1,549	1,722	2,068	2,136	3.0%
Netherlands	208	247	599	1,095	2,936	3,195	2.4%
China	15	13	15	28	76	93	0.1%

Note: Only includes FDI for an equity participation of 10% or more.

Source: Central Bank of Brazil

Besides the overall significance of FDI flows to China, a number of ventures by Brazilian firms in the Chinese market are worth mentioning. According to Paiva Abreu (2005), a pioneer Brazilian-related investment in China was Brasmotor S.A., a compressor producer that started exporting to China in 1986 in partnership with Whirlpool Corporation. Other subsidiaries of multinational companies from Brazil such as Voith Siemens have been in the Chinese market since 1996. This company was an associate of Shanghai Electric, producing turbines and generators for the Chinese market. Castings have been imported from Brazil.

However, this author notes that the emblematic case of Brazilian investment in China is Embraer, the Brazilian producer of commercial regional jets. Embraer's presence in China was through a 51–49% joint venture agreement with Harbin Aircraft Industry and Hafei Aviation Industry, both controlled by China Aviation Industry Corporation. A US$50 million investment plan involved the production of Embraer RJ145, a regional jet for 50 passengers in Heilogjang province, in Northern China. The first Chinese RJ-145 had its first test flight in December 2003.

Another interesting case is that of WEG, a Brazilian firm that invested US$18 million to set up a production plant of LV and HV three-phase electric motors used largely in the steel, mining, chemical and petrochemical industries and also in pump and compressor manufactures. WEG Nantong Electric Motor Manufacturing is located in an Economical Development Zone of Jiangsu Province, 155 miles from Shanghai.

Furthermore, a number of Brazilian firms have established their operations abroad by investing in plants, businesses and commercial offices in China. According to the Economic Development Ministry (*Desenvolvimento*), the following companies have a presence in the Asian country:

— Marcopolo, the manufacturer of vehicle parts and buses, is already installed in China with an industrial plant located in the city of Wusi, near Shanghai;

— Politec Global IT Services is a leading Brazilian IT Services provider, founded in 1970 with over US$300 million in revenues and more than 5000 employees;

— Sadia, the leading Brazilian meat processor with over US$3000 million worth of exports in poultry;

— Arezzo, a maker of women's shoes, has invested in a number of retail shops in the Shanghai area;

— Cooxupé, one of the largest coffee-growing cooperatives in the world, has established a series of coffee shops in China;

— Gerdau, the Brazilian-based multinational steelmaker has established a commercial office in China;

— Suzano, the leading paper and cellulose producer has established a commercial office in China;

— Banco do Brasil and Petrobras, a national bank and the flagship state-controlled oil and gas company also has commercial offices in China.

Conclusions

For some developing economies, China's growing demand for raw materials, foods and fuels has been a key driver of exports, growth and, to a lesser extent, job creation. This remarkable expansion was also accompanied in between 2001–2002 and 2008 by an exceptional upward cycle in the world economy since the previous major economic crises took place in the US and in middle-income countries such as Argentina. For countries such as Brazil the improvement in trade was a major factor behind economic growth.

It is unquestionable that China has become a major partner for Brazil, both as a supplier and as a destination for its exports. However, when examining the pattern of trade we find that exports are severely concentrated in traditional products such as soybeans and more recently oil and iron ores. That is, the bulk of bilateral flows can be depicted as those of a North-South type, or even more so as bilateral flows with any developed economy. In addition, the presence of large multinational companies explains the bulk of Brazilian exports.

The growing importance of China as a trading partner can also be understood as an issue of relative prices. As China became increasingly competitive as an exporter of capital goods and industrial supplies and, to a lesser extent, other consumption goods, its export bundle slowly followed a secular trend of falling manufacturing prices. Even when imported goods from China recovered from this trend in 2003, the huge demand for natural resource-based goods, and increasing commodity prices in which Brazil specializes, explain why Brazilian terms of trade expanded with such strength.

However, in overall terms the impact of Chinese growth on Brazilian industrial employment has been limited to a number of traditional, capital-intensive and resource-based sectors. Other economic activities have been, according to our estimations, challenged by Chinese exports. Furthermore, competition in third markets with Chinese goods has been particularly negative in the US and EU-27.

As Chinese imports have increased, trade restricting measures have been adopted by the Brazilian authorities. In particular, and, as seems to be the case not only for Brazil, antidumping cases have increased substantially, while safeguards appear to have been adopted only as a “last resort”. As supported by our estimations, the most protected sectors were those that suffered from higher employment losses, such as optical and measuring instruments, electric material, electronic devices, textiles, etc. However, not all measures were in fact unilateral, since some degree of bilateral consensus has been reached in textiles and toys, particularly in the latter where private parties finally came to an understanding. On the other hand, recent developments in the international arena leave a worrisome perspective for the future. As the world economy faces a steep slowdown, protectionist fears arise, potentially restricting Chinese exports that compete with labor–intensive domestic manufactures.

Finally, Chinese participation as an investor in the Brazilian economy is of little significance. The only sizeable investment announcements have been, in fact, enormously concentrated in the mining sector, thanks to a joint venture of Companhia Vale do Rio Doce with Chalco and Baosteel/ Arcelor. The vulnerability of the mining sector to the price drop in iron ore has resulted in the suspension of this joint venture, a markedly negative development for this industry. However, a positive sign of the presence of Brazilian companies in China is found in Embraer, the Brazilian airplane flagship company, along with other ventures in electrical machines and vehicles and their parts.

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The Chilean Case

Jonathan R. Barton

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Introduction

Chile has been one of the frontrunners in terms of economic globalization since the mid-1970s. International economic policy has been one of opening up the Chilean market and reducing tariffs and capital movement restrictions. At the same time, it has targeted export-oriented development as the key to national development, turning the clock back on the Chilean development model to the pre-1940s period prior to Import Substituting Industrialization (ISI) when it was one of the most open international economies.

During the 1990s, the rise of the Pacific Rim economies through the Asia-Pacific Economic Cooperation (APEC), and the ability to cement bilateral agreements, led to increased Chilean attention to countries to the east, denting slightly the traditional bonds with the United States of America (USA) and Europe. The policy of *"open regionalism"* pursued by the Concertación governments in Chile since 1990 have contributed to this situation, seeking new commercial opportunities wherever possible for the export-oriented economy (Boletín Asia Pacífico 2006).

In the Asia Pacific Region, Chile has now consolidated agreements with not only China, but also Korea, Brunei Darussalam and New Zealand since 2004; Vietnam is now likely to be the next target for commercial talks (Revista Capital 2007a), once negotiations with India have been consolidated. This reveals that the APEC model has had its benefits for diverse countries in the Asia Pacific zone, with not only the traditional economic dimensions now being discussed at APEC meetings, but also now the challenges resulting from the fruits of closer cooperation: corruption; energy; cultural exchanges; human security, etc. With 60% of world production and trade associated with this block, the attraction of being an active partner has had a strong impact on Chilean international economic policy (Gutiérrez 2007).

The precise targets for the Asia Pacific region set out in the Declaration of Bogor (1994) are those of freeing up trade and investment (2010 for developed economies; 2020 for those in development); however, there are certain contradictions between this overall framework for regional liberalization and the range of bilateral preferential agreements that have emerged in the meantime, even without taking into account more ambitious plurilateral arrangements such as the P4 between New Zealand, Chile, Singapore and Brunei Darussalam (Scollay / González-Vigil 2007). While it is evident that there is broad-based liberalization, and it is the case – the China-Chile agreement demonstrates this – that there is considerable trade diversion rather than trade creation in the process, which should be taken into consideration when the positive aspects of a specific bilateral arrangement are highlighted. A further consideration is the question of rules of origin of products and how these are affected by multiple preferential arrangements since the implementation costs of evaluating rules of origin considerations in arrangements that have different requirements, are high; this leads to the so-called *"spaghetti bowl"* of higher transaction costs due to the complexity of multiple agreements (Scollay / González-Vigil 2007).

While Chile looks to the east, Latin American economies with their commodity dependence (for the most part) and increasing levels of consumption of manufactures provide interesting new markets for Asian producers seeking to capitalize on their own industrialization by Import Substitution Industrialization (ISI) processes from earlier decades; China for instance is recognized as having a large industrial base, product of its commercial isolation and self-reliance during the second half of the twentieth century. Álvarez and Claro (2006) cite Rodrik (2006) in noting that the Chinese export miracle of the early 2000s is a product of its industrial policy and that its exports are sophisticated when compared with other countries in a similar income range. Nevertheless, it remains the case that labor-intensity in industrial production remains the key to much of this recent growth.

The Latin American region is firmly in the sights of this export growth, with a rise in Chinese exports to the region of 600% during the period 1999–2004 (at a value of US$21.700 million). This is particularly relevant in geopolitical terms also given that US relations with Venezuela, Cuba, Bolivia and now Ecuador are hampered by the shift to the left in current political administrations (Moraga 2007); this same diplomatic as well as commercial role in the region is also mentioned in the Chilean evaluation of the Free Trade Agreement as an emerging feature of the Asia Pacific linkages that have rapidly emerged over the past five years (Direcon 2006). For the Chinese authorities, there is a classification of Latin American countries according to the importance of their relations. Brazil (1994), Venezuela (2001), Argentina and Mexico (2004) are classified as strategic associates, while Cuba has the rank of "friend with which cooperation relations are maintained", and Chile is typified as a "cooperation associate" (Lewis 2007).

Historical trade relations between Chile and China are marked by four specific events that give a certain dynamism to the current trading relationship: in 1970 Chile was the first South American country to establish diplomatic relations with China; in 1999 it was the first Latin American country to support Chinese entry into the World Trade Organization (WTO); in 2004 Chile was the first country in the region to recognize China as a market economy; and it was the first to begin trade agreement negotiations (Cabrera 2005). Currently, the largest share of Chile's exports is to China, compared to other countries in the region (15.18% of exports by value in 2007; CEPAL database). As a consequence, it provides a strong example of what may or may not happen to other countries as the relative share of their total trade with this country rises over time. Clearly the economic bases and their composition vary considerably in the region; therefore, the impacts will differ enormously. Nevertheless, Chile reflects the overall trend of the Latin American economies – bar Mexico and Brazil – due to its commodity-based economy; therefore, it is possible to speculate on similar impacts on other countries where specific commodities make up the lion's share of total exports and where levels of domestic industrial production and the variety and sophistication of products are limited.

Although wholly different in population, size of economy and economic composition, China and Chile share a profile as leading emerging markets, attracting large-scale investment and consistently turning in steady economic growth rates. Chile did experience a slight economic downturn in 1999–2000 as a consequence of the Asian contagion. However, it was well buffered compared with other emerging markets and has recovered swiftly, even riding the more marked structural crisis in the Argentinean economy, in spite of it being an important economic partner, and in the Brazilian economy which had to devalue to put its economy back on course. The Chilean downturn was notable for the fact that it was the first in many years, dating back to the major crisis in the economy in 1982–83 when the economy was badly rocked by the international recession. This was similar to its experience during the 1929–32 period when the value of copper production fell from 17.47 to 7.03 cents per pound (Reynolds 1965). The lessons of the 1929–32 and 1982–83 periods were similar in that they reflected the risks associated with dependence on copper and its derivatives. The response during the late 1930s was to instigate the ISI process, with the Chilean Development Agency (CORFO) at the helm; while the response during the 1980s was to promote a range of non-traditional, mainly agricultural, exports (NTAX). It is these exports, based on the country's renewable resource base, that have considerably reduced the contribution of copper and its derivatives in the export composition. Despite the historic experiences of international recession and its impacts however, the national development model remains wedded to the copper base. Nevertheless, this is not only a Chilean phenomenon. During the early years of the twenty-first century, product specialization in Latin America has increased rather than decreased (according to the Herfindahl-Hirschmann Index by product, 2001–2005 – Santiso 2007), reflecting a trend away from economic diversification and greater protection from the vagaries of international commodity prices. Mesquita Moreira (2007) reveals this level of concentration on primary exports to China in the region, with no positive balance in low tech, medium tech or high tech exports.

The recovery of the Chilean economy during the early 2000s, following the downturn, marked yet another example of the dependence on copper. While its traditional European, Latin American and North American trade partners retained their normal commercial exchanges, it was the emergence of China as a new major destination for copper exports that has not only taken the country out of its rut, but projected it into a period of rapid economic expansion. This expansion is not down to economic diversification, the rise of new non-traditional exports or the increase in product ranges in the non-traditional export (NTAX) already established. It is a consequence of rising copper prices associated with one major new source of demand. In this sense, it is the historic tale of Chilean economic development.

To cement this important new commercial partnership, the two countries signed a free trade agreement in November 2005 at the APEC conference in Korea, which came into force on October 1st 2006. The agreement has led to a tariff removal for 92% of Chilean exports to China, and 50% of imports from China. In the meantime, there is no agreement on services and investments, suggesting that the low levels of Foreign Direct Investment (FDI) exchange will remain in the near future (Ministry of Foreign Affairs of Chile 2007)[1].

If and when services and investments are discussed, there are clearly significant opportunities for the Chilean economy to promote the country as a platform for Chinese commercial activities in the region. Although Chinese FDI remains low at present, any increase in this investment will require regional headquarters and it is this that Chile, and Santiago in particular, has sought to provide over the last decade due to its stable political and economic environment. During the administration of Ricardo Lagos (2000–2006) the strategy of Chile – País Plataforma (in regional terms) – was central to international commercial relations strategy. This strategy has been carried over into the Bachelet presidency, as noted by Artaza (2007, 59):

> *"There are positive signs in the speeches of the Minister of Foreign Affairs: on December 21st [2006] he assured us of a 'distinctive mark' on the foreign policy of President Michelle Bachelet to 'turn towards Pacific Asia with all the energies of this government...he assured us that the concept of 'Chile, bridging country' between Pacific Asia and South America 'already has a structural reality', with significant advances in the 'ambitious plan to convert Chile into the commercial nexus between South America and Asia Pacific."*

The free trade agreement has provided clarity regarding the opportunities and threats facing both countries. Taking short and medium-term considerations into account, it would appear that the opportunities for both countries outweigh the threats due to the lack of overlap in the two countries' trading structures. If anything, the potential threat facing Chile is in terms of the major role that Chinese copper demand has on the current Chilean economic situation. Nevertheless, copper dependence with China will be little different from copper dependence with the US during the twentieth century, or nitrate dependence with Britain during the nineteenth century. It is relevant to note that 2006 marked a significant downturn in Chinese demand for copper, with Chilean refined copper exports to China falling 32% year on year. Due to high international copper prices, China fell back on its reserves and sought to increase domestic production in two new mines (Ministry of Foreign Affairs of Chile 2007). With such significance

1 Since this was written, Chile and China have signed a supplementary agreement on services and begun negotiations on investment.

placed on the Chinese market, this type of instability has potentially significant repercussions for the Chilean economy.

In terms of the Chilean economic structure and the threat from Chinese imports, the major threats are faced by sectors that have been struggling over the past decades such as garments and footwear. In the mid-1990s they faced stiff competition from other Latin American producers due to the tariff reductions in the context of Mercado Común del Sur (MERCOSUR) (as an associate member) and other bilateral and multilateral initiatives, such as the trade agreements with Mexico (since 1999) and the Central American bloc (since 2002). Nevertheless, it is in the field of electronics that Chinese exports to Chile are strongest and where mutual benefits will accrue; for example, China currently manufactures half of world DVD players, 30% of computers and mobiles phones (Guardia 2007).

1 Chile-China FDI flows

Beyond the exchange of goods and services, it may be expected that the trade agreement will cement further confidence for establishing FDI in both directions. Currently, the flow of Chilean FDI remains concentrated in Latin America, in neighboring countries in particular. However, the scale and diversity of outward investment has gained rapidly during the past five years, seeking to build on the economic successes in the country and take advantage of opportunities in the region as bilateral and multilateral agreements have given greater security to investments. Total Chilean FDI during the 1990–2006 period has favored Argentina in particular (38%), followed by Brazil 17%, Peru 14%, and Colombia 12% (Direcon 2007).

There have been a number of investments in China since 1990, covering a diversity of sectors. In 2003, an estimated 51 Chilean projects in the country had been approved, totaling US$51.60 million of contracted investment. Among the firms involved are Molymet, Cerámicas Industriales, Compañía Sudamericana de Vapores and offices of the Bank of Chile and BCI (Ministry of Foreign Affairs PRC 2007; Moraga 2007). Recent Chilean FDI flows to China have been falling however. In global terms, China has been generating most investment for its manufacturing sector, totaling 70.4% of total FDI in 2006 (National Bureau of Statistics of China, s. a.).

Table 1: Actual FDI in China by origin (US$10,000)				
	2002	**2003**	**2004**	**2005**
Chile	1,189	801	339	636
Latin America* (% from Chile)	754,979 0.16 %	690,657 0.12 %	904,353 0.03 %	1,129,333 0.1 %
Total FDI (% from Chile)	5,274,286 0.02 %	5,350,467 0.01 %	6,062,998 0.005 %	6,032,459 0.01 %

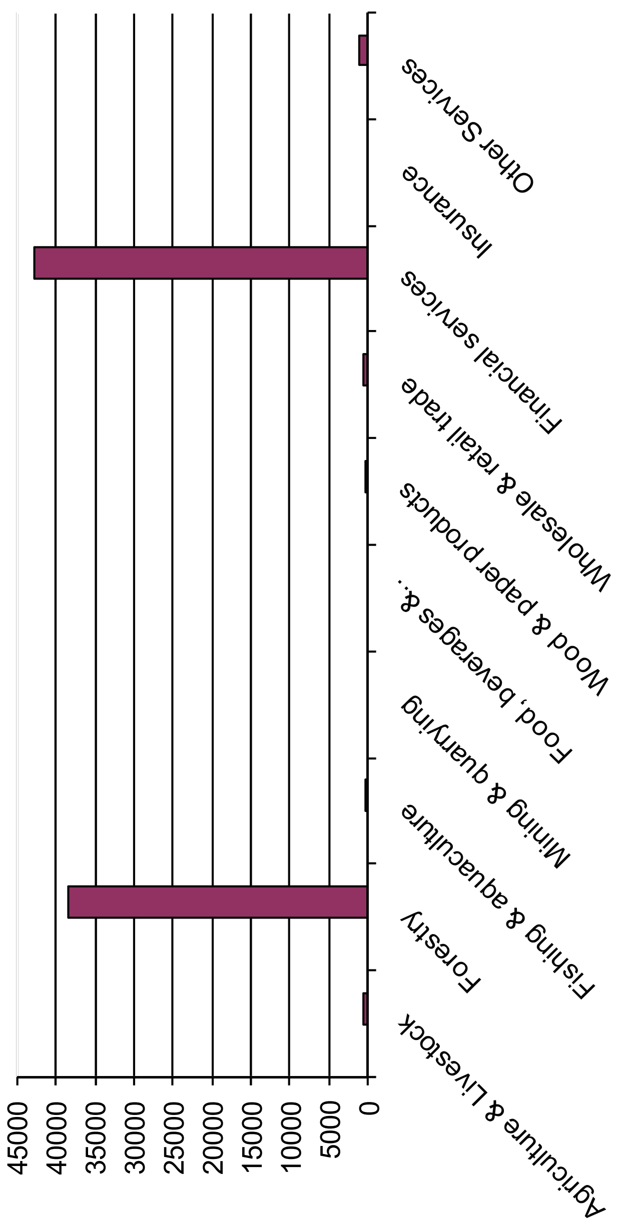
* Much of this regional investment is generated from tax havens such as the Cayman Islands and the Virgin Islands, etc.

Source: National Bureau of Statistics of China (s. a.)

It is not only in flows of goods and services that China's recent growth has impacted world trade, but also in FDI as it has become an increasingly attractive option for international capital: US$ 440,000 million of FDI has flowed into the country between 1979–2002, initially into specially designated zones, but now more widespread. During the early 2000s, China has absorbed 50% of all new FDI into Asia, and 30% of that flowing into developing economies (Guardia 2007).

Chinese FDI to Chile remains small. Between 1974–2006, only US$84,046,000 Chinese FDI entered the country; of this total, 46% is concentrated in the forestry sector, with 51% destined for financial services (Foreign Investment Committee 2007). Perhaps most striking is that no new FDI has been registered since 1999, with most of the total reported being invested in the early 1990s (1993–95) (almost a third between 1974–89, during the dictatorship; this may relate to Taiwanese capital). In terms of the investment in financial services, the figures refer to trading companies in particular, such as CITICFOR Chile S.A. and INTERSHANG SMIEC S.A. aimed at promoting Chinese imports of machinery and electronics in particular, which make up 50% of total Chinese exports to Chile (Banco Central de Chile 2004; Ministry of Foreign Affairs PRC 2007).

Figure 1: Chinese foreign investment in Chile by sector, 1975–2005 (accumulated, US$'000)



Source: Foreign Investment Committee Chile (2007)

2 The Chilean production and export structure

The impacts of the strengthening of the Chile-China trade relationship are not difficult to assess given the lack of economic diversification in the Chilean economy. Unlike Mexico and Brazil, for instance, which both have strong manufacturing sectors which may compete with Chinese products in their own, and in third, markets, Chile remains highly undiversified in terms of its production and export structure.

Copper retains the role that it has consolidated since the collapse of nitrate exports from the 1920s. Copper and its derivatives are central to the national economic structure and to its export profile, particularly when total values are taken into consideration. Although over 40% of total export values are generated by copper products, this is a decrease from previous decades. It was from the mid-1970s that alternative products entered the export structure, such as forestry products, fruit and wine, and salmon. Nevertheless, the copper sector remains vibrant. The most successful non-metal export is fisheries with an average of approximately 6% of export share since 2000 (CEPAL 2006). The most striking development of recent years is the rising importance of molybdenum. This product is found alongside copper deposits and it now accounts for more exports than any other single non-traditional product (2005, as ores and concentrates of titanium, vanadium, molybdenum, etc.).

The success of the copper sector has given rise to new concerns over dependence in recent years, and the need to invest in innovation to remain competitive into the future, especially in view of the limits of non-renewable reserves and the constant threat of a copper substitute (as with nitrates in the First World War); as copper prices rise, the threat of substitution also rises. In the case of copper, there is also the impact of the discovery of new reserves, which has been reported by China; the Chilean Ministry of Foreign Affairs expects these finds to affect the world copper market (Ministry of Foreign Affairs of Chile 2007). In 2005, legislation determining a royalty on copper production has generated a fund for innovation and competition, to invest in research and development in particular (although the criteria for the distribution of these funds remain contentious, especially for the regions where copper production takes place: the Regions of Atacama and Antofagasta).

Copper dependence goes hand in hand in Chilean economic history with the role of the state in this sector. For most of the two hundred years of Chilean independence and its dependence on mining, the private sector (essentially foreign capital) dominated production. However, from the early 1970s when copper was nationalized (with support across Congress) and the firm was created in 1976, CODELCO has been the leading firm in the sector. Despite the intensity of economic liberalization experienced in Chile since the mid-1970s, CODELCO has escaped privatization. Under the dictatorship it remained in state hands due to a legal provision whereby 10% of its earnings were transferred to the military budget; this situation remains due to complications in changing the constitution that established it. The importance of CODELCO to the Chilean economy is pivotal, therefore the agreement signed in 2005 by CODELCO and the Chinese firm MinMetals is also central in terms of Chile-China commercial relations.

Table 2: Leading Chilean exporting firms to China

	2005	2004	2003	2002
Chilean exporting firms	**$US (fob)**			
Corporación Nacional Del Cobre De Chile, Codelco-Chile	1,446,679,850	1,046,225,727	480,514,561	390,496,436
Minera Escondida Ltda.	586,481,096	238,966,816	118,517,098	51,726,774
Minera Los Pelambres	278,660,701	71,892,092	23,427,867	20,601,894
Empresa Nacional De Minería - Enami	270,673,336	347,504,452	186,269,303	157,033,311
Celulosa Arauco Y Constitución	266,956,554	249,488,640	150,698,095	161,548,326
Compañía Contractual Minera Candelaria	195,734,680	192,452,543	66,965,659	38,599,121
Compañía Minera Doña Inés De Collahuasi Scm	162,450,934	160,002,014	77,521,201	16,062,100
Minera Quebrada Blanca S.A.	140,847,346	94,698,402	29,182,323	
Minera Cerro Colorado Ltda.	100,715,806	66,224,059		

Table 2 (cont.): Leading Chilean exporting firms to China				
	2005	**2004**	**2003**	**2002**
Chilean exporting firms	**$US (fob)**			
Compañía Minera Disputada De Las Condes Ltda.	90,162,414	62,319,140	54,194,140	
Cmpc Celulosa S.A.	70,457,826	72,646,130	49,161,027	35,126,080
Falconbridge Limited - Unidad De Negocios	65,951,853		51,233,652	16,064,183
Minera Michilla S.A.	56,407,719	47,307,137		
Compañía Minera Carmen De Andacollo	39,656,633	35,616,433	26,437,205	
Corpesca S.A.	39,125,016			26,344,765
Anglo American Chile Ltda		56,543,112	31,655,690	22,584,952
Minera El Tesoro		37,375,951		
Compañía Minera Zaldívar			39,603,035	
Minera Cerro Dominador S.A.				15,343,175
Compañía Minera Del Pacífico				13,906,482
Compañía Minera Huasco S.A.				13,843,712
Som Nitratos S.A.				12,804,758
Source: Based on Prochile (2007)				

This agreement is a strategic partnership that ensures the supply of copper to China through an arrangement whereby the two firms established a new jointly-owned company based on US$110 million capital investment each. The joint venture guarantees a price for copper flows of 55,750 mt/yr from CODELCO to MinMetals. The new joint venture company is registered in the tax haven of Bermuda since 2006 as the firm Copper Partners Investment Company Ltd (CuPIC) which unites Codelco's preexisting Bermuda-based firm – Codelco International Ltd – and the MinMetals subsidiary

Album Enterprises Ltd. Given the nature of this firm's registration, the investment associated with this venture does not appear as inward FDI of Chile or China, therefore overall Chilean copper inward FDI is underestimated (though legally precise). Additionally, MinMetals has the option of becoming involved in production also, through the Gaby mining project; the agreement gave them the opportunity to buy into the project up to 49% (CODELCO 2007).

This type of long-range strategic partnership reflects the importance of the China-Chile trade agreement, and the centrality of copper to the relationship. As an important raw material for China's electronics and other manufacturing sectors, the ability to guarantee not only supply but also price over time through a joint venture of this nature provides stability for both partners.

3 The 2006 Free Trade Agreement (FTA)

Clearly, trade with such a large potential market as China implies both positive and negative impacts. It is precisely these impacts that a Chilean government study sought to uncover in a 2004 report (Gobierno de Chile 2004). Its findings are summarized as follows:

For Chinese imports:

- Based on a 6% reduction in tariffs on Chinese imports (from 6% to 0%), it was estimated that there would be a 3% increase in Chinese imports, including both trade creation and trade diversion.
- Chilean global imports would increase by 0.7% as a consequence of lowering tariffs to Chinese imports.
- Agricultural imports would rise 7% but this figure remains low due to low levels of imports in this category. Any increase would likely be trade diversion rather than trade creation.
- Mining imports from China, in non-ferrous metals, would rise by 10% due to Chilean demand, mainly through trade creation.
- 99.6% of import growth from this source would be in industrial products (US$167 million), mainly machinery and equipment, and elec-

tronic products. Two-thirds of the growth would be trade creation, with a third of trade diversion.

- Apart from machinery and electronics, imports from China in the textile and apparel sub-sector would grow 10% to US$51 million (two-thirds trade creation, one-third trade diversion). Within this sub-sector, textiles lead the way, followed by confection and garments, and last of all footwear.
- Lastly, imports by the sector incorporating rubber, plastics, basic chemicals and prepared chemical products would grow by US$17 million, principally through trade creation.

For Chilean Exports:

- Exports of agricultural products would grow by 28%, mainly in fruit products (70% of the sectoral gain).
- Mining would account for only 4% of total export increases, due to a low tariff prior to the agreement.
- Foodstuff and beverage exports would grow to account for 79% of total industrial export expansion, followed by chemicals and processed wood products.

These evaluations were carried out using econometric techniques; however, it is still too early to undertake an assessment of the actual impacts due to the fact that the agreement has only been up and running for less than a year. The government report concluded that the agreement would benefit the Chilean economy significantly and that it would balance out certain distortions created by agreements with the EU, the US and Korea.

Due to the outward orientation of the Chilean economy since the colonial period, and particularly strongly since the mid-1970s, it now displays clear advantages in a range of factor inputs compared with other countries in the region. In the edited work by Santiso (2007), when Chile is compared with Colombia, Peru, Brazil, Argentina, Ecuador, Venezuela and Mexico, it outperforms all of them in terms of competitiveness, transport, electricity and water as factors in production and trade. With competitiveness in these factors having been cast as a priority since the late 1970s, considerable importance has been placed on these elements in international economic policy and public and private finance has been destined to associated infrastructure improvements. In the Free Trade Agreement (FTA) this road, air and port infrastructure, as well as the customs and telecommunications improvements, are regarded as essential for the trade platform that has been established (Direcon 2006).

The principal benefits of the FTA, as outlined in the Chilean government assessment of the agreement (Direcon 2006), are summarized as follows:

– China became Chile's second trading partner in 2005 due to total values of commercial exchange of US$6,988 million. To consolidate this relationship, Chilean trade would be favored over its competitors with preferential access to the market and clarity in rules pertaining to this trade.
– It is perceived that the current concentration on copper and cellulose exports will be favored less by the agreement than agricultural, livestock, forestry and fisheries products. Therefore, although copper and other minerals will benefit, it will be other products that are most favored by the tariff reduction: horticultural products; fish oils; chicken; pork; plums; frozen prawns; fresh peaches and nectarines; cheeses; cherries; canned peaches; and tomato paste. Fresh and frozen salmon, grapes and apples will benefit with a gradual reduction over a ten year period due to potential conflicts with national fisheries and fruit production.
– Chile was able to exclude 152 sensitive products from the agreement. These are principally agricultural products subject to price banding (wheat, flour and sugar), and some textiles and garments, metallurgical and major appliances.
– Chilean consumers will benefit most from tariff reductions on machinery, computers, printers, cars, mobile phones, and DVDs, among other electronic goods.

Perhaps the most interesting point that is made is the one relating to improved income and employment opportunities as a result of the agreement; which will – according to the agreement report by Direcon (2006) – contribute to more available income for the population. This is specified in slightly more detail (via a General Equilibrium Model) in terms of an increase in Chile's gross domestic product *(*GDP) by 1.4% and an increase of an estimated 34,509 jobs (of which 28,778 are manual).

4 Methodology

To establish trends in the commercial relationship, the first step was to obtain trade data for the years 1990 to 2005. During the dictatorship and up to 1990, there were no commercial relations between the countries; therefore, 1990 is a suitable starting date for the analysis of the evolution of the relationship. However, the entry of China into the WTO in 2001 and the resurgence of the Chilean economy from the early 1990s reflect a key turning point and the consolidation of a major trading relationship, both in terms of values and in terms of market shares relative to other trade partners.

The data employed for the graphics that follow are derived from the National Customs Service (www.aduana.cl), in particular the section Estadísticas de Comercio Exterior, ESTACOMEX (Free Trade Statistics). The tables relate to exports listed by product and expressed in dollars (FOB). The tables relating to imports by product are expressed in dollars (Tax Identification Code CIF). The codes for the items are those of the Chilean Customs Tariff which corresponds to the Harmonized System for the Designation and Codification of Goods.

In terms of exports, and bearing in mind that the number of products varied from 16 in 1990 to 291 in 2005, it was necessary to select the key export products. Products that reached a value of over US$ 1 million on average each year between 1990–2001 were selected. To complement the data for these selected products for the years 2002–2005, it was necessary to unify customs tariffs codes[2], for example in the case of fish meal:

23012010	Flour, dust and *"pellets"*, of fish and crustaceans, mollusks and other aquatic invertebrates, unsuitable for human con sumption
23012011	Idem, with a protein content less than 66% by weight (standard)

2 From 2000, Chilean customs system codes were modified, with the subdivision of the last two digits principally. Also, other products were divided according to their last digits, and with less frequency with respect to their last four digits or last digit.

23012012 Idem, with a protein content equal or more than 66% by weight but less than 68% by weight (prime)

23012013 Idem, with a protein content over 68% by weight (super prime)

The series for each product had to be updated from 2002 by recalculating each for the sixteen years, giving the data for the 20 principal Chilean export products to China for the period 1990–2005.

In the case of imports, the procedure was more complex due to the sheer volume of data and the changes in the customs tariff codes from 2002. Firstly, the number of imported products varied from 1035 in 1990 to 3995 in 2005. This required a first filter in order to select the items that registered an annual value of over US$1 million. However, the results were numerous so this filter was doubled to US$2 million. To complement the series for 2002–05 for each of the products required similar efforts as those for exports, in order to unify customs tariff codes, for example:

The product 64029900 corresponds to “other footwear with sole and upper of rubber or plastic” and had a subdivision in its last two digits (00). Therefore, from 2002–06, this item was found broken down into:

6402.9911 with base with length less than 24 cm

6402.9912 for men, with base with length equal or less than 24 cm

6402.9913 for women, with base with length equal or less than 24 cm

Others:

6402.9991 with base with length over 24 cm

6402.9992 for men, with base with length over 24 cm

6402.9993 for women, with base with length over 24 cm

As with exports, it was necessary to complete the series for each product over the 16 years (including those with figures less than two million dollars), to obtain 137 principal imports. To rationalize this list, the products that were more consistently represented each year among these imports were prioritized, leading to a list of 107.

In terms of principal exporting firms and the principal exporters to Chile, data was generated from the Prochile website (www.prochile.cl), in particular the section "Estadísticas de Comercio Exterior". These data are only available for the period 2002–07; therefore the role of key firms between 1990–2001 is unclear. However, it is likely that most of the firms were central to exporting activities during the 1990s. From these data, the central role of CODELCO is self-evident, with China becoming the fourth source of Chilean imports during the 2002–05 period.

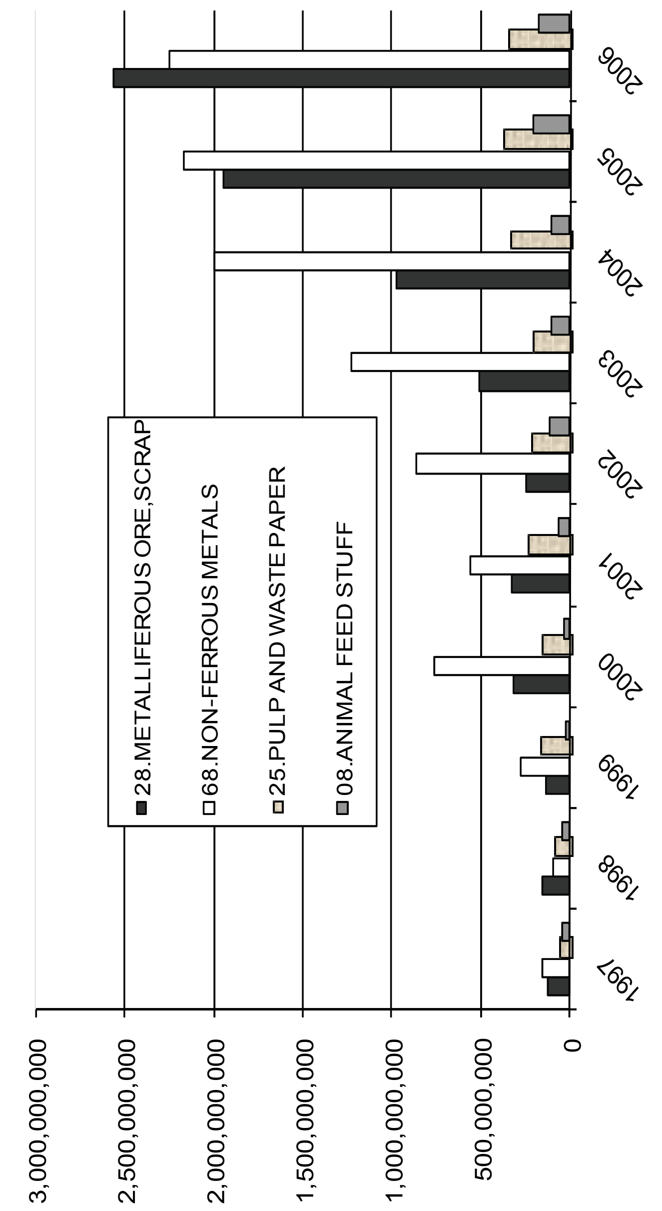
5 Chilean exports to China

Despite the renewal of commercial relations from 1990, there is a clear surge in exports to China from 2000. This may well relate to China's entry into the WTO in 2001 and the political situation relating to Chile's other major trading partner: the USA (which may have led to a preference for US trade and fewer overtures towards China during the previous decade). During the 1990s, Chilean commercial policy was oriented towards increasing liberalization and cementing commercial relations through diverse agreements that enabled tariff reductions to proceed in advance of the more generalized, and complex General Agreement on Tariffs and Trade (GATT), then WTO trade rounds. Particularly important for Chile was the US market which had been vital for the country since the demise of the relationship with various European countries due to the exigencies of the World Wars (Barton 2000). From the early 1990s, Chile sought fast track entry into the North American Free Trade Agreement (NAFTA) but this was delayed repeatedly in the US Congress. It was not until the 2000s that the agreement would become consolidated, but as a bilateral agreement rather than in connection with NAFTA. By this time, Chile had already signed bilateral agreements with both Mexico and Canada. Pressure on the USA was increased by the fact that the EU was competing with the US notion of the Free Trade Area of the Americas (e.g. at the first EU-Latin American and Caribbean Summit in June 1999), attempting to encourage greater trade between the EU and Latin American countries.

Chilean commercial policy was effective in playing off these major blocs and was successful in signing an agreement with the US which came into force in 2004, and one with the EU (an association agreement) which was initiated during the previous year. Since this time however, the strength of the production and trading power of the Asia Pacific bloc has created ideas of a Free Trade Area of the Asia Pacific (FTAAP) rather than merely the Americas. This was discussed at the APEC members meeting in Vietnam in 2006 and it would potentially mean the creation of a bloc that would dwarf both NAFTA and the EU. China is one of the members however it was more reticent about the concept, since it prefers to create bilateral agreements with other Asian countries for political as well as economic reasons, and would be opposed to Taiwanese membership of such a bloc (Bergsten 2007; Tang / Wilhelmy / Fajardo 2007).

Despite the size of the US and EU markets, it has been China that has provided the greatest impetus to the Chilean economy over the last five years. Due to the relatively low starting point, the growth rates in the trading relationship have been dramatic. The current trend of Chilean exports instigated since 1999 remains strong, with particularly significant increases over the last two years (see Table 5). Much of the Chilean economy's current buoyancy is due to this particular market demand. It is not only Chile that is benefiting from this strong demand however; China now provides 50% of the total principal metals demand (aluminum, copper and steel). This demand has led to China displacing Argentina to become the second most important commercial partner, and third only to the USA and Japan in total exports (Ministry of Foreign Affairs of Chile 2007). In terms of this Chilean export profile, the factor of Hong Kong as a separate reporting country is negligible given that, although copper cathodes are exported to Hong Kong they have not increased to any considerable degree over time (see Figure 8). This suggests that Hong Kong is not a re-exporting country for Chilean copper exports into China itself, hence has little impact on overall trade data; although Hong Kong does re-export a large percentage of its refined copper to China, it receives far more as imports from China for its own electronics equipment manufactures and exports. The data reveals that Hong Kong's import profile from Chile is strongly influenced by non-traditional Chilean exports which compete with copper, thus revealing the relatively low copper values involved.

Figure 2: Chilean exports to China (US$; SITC Rev 3)



Source: Based on UN Comtrade (2007)

Table 3: Shares of leading Chilean exports to China* (as % of all exports to China; US$, SITC Rev 3)

	2000	2001	2002	2003	2004	2005	2006	2007
Copper ores and concentrates (2831)	30.3	26.5	15.1	20.9	25.3	33.0	44.3	31.0
Copper anodes and alloys (6821)	42.4	31.3	46.4	49.4	53.0	43.0	35.0	50.9
Chemical wood pulp, bleached (2515)	10.5	17.3	11.8	8.2	8.4	6.5	6.7	6.5
Fish meal (0814)	2.6	5.5	7.3	5.0	2.8	3.8	3.5	2.0
Chemical wood pulp, unbleached (2514)	5.0	5.6	4.2	3.1	1.7	1.2	0.9	0.5

* Leading export shares to Hong Kong are copper anodes and alloys - 6821 (18.8% 2006; 39.2% 2004; 31.6% 2002); Fresh or dried grapes - 0575 (22.0% 2006; 15.6% 2004; 23.4% 2002); Fresh or dried fruit - 0579 (15.5% 2006; 9.5% 2004; 10.5% 2002). Total exports of copper anodes and alloys to Hong Kong total, by value (2006), 1.8% of all similar exports to China.

Source: Based on UN Comtrade (2008)

The products exported to China are those associated with Chile's more traditional export profile. In particular, it is copper cathodes and copper mineral and concentrates (for processing in China) that dominate (see Figure 7); mining exports to China as a whole rose 1.605% between 1996–2005 (Direcon 2006). These products are not necessarily for domestic consumption in China. The Chilean Ministry of Foreign Affairs (2007) estimates that 90% of metal imports are processed in the country and exported again in machinery and electronic goods. It would appear that this value-added processing is a sound strategic orientation, whereby lower labor and environmental costs facilitate better returns from this processing phase. For example, in the confection of garments for the US market, a Haitian worker receives US$16 a week against a Chinese worker who receives US$15, while in the Mexican maquilas, competition from Chinese workers earning 0.72 cents an hour has led to a loss of 500 of 3,700 maquiladoras (since Mexican labor is valued at 2.96 Dollars an hour) (Guardia 2007).

It is also important to note that China has traditionally maintained relatively high tariffs on more processed natural resource products, e.g. in forestry, fisheries and mining, leading to limited opportunities for adding value in Chile and still being able to export freely (Gobierno de Chile 2004). It is precisely this selective opening up of its market over time, and the gradual nature of this opening, that appears to have provided the country with several opportunities (Direcon 2006; Stiglitz 2003), regardless of the risk involved with such a rapid growth rate (in terms of currency valuation, overheating, etc. remain a challenge). With entry into the WTO there has been a slow erosion of these barriers to more processed goods although the pace of tariff reductions means that these sectors may still be protected for several years to come (Guardia 2007).

The only non-metal products that rank among the principal products are fish meal and cellulose. These are regarded as among the more traditional exports (prior to the mid-1980s), and are based on intensive use of renewable resources. The only major difference in terms of the national impact generated by these three product groups (copper and derivatives, fish meal and cellulose), which constitute 97% of total exports to China (Direcon 2006), are that the latter two are generated mostly in the centre-south regions of the country (the Regions of Bio-Bio, Araucania, and Los Lagos) while copper is mined principally in the north. The geographical concentration of the effects of production and trade with China can be seen in the following table.

It is the mining companies that are dominant among firms in Chile exporting to China (see Table 2 and Figure 9). This reflects a pattern not only of the Chinese market but for all exports. Of the 22 firms that lead in exports to China, only three are not mining firms; these relate to cellulose (Arauco, and CMPC) and fish meal (CORPESCA) exports. Small and medium size exporting firms (PYMEX) make up 42% of all exporting firms by number, but participate in only 1% of the value of the trade (Direcon 2006). In terms of the overall export profile of the Chilean economy, these major firms are also dominant in their sectors, and their presence regarding the shift of sales to China from the early 1990s should be no surprise.

CODELCO and Minera Escondida (owned by the Australian company BHP Billiton) have been most aggressive in directing sales to China, but all the major mining companies have followed a similar pattern. Despite this concentrated dominance of Chilean exports to China however, it should be noted that the number of firms involved has risen from 28 in 1993 to 393 in 2003 (Banco Central de Chile 2004).

Table 4: Relative importance of regional exports

Region	Regional share / Total exports	Regional share / Total exports (Chile to China)	% Regional exports to China
I	6.0	11.2	21.2
II	29.8	37.8	14.4
III	5.0	8.9	20.4
IV	4.8	8.1	19.0
V	10.0	14.5	16.4
VI	9.6	6.1	7.2
VII	2.5	1.4	6.5
VIII	10.0	8.4	9.6
IX	0.8	1.3	18.5
X	5.4	0.8	1.7
XII	0.8	0.3	3.6
XII	2.3	0.6	2.9
Metropolitan region	12.5	0.8	0.7

Source: Direcon (2006)

A major impact of the heightened demand for copper in the Chinese market has been a rapid strengthening of copper prices between 2004 and 2006: from 140 to 300 US cents/lb. Jaramillo and Selaive (2006) suggest that the role of speculators in this price shift is relevant but that it explains shorter term fluctuations rather than longer term influences (based on weekly price change analysis, 1992–2006); the alternative, and more likely, factor is the role of China and its copper demand. This boom in

Table 5: Chilean exports to China, 1997–2007 (US$ '000 FOB)		
Year	US$ '000	Chinese share in total exports (%)
1997	435.2	**2,6**
1998	476.4	3,2
1999	357.3	2,3
2000	901.6	4,9
2001	1,026.8	5,8
2002	1.224.6	7,0
2003	1,836.0	9,1
2004	3,213.0	10,4
2005	4,389.8	11,4
2006	4,942.2	8,8
2007	9,980.3	15,2
Source: Based on Chilean customs data		

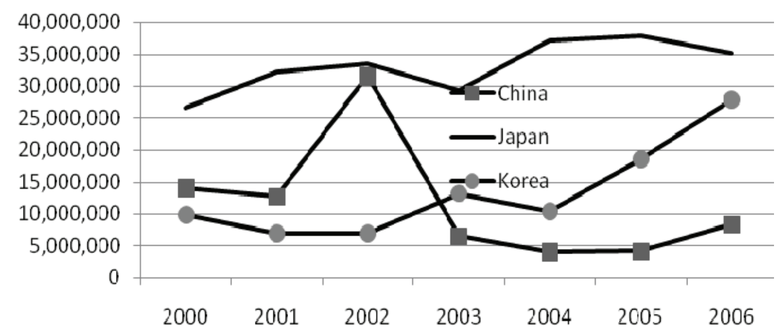
revenue has generated strong public spending pressures in Chile, from different quarters across the political spectrum; however, Andrés Velasco the Treasury Minister has been frugal to date. As with other moments in the history of Chile, these copper prices have negatively affected other export sectors due to the strengthening of the Peso against the Dollar in particular. The wine sector, for example, which is struggling in terms of an international surplus of wine production, is further hampered by the strong Peso in terms of sales to Europe and the US. A further impact has been the elevated prices for transport due to the flows between the two countries. The creation of an office of the Chilean company Compañía Sudamericana de Vapores in Hong Kong reflects this opportunity for the transport firms, but is a major challenge for exporters and importers in general.

The "China effect" on Chile, in terms of export demand and the rising copper price, returns the Chilean economy to its historical role of non-renewable resource exporter. The discussion over adding value to the product is a major issue in terms of future developments of the commercial relationship. Clearly it is to Chile's advantage to process as much copper as possible prior to export. However, there is also the possibility of CODELCO setting up refining facilities in China in the future, through the joint venture with MinMetals. These arrangements are not yet consolidated, however, the different options for adding value to the metal remain important in terms of the development of the relationship.

The trade agreement initiated in 2006 does not benefit the copper trade as much as other sectors due to the relative lack of copper supply opportunities around the world; China has been particularly active in establishing strong links with African countries – other important sources of copper – which may also have encouraged the consolidation of a joint venture agreement. Chinese copper demand and rising prices were a phenomenon prior to the agreement. Nevertheless, the synchronization between the signing of the Codelco-MinMetals joint venture and the overall trade agreement is relevant. It provides Chile with guaranteed sales, and it provides China with a secure price in spite of what happens in the metals exchange.

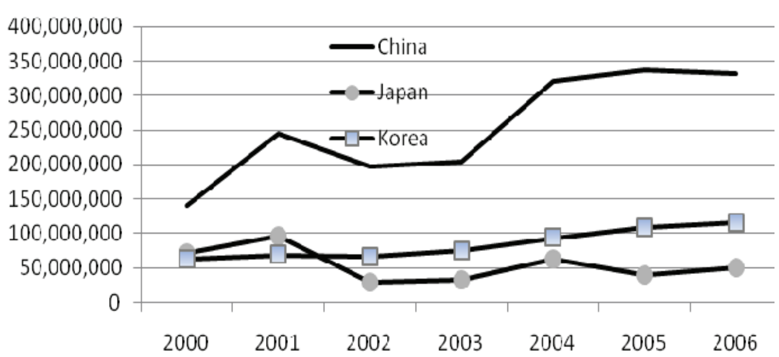
Perhaps of greater relevance in terms of the commercial agreement is the opening up of the Chinese market to fruits, wine, salmon and other goods. Percentage increases (2005–06) in certain non-traditional exports are recorded as follows: salmon and trout 120% (from a low starting point, see Figure 6); wines 102%; plums 44%; cherries 43%; apples 37%; grapes 23% (ProChile 2008). Some traditional products, such as fish meal and forestry products, have also risen in recent years (see Figures 4 and 5). In return, the Chilean electronics market becomes more accessible to Chinese goods (for example, to compete with Korean goods benefiting from the Chile-Korean free trade agreement operating from 2004). To date, much of the entry of non-traditional agricultural exports into China has been beset by instability, whereby Chinese imports have not been sustained year on year; this has been the case for grapes, apples, cherries and plums for instance (Banco Central 2004). Despite this situation however, there is optimism that this market will be suitable for the new generation of higher value agricultural exports such as berries, cheeses, olive oil, etc. In broad terms, and comparing the Chinese market with Korea and Japan, it can be seen that three-digit export categories reveal trends that do not show that, over the longer term, the signs for all non-traditional export growth are favorable. Whereas there is no evidence of obstacles to Chilean exports in Chinese market relative to Korea and Japan in most sectors, in the case of fruit there would appear to be a strong contraction in recent years following a marked rise in 2002 (see Figure 3); this does not reflect the optimism for this sector according to the Chilean government report of 2004 (Gobierno de Chile 2004); however, there is recognition that there will be a gradual reduction of tariffs in fruit over a ten year period, so increases can be expected over the longer term.

Figure 3: Chilean exports of fruit, nuts, excl. nut oils (Rev 3: 057, US$)



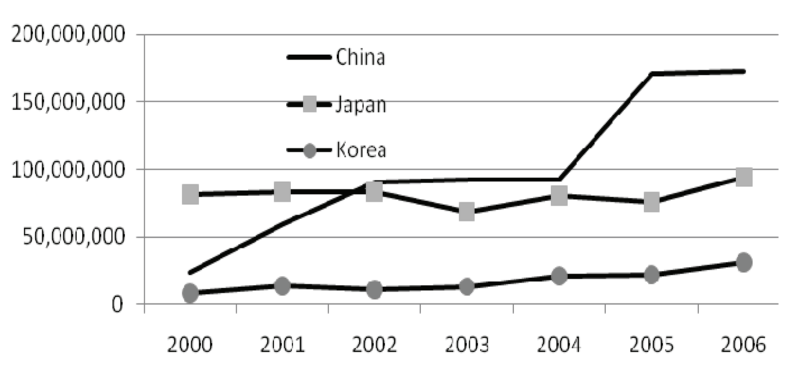
Source: Based on UN comtrade (2007)

Figure 4: Chilean exports of pulp and waste paper (Rev 3: 251, US$)



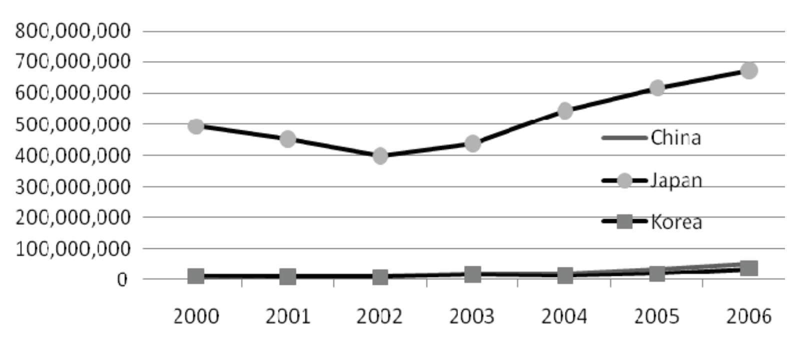
Source: Based on UN comtrade (2007)

Figure 5: Chilean exports of animal feedstuffs (Rev 3: 081, US$)



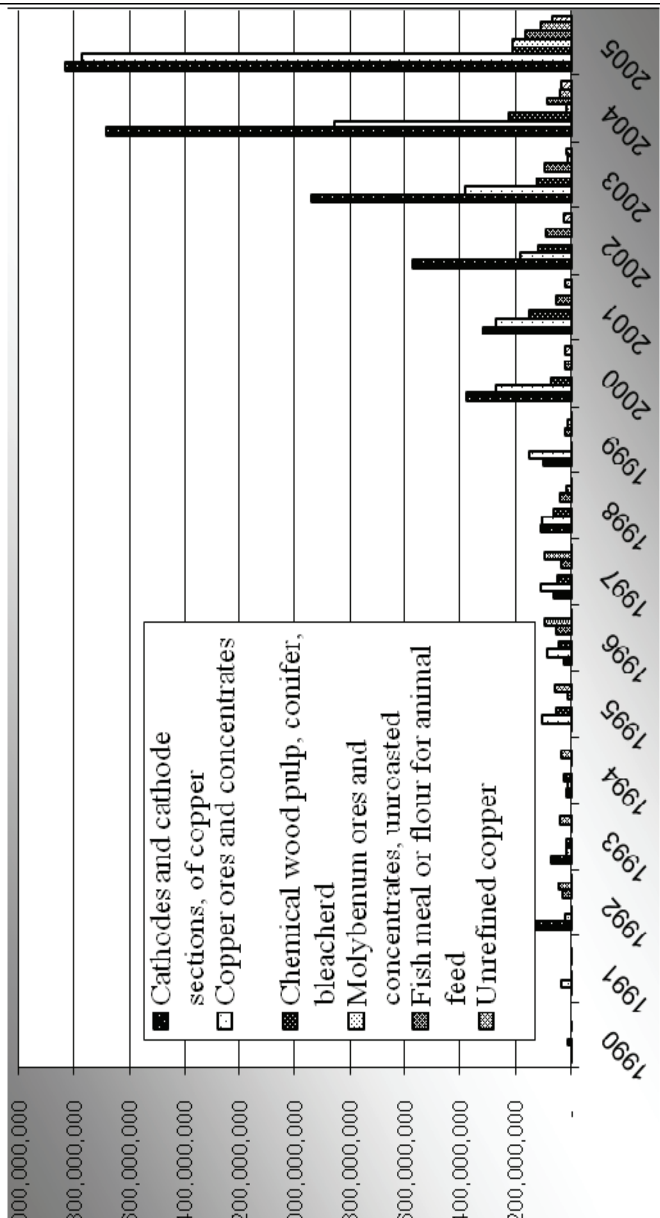
Source: Based on UN comtrade (2007)

Figure 6: Chilean exports of fish (fresh, frozen, chilled) (Rev 3: 034, US$)



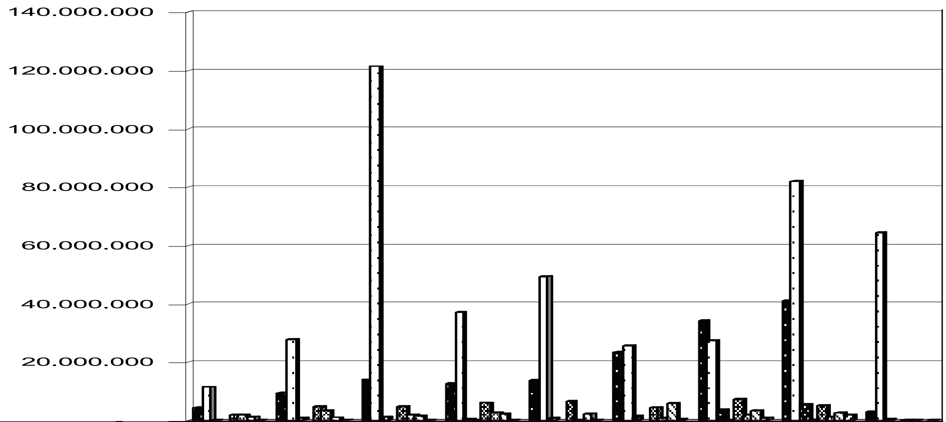
Source: Based on UN comtrade (2007)

Figure 7: Principal Chilean exports to China, 1990–2005 (US$)



Source: Based on Chilean customs data

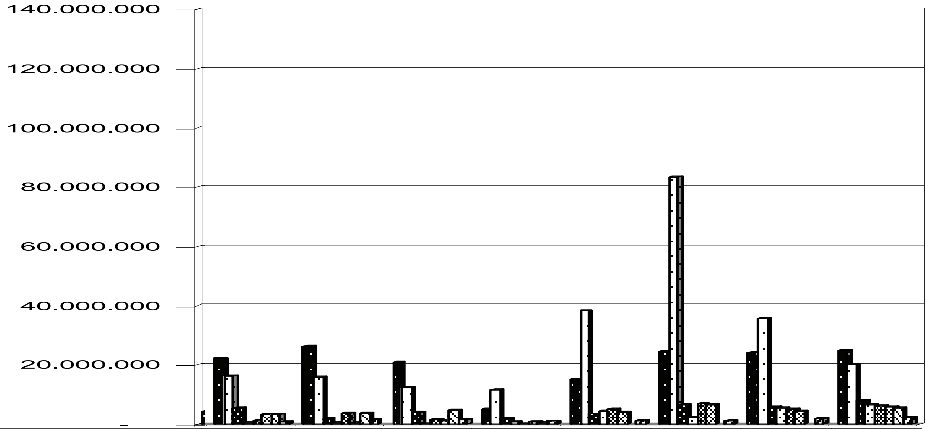
Figure 8: Principal Chilean exports to Hong Kong, 1990–2006 (US$)



		1990	1991	1992	1993	1994	1995	1996	1997	1998
8061000	Grapes	4.483.122	9.586.398	13.954.886	12.613.015	13.798.474	23.559.736	34.263.205	40.912.774	2.947.772
74031100	Cathodes and cathode sections, of copper	11.441.450	27.798.330	121.374.657	37.009.985	49.231.738	25.467.537	27.540.280	82.203.346	64.397.786
8094010	Fresh plums	154.909	676.520	1.125.957	539.341	965.544	1.505.486	3.734.733	5.401.363	546.030
8092000	Fresh cherries				1.760			89.129	288.355	
16059090	Molluscs and other seafood	1.969.410	4.918.282	4.630.090	6.048.944	6.576.933	4.581.790	7.316.049	5.196.760	162.022
8081000	Fresh applies	1.960.419	3.208.789	1.967.432	2.682.40	5 97.200	767.414	1.748.364	1.101.54	51.142
74031900	Other refined copper products	1.190.439	1.014.548	1.445.866	2.260.425	2.185.255	5.888.396	3.478.608	2.601.918	
22042110	Wines	31.687	87.782	44.933	130.190	234.435	383.963	981.176	2.059.128	182.672

Source: Based on Chilean customs data

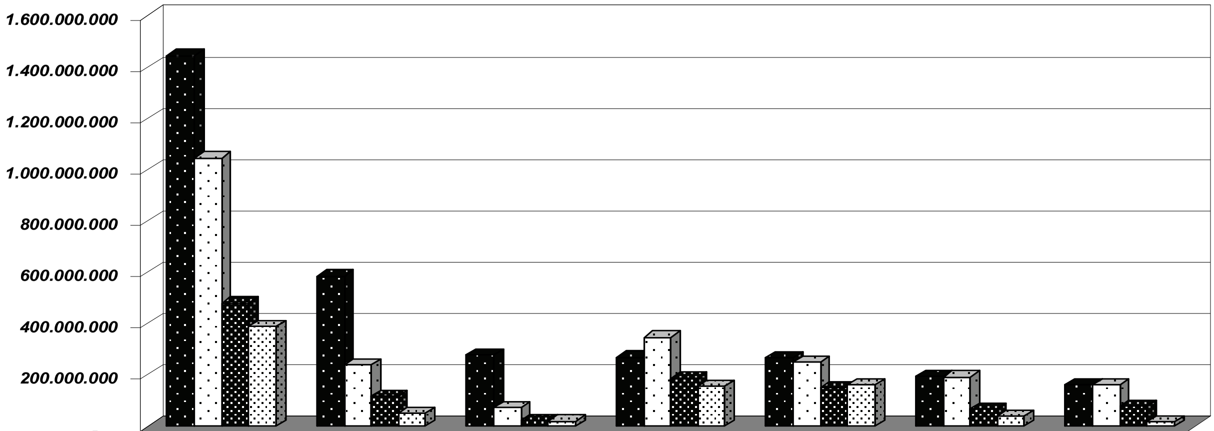
Figure 8 (cont.): Principal Chilean exports to Hong Kong, 1990–2006 (US$)



		1999	2000	2001	2002	2003	2004	2005	2006
8061000	Grapes	22.201.717	26.466.460	20.964.964	5.050.366	15.347.474	24.476.208	24.095.229	24.980.263
74031100	Cathodes and cathode sections, of copper	16.145.299	15.865.964	12.216.063	11.643.026	38.386.032	83.397.961	35.597.176	20.177.866
8094010	Fresh plums	5.566.412	2.035.808	3.972.222	1.881.209	3.528.562	6.733.220	5.729.581	8.022.473
8092000	Fresh cherries	438.698	622.657	264.425	776.990	4.311.296	2.401.260	5.616.373	6.628.754
16059090	Molluscs and other seafood	1.128.831	3.572.454	1.723.894	265.930	5.123.914	6.916.177	5.059.676	6.251.660
8081000	Fresh applies	3.300.748	341.595	1.182.248	997.047	4.074.485	6.608.237	4.416.510	5.973.654
74031900	Other refined copper products	3.194.274	3.616.109	4.800.880	321.486				5.614.149
22042110	Wines	938.178	1.525.653	1.645.738	1.015.605	1.034.319	1.325.564	1.828.719	2.306.010

Source: Based on Chilean customs data

Figure 9: Principal Chilean exporting firms to China, 2002–2005 (US$)



	CORPORACIÓN NACIONAL DEL COBRE DE	MINERA ESCONDIDA LTDA.	MINERA LOS PELAMBRES	EMPRESA NACIONAL DE MINERÍA -	CELULOSA ARAUCO Y CONSTITUCIÓN	COMPAÑÍA CONTRACTUAL MINERA	COMPAÑÍA MINERA DOÑA INÉS DE
2005	1.446.679.850	586.481.096	278.660.701	270.673.336	266.956.554	195.734.680	162.450.934
2004	1.046.225.727	238.966.816	71.892.092	347.504.452	249.488.640	192.452.543	160.002.014
2003	480.514.561	118.517.098	23.427.867	186.269.303	150.698.095	66.965.659	77.521.201
2002	390.496.436	51.726.774	20.601.894	157.033.311	161.548.326	38.599.121	16.062.100

Source: Based on Prochile (2007) data

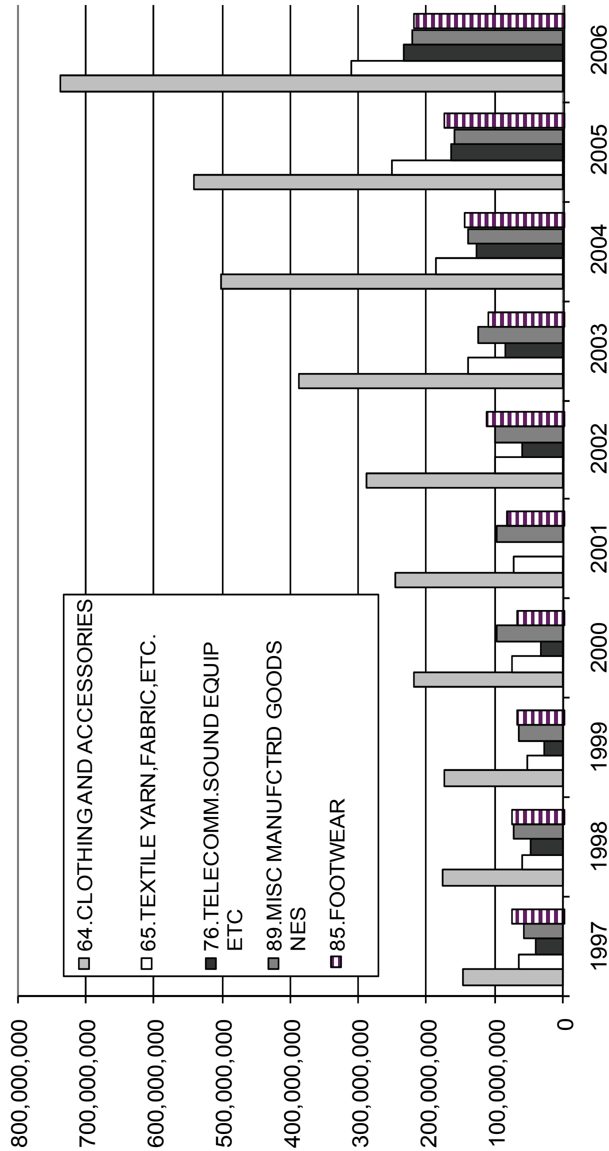
6 Chilean imports from China

The Chinese export boom during the early years of the twenty-first century, following WTO entry in particular, has had a marked effect on international trade generally. The labor-intensity of production and its low cost base, relatively low labor and environmental protection, the availability of a range of inputs priced by state authorities rather than the market, and a strong state hand in the export promotion strategy have all played a role in instigating this shift. More specifically, one can highlight the large available state credits with low interest rates, strong state support for R+D, and the selective application of intellectual property rights (Mesquita 2007). This state support for the export surge provides a contrast with the other major economic players in the global economy.

Export growth has been the driver of the national economy and for twenty years the economy has been growing at 9% a year, despite two world recessions, the Tequila crisis, the Asia contagion, the Russian default, and the Argentinean financial crisis. Although the US economy still drives the world economy with its 30% of global gross domestic product, the position of China currently with 5% poses the greatest potential transformation during the next decade, as it has done since 2001 (Valente 2007).

China has sought to benefit not only from low price exports but also the volumes of these exports that can be generated through economies of scale. In this sense, there is a concern about flooding international markets, also the valuation of the Yuan which is regarded as considerably undervalued thus favoring cheaper exports, and a general overheating of the economy; the steady devaluation of the Yuan against the dollar during the last two decades of the century led to Chinese exports selling at up to 80% less than developed economy competitors (Guardia 2007). In broad terms, there is a 15.6% annual growth in quantity penetration of exports with the rest of the world, due to a 0.8% price change influence, a 10.7% quality improvement impact, and a 3.6% change induced by an increased variety of products (according to calculations by Álvarez and Claro 2006). In other words, it is not merely the case that China is only able to capitalize on its labor base. Indeed, Álvarez and Claro (2006) note that much of the productivity advantages exhibited by Chinese firms relate to firms that have been established in the country with foreign capital, which outperform

Figure 10: Chilean imports from China (US$; SITC Rev 3)



Source: Based on UN Comtrade (2007)

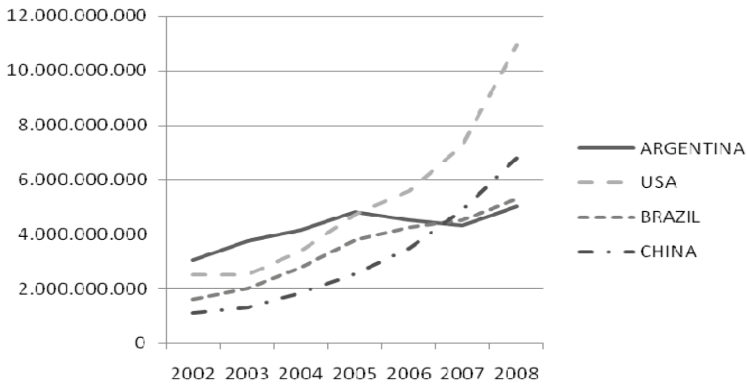
domestic firms and contribute significantly to output and export performance; these foreign capital firms are also important in generating more varieties of products, another factor in the improved performance of the export sector. Although not in the case of Chile, the rising productivity within Chinese exports puts it at a significant advantage when compared with manufactured products in particular in other Latin American countries (López-Córdova et al. 2006).

The traditional trading partners of Chile during the last decades of the twentieth century have been the US, Argentina and Brazil. However, China's exports to Chile are rapidly bringing it into contention with these regional trading powers (see Figure 11). Similar to the significant jump in Chilean exports to China from 2001, the same has happened with imports from China, doubling in value between 2003 and 2005. Chinese presence in Chile's importing profile has been consistent since the early 1990s, and during this decade the trade balance was in China's favor; it is only since 2002 that the balance has swung the other way due to high copper prices and rising volumes. In 1990, China accounted for only 0.8% of total Chilean imports whereas by 2005 this had risen to 8.5%, reflecting an annual growth rate of 16.9% (Álvarez / Claro 2006).

The Asian contagion downturn in the late 1990s can be seen in the data, with a subsequent and rapid recovery that starts a long period of growth in imports. Although the curve is not as dramatic as the Chilean export curve, it is substantial nevertheless, reflecting the increased demand for goods in Chile as a result of the confidence in the economy, rising consumer credit opportunities, and the attraction of electronic goods in particular following the widespread consolidation of a range of major appliances in most Chilean homes during the 1980s and 1990s. In this sense, Chinese exports are well placed to serve the boom in communications and electronic goods. Furthermore, there is no real domestic base for the production of these goods due to the curtailing of the ISI model prior to specializing in hi-tech goods, in contrast to the Korean and Brazilian ISI experiences. Taken as a whole, China now supplies 33% of all Chilean imported consumer goods (Ministry of Foreign Affairs of Chile 2007).

The greatest impacts of the commercial exchange relate to the garments and footwear sectors. Although electronics, such as portable and non-portable computers and televisions (with brands such as TCL, Thomson,

Figure 11: Principal exporters to Chile (2002–2008)



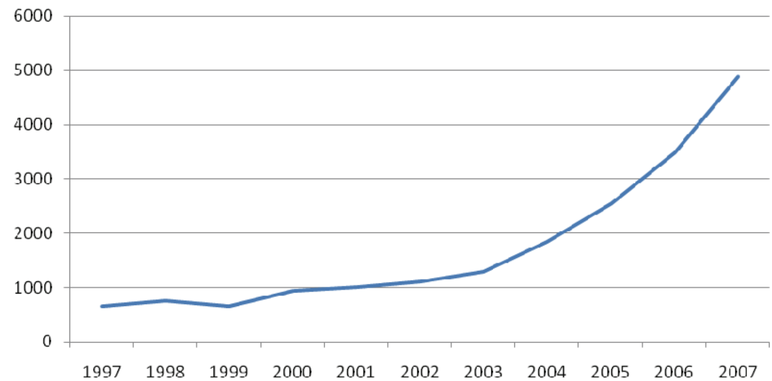
Source: Based on Prochile (2007) data

Table 6: Chilean imports from China, 1997–2007 (US$ '000 CIF)

Year	US$ '000	Chinese share in imports (%)
1997	659.1	3.6
1998	751.0	4.4
1999	658.6	4.7
2000	949.6	5.8
2001	1,012.9	6.2
2002	1,101.5	7.1
2003	1,288.8	7.4
2004	1,845.6	8.3
2005	2,538.6	8.5
2006	3,486.3	10.0
2007	4,881.5	11.4

Source: Based on Chilean customs data

Figure 12: Trend in Chilean imports from China, 1997–2007 (US$ million CIF)

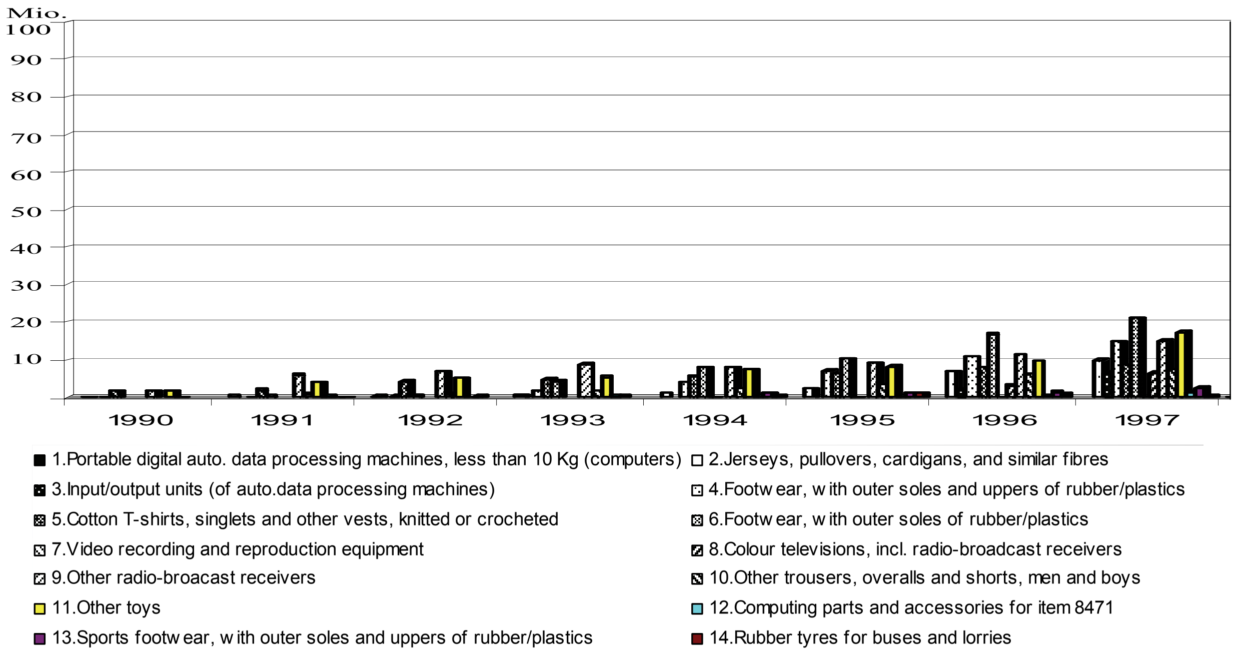


Source: Based on Chilean customs data

RCA and Schneider), do not compete with traditional production sectors, this is not the case with garments and footwear. Whereas Chinese toys have been strong in the Chilean and other international markets since the early 1990s, it is the garments and footwear sectors where recent competitive growth has been most marked. These sectors are also significant in Hong Kong exports to Chile, although slightly differentiated in that brassieres are the most important garment exported, followed by other garments that are similar to those exported from China, such as cotton T-shirts and denim trousers. Whereas China dominates in terms of computer exports to Chile, Hong Kong is also slightly differentiated in the hi-tech market with its emphasis on televisions and mobile phones (see Figures 13 and 14).

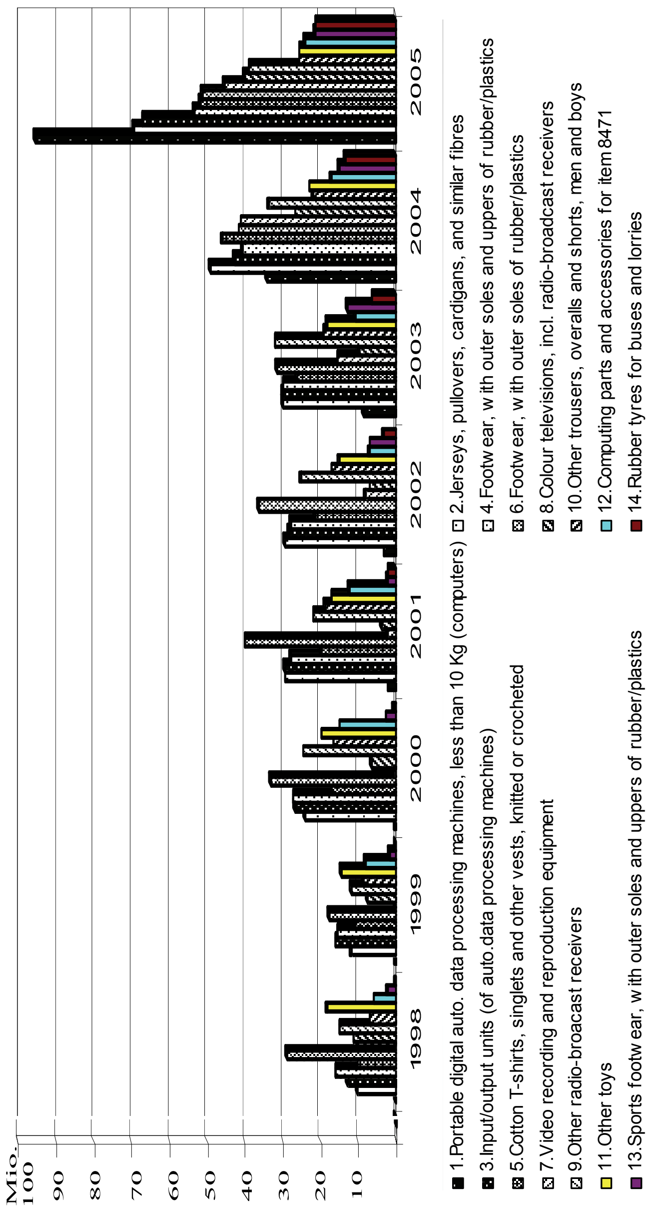
As with many other Latin American countries, the production of clothing and footwear during the twentieth century was regarded as core to basic manufacturing, and therefore to economic development. These sectors have been slowly eroded in Chile by trade agreements with other countries where economies of scale and access to cheaper raw materials (leather, wool, cotton) have made competition difficult to sustain; the next major Chilean trade agreement will be with India, with further pressures on cotton goods production for example. In terms of total world exports of dif-

Figure 13: Principal Chinese exports to Chile (1990–2005)



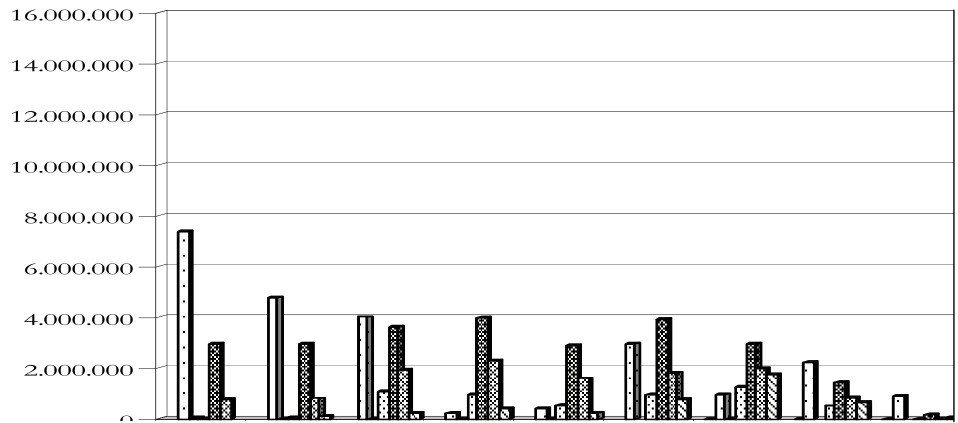
Source: Based on Chilean customs data

Figure 13 (cont.): Principal Chinese exports to Chile (1990–2006)



Source: Based on Chilean customs data

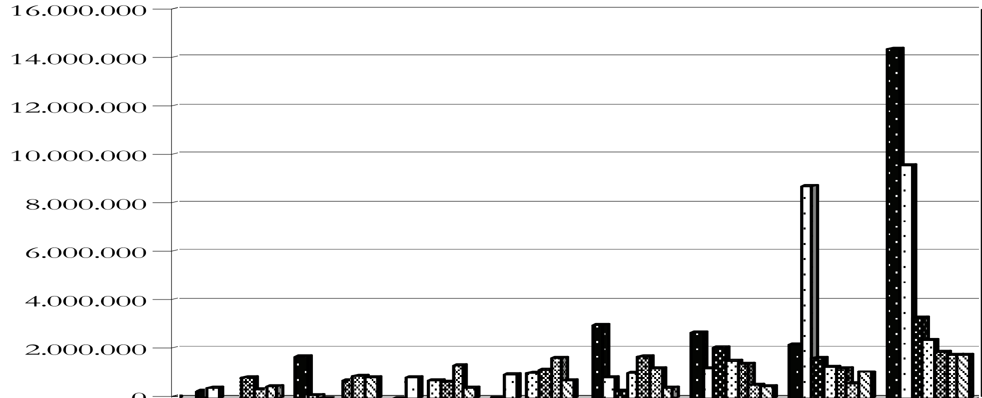
Figure 14: Principal Hong Kong exports to Chile (1990–1998)



		1990	1991	1992	1993	1994	1995	1996	1997	1998
85281200	Colour televisions							5.188	7.673	1.047
85171000	Telephones	7.359.00	4.786.40	4.008.25	237.050	415.070	2.944.57	959.687	2.209.06	920.755
85239000	Media for sound recording	29.612	3.799	13.688	6.382	5.888		938		
62121000	Brassieres	4.747	42.504	1.070.44	971.883	527.903	942.006	1.274.91	499.367	1.212
95039000	Other toys	2.971.66	2.961.70	3.637.59	3.979.19	2.859.70	3.909.63	2.923.12	1.444.69	138.587
61091000	T-shirts, singlets and other vests	799.710	801.291	1.942.87	2.279.80	1.587.75	1.824.24	1.997.85	826.632	11.384
62034210	Denim trousers		76.754	199.893	435.329	228.727	774.855	1.723.14	652.460	42.194

Source: Based on Chilean customs data

Figure 14 (cont.): Principal Hong Kong exports to Chile (1990–2006)



		1999	2000	2001	2002	2003	2004	2005	2006
85281200	Colour televisions	263.012	1.707.22	502	2.628	2.959.23	2.672.92	2.158.47	14.386.8
85171000	Telephones	424.006	77.220	849.159	973.153	857.236	1.174.981	8.679.11	9.570.63
85239000	Media for sound recording		316			291.729	2.044.64	1.659.87	3.271.0
62121000	Brassieres			734.406	1.046.89	990.677	1.512.72	1.241.271	2.369.06
95039000	Other toys	856.002	733.706	627.053	1.128.818	1.719.99	1.370.92	1.220.75	1.877.89
61091000	T-shirts, singlets and other vests	328.835	876.258	1.308.78	1.615.23	1.201.54	505.071	596.826	1.773.47
62034210	Denim trousers	458.059	862.936	399.166	736.181	383.176	493.466	1.049.09	1.733.75

Source: Based on Chilean customs data

ferent products, China holds a significant share of these consumer manufactures (2002): 25% in synthetic fiber sweaters; 21% of leather upper shoes; 21% of computer accessories; and 41% of electronic goods (Banco Central de Chile 2004). Competition with Chinese labor costs has made it difficult for these sectors in many Latin American countries. In this sense, Chile is not unlike its neighbors.

The impact on the garments sector appears to be the most dramatic, especially in terms of knitted goods (synthetic fibers), see Barton (s. a.). While, during the period 2000–2004, several products competed evenly among Chinese imports, with footwear being the most prominent among these, it is knitted goods that have surged since 2003. This surge is not to the extent of computers with their high per unit value but, nevertheless, knitted items have doubled in value in this latter period, putting pressure on Chilean production of similar products.

For footwear, computer accessories, radios and sound equipment, synthetic fiber sweaters, trousers and shorts, China is now the principal supplier for the Chilean market. In the case of synthetic fiber sweaters, Chinese imports accounted for 80% of the total in 2002, and this has since risen, reducing the market shares of Spanish and Italian sweaters in the process (Banco Central de Chile 2004). This strength in the garment and apparel sectors is echoed elsewhere in the world due to the ending of the Textiles and Garments Agreement which had established quotas for different countries. In the case of the US, the American Textile Manufacturers Institute estimates that 154,500 jobs may be lost as a consequence, with US$10,000 million of lost revenue (Arellano 2005).

In the case of footwear (with leather uppers), China registered 63% of total Chilean imports, with Brazil second with 16% (in 1990, China had no share of this market); over time, it is Brazil that has suffered most from this trend. In radios and sound equipment, the 2002 share was 61% (followed by Mexico 9%, and Malaysia 8%), with other Asian countries most negatively affected (Banco Central de Chile 2004). It would appear that China is now beginning to compete in the computer market as it has done to date with these other sectors. The most affected will be the US; however, it is not unreasonable to expect the same in this sector, especially in the mass market, due to the labor cost advantages in Chinese production.

7 The impact of contemporary Chile-China trade

The rise of Chile and China as significant emerging market actors (of differing scales and reach) has given each a strong role in the increasingly globalized world economy. For Chile, this has been the case since the export-oriented growth model put in place in the 1970s, and with increased vigor since the mid-1980s, whereas China's role has been strengthened in particular by its entry into the WTO in 2001; five years on from its incorporation into the WTO, Chinese international trade has tripled (Ministry of Foreign Affairs of Chile 2007). The timing of this entry into the global trading mechanism coincides with Chile's emergence from a post-Asian contagion downturn, and since 2001 their trading relationship has generated major increases in both exports and imports.

China is undoubtedly the leading influence in changes in international trade patterns since its entry into the WTO. However, it is not only in labor-intensive products that it has been able to generate export increases. Álvarez and Claro (2006) clearly identify various factors that have contributed to increases in market share around the world. In this sense, China reflects broader patterns of Chilean insertion into global markets rather than a specific trend based on bilateral relations necessarily. Nevertheless, there are obvious differences in each import market as a result of internal economic compositions and vulnerability to the specific products that have generated most of the export growth: machinery and electronics, and also other products that have been able to dominate in their specific branches, e.g. synthetic fiber sweaters in the Chilean case. Álvarez and Claro (2006) also note the important role that product varieties and their quality have had in this growth. This suggests that the phenomenon is not merely a case of a devalued Yuan and low factor production costs in China, but also significant changes in the products on offer that have led to large "willingness to pay" margins among rest of the world consumers; it would appear that the role of foreign capital firms in China is highly relevant in this regard.

Despite the opportunities for trade creation in various product lines, it is the case that most of the growth in trade emanating from the relationship is associated with the diversion of existing patterns. This can be entered into in more detail for specific products, as mentioned above regarding displacement of traditional sources by certain Chinese exports to Chile. Nevertheless, if both countries continue to increase their trade with other countries, not only this partner, the effects of trade diversion should be less significant (Direcon 2006). In the meantime, the high Chinese demand for a range of international commodities leads to pressures on prices rather than an absolute lack of particular products in the market.

In the Chilean case, China has presented a major source of demand for copper while Chile provides a market for both electronic goods as well as basic manufactures, especially synthetic sweaters and footwear. The implications of these trade flows are largely positive for both parties. The boom in copper prices that has accompanied Chinese demand has generated large capital account surpluses for the Chilean government, leading to the 2005 CODELCO-MinMetals joint venture that guarantees a longer-term relationship of stable prices, potential joint mining projects and potential value added processing in China. It is early yet to determine how this relationship will pan out in the medium-term, but it would appear that a foothold in the Chinese market through the deal, plus the opportunities for Chilean non-traditional exports with China's growing middle class via the free trade agreement will create new demands for Chile's non-metals export-oriented sectors.

The principal losers in the relationship are those traditional sectors in Chile oriented towards domestic production. Garments and footwear in particular are under pressure from spiraling imports from China. Although import competition has been part and parcel of the signing of free trade and other forms of commercial agreements over the past decade, the scale of Chinese exports in these sectors poses a challenge of different proportions. Not only is this the case for Chile, but it is the case for the EU, as seen in challenges to garment import volumes into the EU in 2006. The principal issue at stake is that many of the firms involved in these sectors in Chile are not among the largest Chilean firms. The largest are those oriented towards export markets and based on exploitation of the country's natural resource base; their names appear on the list of leading exporters to China. As small and medium sized firms that are relatively labor intensive, the negative effects on employment may well be significant during the period 2000–2010 (see Barton s. a.).

Any losses in these domestic-oriented firms are unlikely to be off-set by the export-oriented sectors (copper, forestry, fisheries), which are increasingly capital-intensive in their operations and base any growth on labor-intensity through subcontracting arrangements that provide little labor security. New legislation on subcontracting entered into force in January 2007, and it seeks to remedy this trend in flexibilizing the labor force; however, it is unlikely that it will impact upon the structural unemployment situation. Despite the positive national economic trends registered over the last twenty years, unemployment rates have remained relatively stable. Following the economic downturn that led to an unemployment rate of almost 9% at the end of 1999, it has hovered at around 8% since 2001 (INE 2006).

Compared with other Latin American countries that have developed manufacturing sectors that contribute a significant share of products to the domestic market and to exports, Chile has a relative lack of economic diversification in manufacturing. This situation suggests that the impact of trade with China is unlikely to be as significant as with other economies in the region, particularly Brazil and Mexico. Since Chile bases its exports on copper and its derivatives, also molybdenum, there is little competition from China in third markets. Perhaps the area of fruit, such as apples, or in fish products, there may be increased challenges in third markets. In the case of Chinese access to the Chilean market however, there is clear displacement of a range of other countries in different sectors: Brazil in footwear and the US in computer products for example. In terms of the Chinese market and Chilean displacement of other producers, the concentration on copper products and the rising Chinese market for a range of other products suggests that little or no displacement is likely to take place in the short- and medium-terms.

Rather than focusing on the smaller-scale effects that will be generated by this growing trade relationship, the macroeconomic picture is where one may question the current trend in Chilean political economy. It is neither new nor creative to discuss the dilemma of the Chilean economic structure and the dependence of its export profile on a reduced number of natural resource-based products; however, the challenges posed by it remain relevant to longer-term national development.

Latin America is characterized by this model, in spite of Brazil and Mexico having diversified away from this through increased manufacturing, in the case of aircraft and other products in Brazil, and the maquilas in Mexico. Nevertheless, most of the other Latin American countries remain wedded to their resource bases, as they have done since the colonial period (Barton 2006a). As with Chile, there is less monocultural activity than during the first half of the twentieth century, for example, with a large number of commodities making up the export profile, but even new products such as soya, in Argentina and Brazil, and salmon in Chile (Barton 2006b), rely on the natural resource base and the ability to sustain its productivity over time.

Chinese demand for copper, cellulose and fish meal results in Chile returning to its resource base to sustain its development model. The opportunities for increasing output and taking advantage of high prices in copper in particular mean that the non-renewable resource base will be exhausted more swiftly, while renewable resources such as agricultural soils and optimal aquaculture sites may be stressed further. This current boom is no different from other historical booms based on natural resource exports, but the same risks apply, as witnessed in Chile in the early 1930s and early 1980s. Export dependency and reliance on a small number of major export products leads to risks from changing commodity prices, the development of new products that may compete with the existing ones or seek to displace them, and a lack of protection for diverse sectors that cater for the domestic market as a consequence of international economic policy decisions.

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The Mexican Case

Enrique Dussel Peters

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The Mexican Case

Enrique Dussel Peters

Introduction[1]

The People's Republic of China – hereafter referred to as China – has shown remarkable growth in recent decades from a socioeconomic and territorial perspective. In addition to achieving economic growth and bringing down poverty, Chinese socio-economic dynamism has been instrumental in the rise in international commodity and energy prices, new regional and international political and military alignments, and the international financial system financing the United States (US) fiscal deficit, among other issues. Thus, China's entry into the world market, along with various reforms implemented in the country since the end of the seventies and again during the 1990s, has gone beyond mere economic and trade-related changes.

China's rapid integration into the world market, since the reforms of the late 1970s, and particularly since the 1990s, has not only affected industrialized countries. In Africa, Asia and Latin America substantial socioeconomic changes have taken place and some of them are associated with China's dynamism. The objective of this paper is to study China's socio-economic relationship with Mexico, and particularly its more recent effects on Mexico's production structure, trade specialization and structure and levels of employment. In the specific case of trade, both domestic and third markets are considered, including foreign direct investments (FDI) between both countries.

As a result this chapter is divided into six sections. The first section briefly analyzes the main growth, employment and trade patterns of Mexico. The

1 Document prepared for the ESRC-funded project "The Impacts of China's Global Expansion on Latin America" coordinated by Professor Rhys Jenkins. I am very grateful to Iván Gutiérrez Bravo, who assisted mainly with the statistical work and the compilation of various data. Luis Daniel Torres González and Lucio Castro also supported the chapters on terms of trade and the effects of China's impact on Mexico's manufacturing employment. This report is the sole responsibility of the author.

second provides a review of the literature on Mexico's economic relationship with China, focusing on trade and investment analysis. The third examines the economic relationship between these countries in terms of bilateral investments and the main trade patterns between both countries. The fourth section looks at competition between Mexico and China in the US market and presents calculations regarding export-similarity indices between both countries in the US market and shift-and-share analysis of both countries' exports to the US. The fifth section estimates the effects of China's trade on Mexico's manufacturing employment. Finally, the sixth section concludes with a summary of the main issues and presents policy proposals.

1 Growth, employment and trade patterns in Mexico

This section briefly analyzes some of the main structures that have emerged in Mexico's social economy, particularly with respect to its growth, employment and trade. It presents a simple outline of each of these issues, in order to help understand Mexico's socioeconomic relationship with China.

1.1 Growth and production

In the last 20 years, since the liberalization strategy was implemented in 1988, Mexico has had significant difficulties in achieving growth in terms of Gross Domestic Product (GDP) and GDP per capita. Although Mexico increased by more than 3% in both variables between 1940 and 1980, its performance has been much more disappointing since 1988 (see Table 1). Two points stand out: a) the growth of Mexico's GDP per capita represented only close to 1/4 if comparing the periods 1960–1980 with 1980–2007, and b) the GDP per capita performance of China and East Asia and the Pacific for 1980–2007 were 10 and 7.8 times higher than Mexico's, respectively. Even if we consider the more recent period 2001–2007, China's GDP per capita performance was 5.4 times higher than Mexico's.

Table 1: Average annual growth rate of GDP per capita in selected countries (1960–2007)

	1960–1980	1980–2007	1990–2000	1990–2007	2001–2007
East Asia and Pacific	3.4	6.8	7.1	7.4	8.3
Argentina	1.8	0.8	3.3	3.1	4.3
Brazil	4.6	0.6	0.1	1.3	2.2
China	2.9	8.7	9.3	9.4	9.8
Latin America	2.9	0.8	1.6	1.8	2.6
Mexico	3.5	0.9	1.8	1.6	1.8

Source: Author, based on World Bank (2007)

What are the reasons for Mexico's disappointing performance? At least five different reasons have been discussed recently:[2]

1. From the perspective of the public sector, since 2000 the failure to deepen the liberalization process in sectors such as petrochemicals, electricity, the pension system and the overall reforms of the public sector (PEF 2007; Sojo 2005) have been the main cause of the slow growth process. Deepening the liberalization process since 1988 – in sectors such as petrochemicals, electricity, labor rights and foreign direct investments – would allow for better socioeconomic results.

2. In spite of Mexico's overall deregulation and opening in terms of trade and respective import tariffs, foreign direct investment, labor and an overall decreasing presence of the public sector (since the end of the 1980s), Mexico has created significant monopolistic structures in sectors such as telecommunications and the financial sector, which have prevented a convergence with other industrialized countries (IMF 2006; World Bank 2007).

2 It is interesting that even former Presidents such as Salinas de Gortari have publicly acknowledged the limitations of trade openness (Salinas 2004).

3. Mexico's GDP and GDP per capita growth performances have been below its historical and potential levels as a result of low investment growth. Mexico's exports have not led to increased investments, particularly in terms of technological development, productivity spillovers and human capital formation. Large income disparities have deepened this problem (Moreno-Brid et al. 2004; Ros 2007).

4. Mexico's growth engine since the late 1980s, the export-oriented manufacturing sector, has been the cause of Mexico's increasing polarization process and the lack of linkages and growth: growth has been limited to an extremely small group of firms, households, branches, sectors and territories in Mexico and has lacked an overall *"learning process"* for the rest of the social economy (Dussel Peters 2000). In addition, the export-oriented sectors and North American Free Trade Agreement (NAFTA) have been challenged since 2001 by Asia and in particular by China in terms of system competitiveness, i.e. macroeconomic stability in Mexico has not resulted – at least so far – in a systemic competitiveness process at the micro, meso and macro levels, bringing into question even the more successful segments of Mexico's economy that have become incorporated with the US (Dussel Peters 2007b).

5. Additionally, Mexico's macroeconomy shows two important features: the lack of financing for the private sector and particularly for firms,[3] and a continuous overvaluation of the exchange rate. According to official calculations, the real exchange rate (based on a basket of foreign currencies and in which 1990=100) was overvalued by almost 25% in mid-2007, and similarly during most of the 1990-2007 period, with the exception of the devaluation of 1994-1995 (Dussel Peters 2009).[4] In contrast with Mexico's systematic overvaluation, countries such as China present a systematic undervaluation of around 10% at least (World Bank 2007).

3 In 2007 financing from commercial banks to private firms relative to GDP accounted for only 20% of the ratio in 1995.

4 Strictly in terms of real exchange rates the topic becomes much more complex for Mexico when comparing the performance with China and its undervaluation, in spite of its recent appreciation of the Yuan since 2005-2006.

In addition to this lack of growth, seen from the beginning of the liberalization strategy, Mexico's social economy has gone through substantial changes. As shown in Table 2, the productive sector (which includes agriculture, mining and manufacturing) is going through a significant crisis: its share of total GDP fell from 34.7% in 1988 to 23.8% in 2008. This drastic process has had a particularly deep impact in manufacturing, which over the same period saw its share of total GDP decline by almost 6%. This process contradicted the initial expectations of NAFTA regarding closing the gap between Mexico and the United States in terms of GDP, employment, productivity and wages, particularly in Mexico's manufacturing sector.

Table 2: GDP by selected sectors of Mexico's economy (1988–2008) (share over total GDP)

	Agriculture	Mining	Manufacturing	Commerce and restaurants	Financial services	Communal, social and personal services
1988	7.90	2.95	23.86	25.35	9.7	17.01
1994	5.97	1.33	18.71	21.05	16.15	23.75
2000	4.17	1.41	20.31	21.36	12.14	24.38
2001	4.15	1.38	19.56	20.68	12.17	26.17
2002	3.94	1.35	18.62	20.02	13.40	26.97
2003	3.89	1.32	17.97	20.34	13.19	27.66
2004	3.91	1.45	18.04	20.80	12.98	26.76
2005	3.83	1.50	17.79	21.16	13.10	26.60
2006	3.87	1.57	18.04	21.18	12.95	25.97
2007	3.81	1.59	18.01	20.06	13.23	26.89
2008	4.07	1.61	18.10	20.99	12.98	26.12

Source: Author, based on information from INEGI (2009)

1.2 Employment

Parallel to weak GDP growth, the performance in employment as of the end of the 1980s was similarly disappointing. Four topics are important here: understanding why Mexico's open unemployment rate is so low compared with other nations; the relevance of Mexico's growing Economically Active Population (EAP); the lack of formal employment generation; and recent trends in the quality of generated employment (Berg et al. 2006; Dussel Peters 2009).

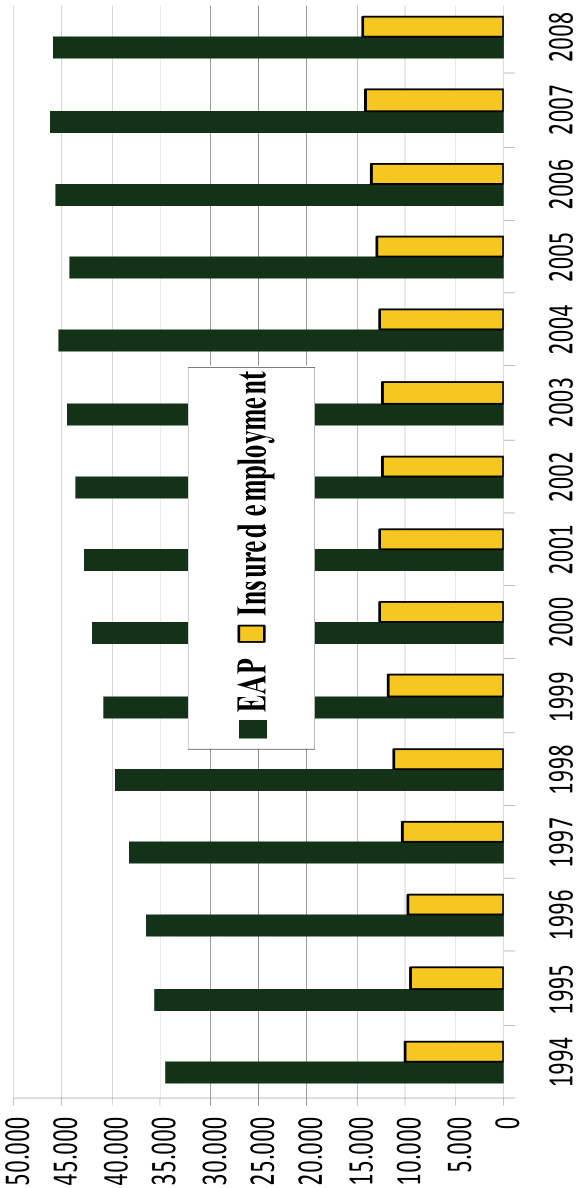
First, in 2008 Mexico's open unemployment rate reached its highest levels since the 1990s, with levels slightly above 4%. In Mexico, open unemployment rate (as used in Organisation for Economic Co-operation and Development [OECD] countries) is defined as the percentage of the EAP that has not worked for more than an hour a week during the last two months and that is still searching for a job. Under Mexico's socioeconomic conditions without any unemployment benefit system this definition is not useful. It is rather surprising to find any unemployment at all according to this definition.

Second, until mid-2009 Mexico's economy experienced great difficulty in generating formal employment: in the period from 1991–2009 it generated an average of less than 305,000 jobs annually whereas the EAP increased by around 1 million; i.e. there was formal employment for 38% of the annual growth of the EAP, and the rest was not necessarily unemployed (as defined by the open unemployment rate), but rather had to either search for a job in the informal sector or migrate to the US (see Figure 1). These tendencies reflect the massive challenges of Mexico's social economy and in particular the ones that have risen since the late 1980s when the economy faced problems in growth.

Third, although formal employment (i.e. employment registered with the Mexican Institute of Social Security – IMSS) has grown by over 5% since 2005, most of this employment has been generated in construction and services, while the productive sector (agriculture, mining and manufacturing) is still below the absolute employment levels of 2000. The fall of employment in the productive sector has been drastic: in manufacturing employment alone, it fell by more than 1 million between 2000 and March of 2009, accounting for 25% of manufacturing employment.

Fourth, the quality of the created formal employment has deteriorated substantially in several respects since the 1980s. On one hand, real minimum wages in 2008 represented less than 30% of their 1980 level, i.e.

Figure 1: **Economically active population and insured employment (in thousands) (1994–2008)**



Source: Author, based on information from PEF (2008) and IMSS there has been a real wage loss for this segment of the labor market of around 70%, while manufacturing decreased 15% in this period. In addition, formally generated employment with IMSS insurance has changed substantially: while formal generation has increased since 2000, most new employment has been temporary. That is, up until the late 1990s less than 10% of total employment was temporary, while from 2004 onwards 53% of new employment registered under IMSS was temporary; i.e., the quality of new employment has worsened significantly.

1.3 Trade

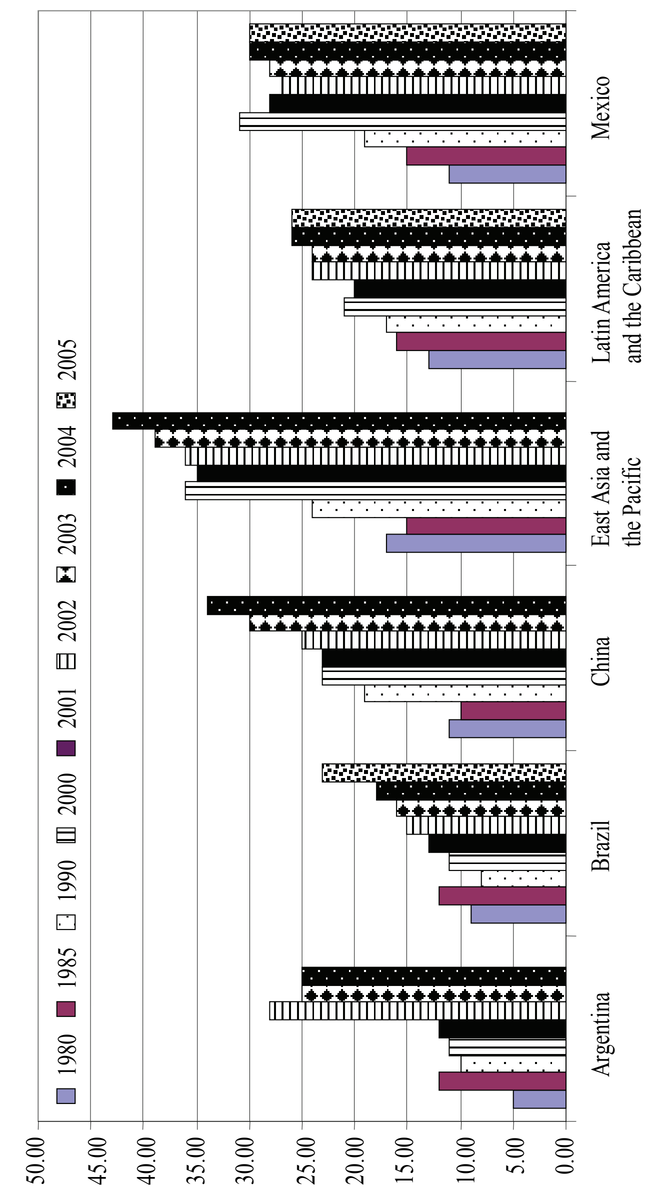
At least three issues are relevant to understanding Mexico's foreign trade: its increasing significance in Mexico's economy in terms of the strategy implemented as of the late 1980s; the increasing concentration of Mexico's trade and exports in terms of firms, branches, sectors and territories; and, finally, the role of temporary imports used in exports from Mexico's most dynamic growth sectors.

Figure 2 reflects the growing importance of exports as the main engine of growth of the Mexican economy since the 1980s. As in other countries and regions, exports of goods and services have increased substantially as a share of GDP from around 10% to levels above 30% since 2000. From this perspective, the growth of exports is significant for Mexico's social economy. As discussed in the next section, the concentration of exports to the United States (US) plays a substantial role in the context of NAFTA, implemented since 1994.

Secondly, Mexico's exports are highly concentrated in terms of the firms, branches, sectors and territories involved. It has been shown (Dussel Peters 2000) that around 3,500 firms, or 0.01% of all firms, account for more than 94% of Mexican exports, while representing less than 6% of Mexico's formal employment. In addition, the five main chapters of Mexican exports in 2006 – autoparts, electronics, automobiles, oil, and optical instruments and equipment – accounted for 73% of total exports (see the following section).

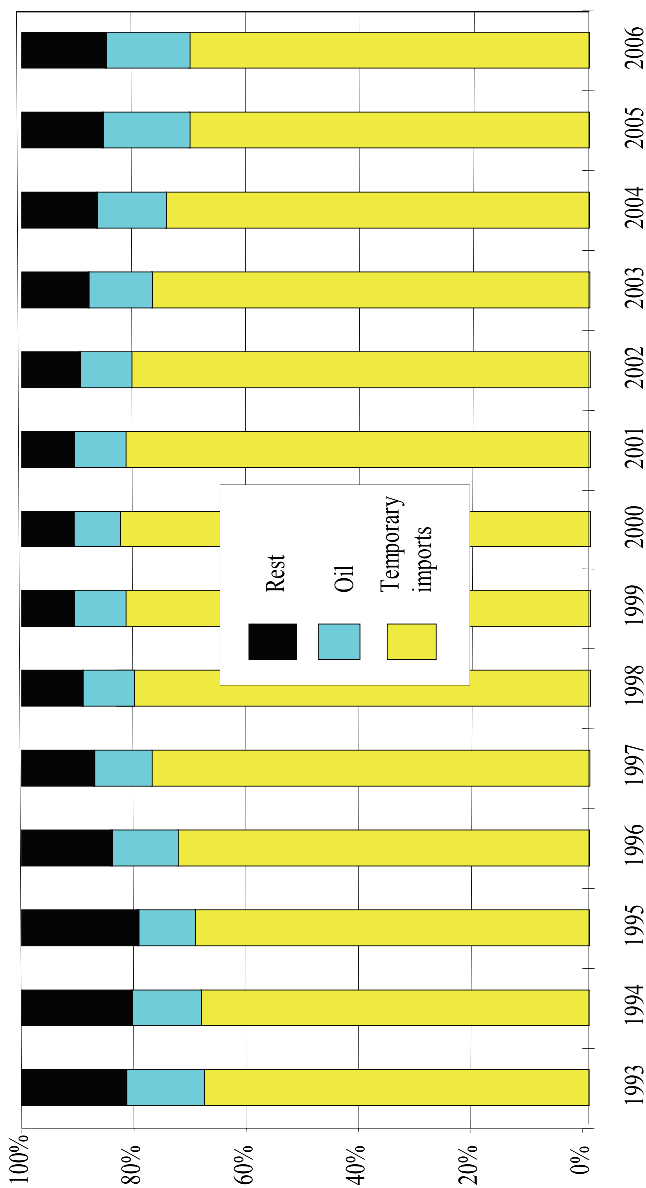
Third, it is worth mentioning that Mexico has specialized in industries that depend on Temporary Imports to be Exported (TIEs), which accounted for 76% of total exports in 1993-2006, and in the oil industry, which accounted for another 15% in the same period. Both processes are characterized by being low value-added with little integration into the rest of the economy.

Figure 2: Exports of goods and services / GDP (1980–2005)



Source: Author, based on World Bank (2007)

Figure 3: Structure of exports by program (1993–2006) (share over total exports)



Source: Author, based on information from Bancomext (2008)

2 A brief review of the literature on the relationship between Mexico and China

Studies on the socioeconomic and trade relations between China and Mexico are still fairly new in Mexico, in contrast with the extensive existing bibliography on the bilateral relationship between China and the US, or the US and Mexico. In Mexico there are two main types of studies and periods on the subject:

- Before 2003, when the subject received minimal attention, most of the studies were carried out by trade negotiators (De la Calle 2002) or were of a very general nature, for the most part *"explaining"* China in Mexico (Cornejo 1985; González Garcia 2003)[5] and from a more historical, sociological and diplomatic perspective.
- Since 2004, a number of more in-depth studies have been carried out on the bilateral relationship with China, from several angles:
  - More detailed statistical information has become available on foreign direct investment (SE 2005). Although it is still very early, in 2005 there were 339 companies registered with Chinese capital, which represented 1.1% of foreign companies in Mexico. In addition, Chinese FDI between 1999 and 2005 was 41 million dollars, or 1.2% of the foreign direct investment (FDI) of Asian countries: 52.7% was concentrated in manufacturing and 24.4% in services.[6] There are currently no estimates on the employment generated by this activity.
  - With a few exceptions in various sectors (CANAINTEX 2007; CNIV 2007), Mexico's private sector has generated little comprehensive data on the economic effects of China on Mexico.[7]

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5 Research by authors such as Eugenio Anguiano, Flora Botton and Romer Cornejo, of the Centro de Estudios de Asia y África of the Colegio de México has been significant. Other authors such as Gómez Izquierdo (1992) have also discussed the historical dimensions of Chinese population in Mexico. The contribution of Watkins (2002) is notable, presenting a timely commercial study of competition between China and Mexico in the US market.

6 FDI-data until 2008 has not changed substantially, i.e. Chinese FDI in Mexico accumulated US$73 million for 1999–2008 (http://www.economia.gob.mx/?P=2261).

7 An interesting exception is the work of Luna Martínez (2003), who tried to highlight potential possibilities and threats in the bilateral relationship in the US market and in particular sectors.

- International organizations such as the Economic Commission for Latin America and the Caribbean (ECLAC) 2004 and the Inter-American Development Bank (IDB) 2005 – as well as several academic studies – have presented initial, more detailed analyses of the economic effects of China on Latin America and, to a smaller degree, on Mexico. In general terms, both studies examine data on bilateral trade. Just as in other general studies of the textile/clothing manufacturing chain, based on the Global Trade Analysis Project (GTAP), Mexico is the most affected country, and the one with the greatest loss in the US market, ever since China's trade expansion, because it has a similar export structure to China (Domínguez 2006; López / Micco / Molina 2005).[8]
- More recently, several studies (Pescador / Castañeda 2004; Cornejo 2005; Dussel Peters 2005a, 2005b, 2007; Correa / González 2006; Oropeza 2006; Villarreal / Villeda 2006; Cárdenas / Dussel Peters 2007; Feenstra / Kee 2007; Trápaga / Dussel 2007) have begun to analyze the bilateral relationship in greater detail, including bilateral sectoral research, such as on the textile/clothing manufacturing chain and the electronic sector. In the latter, Mexico lost more than 45,000 jobs between 2001 and 2003; US$3.2 billion in exports; and US$500 million in FDI to Asia, and particularly to China (Dussel Peters 2005a). These studies have started to analyze business opportunities in China. Faced with the significant increase in its imports, Mexico's competitiveness with respect to China and the ensuing consequences have been negative, both in the Mexican domestic market and in the US market. These studies calculate significant shifts in Mexican production.[9]

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8 A number of publications of Sanjaya Lall (including Lall / Weiss 2005) have been very fruitful in pointing out the competition between Latin America and China at the sectorial level.

9 The broader analysis of Garza Limón is clear in this respect: *"...we arrived late on the scene and are doing badly in the Chinese market…we cannot continue to have…defensive or restrictive policies with China, nor continue to make accusations of disloyal trade and human rights violations merely a pretext to justify inefficiency."* (Garza 2005, 29).

Despite the growing recent literature, the level of analysis and detailed knowledge about the impact of China on Mexico has so far been relatively limited, particularly considering that China became Mexico's second trade partner in 2003. Until the end of 2007, with the exception of the Center for Chinese-Mexican Studies (CECHIMEX) at the National Autonomous University of Mexico (UNAM), no single institution in the public, private or academic sectors has specialized in the socioeconomic analysis of China in Mexico. Thus, on the whole it has been extremely difficult to get beyond the discussion of *"opportunities and threats"* and *"doing business in China"*.

3 Bilateral economic relationship and existing bilateral institutions

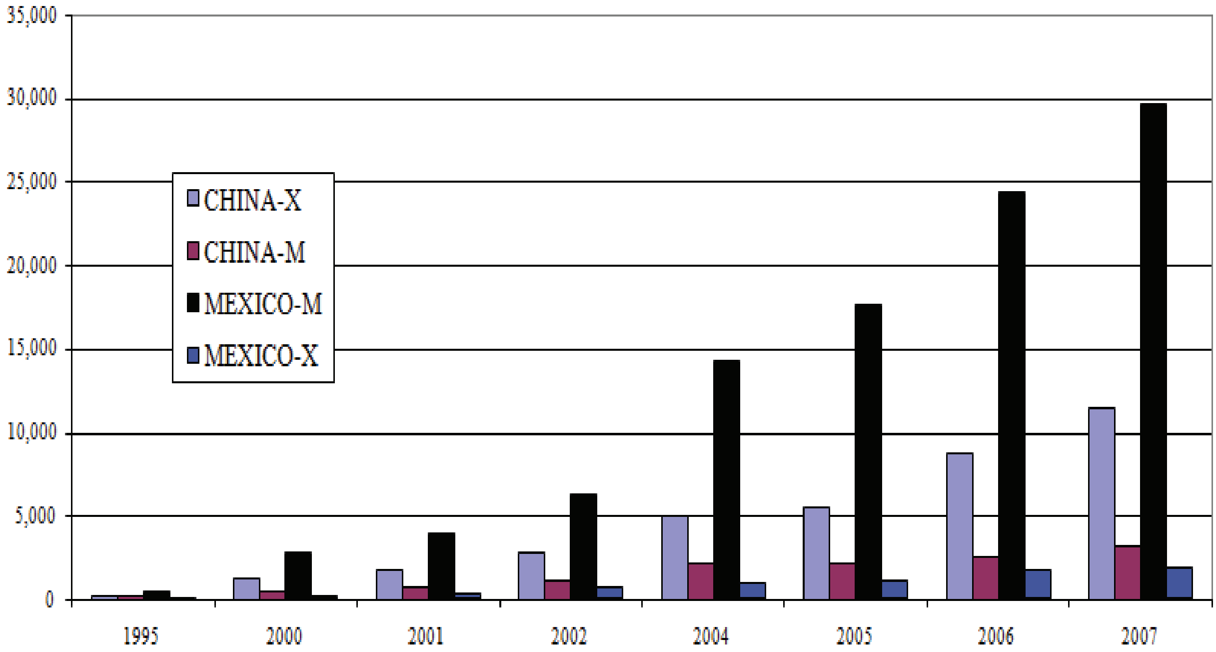
The first part of this section examines the economic relationship between both countries in terms of bilateral investments and the main trade patterns. The second part outlines the main bilateral institutions and projects related to trade.

3.1 Bilateral economic relationship

Some of the difficulties which account for the lack of analysis and knowledge of the bilateral relationship arise from problems in trade and investment statistics. In the case of investments for example, cumulative Chinese FDI in Mexico came to US$73 million during 1999–2008 according to the official statistics of the Ministry of the Economy, while our own research places it around 10 times higher. In trade statistics there are differences of 277% between Chinese exports to Mexico and Mexican imports from China in 2006 (Figure 4). In spite of the efforts of bilateral institutions (see section 3.2.) these issues remained unresolved at the end of 2007. As a result, it is important to bear in mind the respective data sources in the case of trade, whether Mexican (Bancomext 2008) or Chinese (CCS 2008).

Table 3 shows bilateral FDI. Taking into account important statistical limitations, the table shows at least two interesting patterns. To begin with, China's accumulated FDI in Mexico is substantially higher than Mexico's in China up to 2007, with a ratio of around 7:1; from a Mexican perspective China's FDI is still relatively small and accounts for less than 0.4% of

Figure 4: China and Mexico: Differences in trade statistics (1995–2007)



Source: Author, based on information from Bancomext (2008) and CCS (2008)

Table 3: Foreign direct investment between China and Mexico (up to 2007)

	FDI (in US$ M)	Activity
FDI by Chinese firms in Mexico[a]		
Data from the Ministry of the Economy [b]	63	
Additional information up to 2007:		
Giant Motors	18	Automobiles, trucks
Sinatex	96	Textiles, garments
ZX and Chamco Auto*	400	Automobiles, trucks
Konka	10	Televisions
TCL (acquisition of Thomson)	100	Televisions and others
Other	Approx. 35	
Total	722	
FDI by Mexican firms in China[a]		
Gruma	100	Food
Bimbo	11.30	Food
Other	Approx. 2	
Total	113	

a In some cases investments will be implemented in the next years

b Accumulated up to the first semester of 2007 for the period from 1999–2007

* This investment was announced at the beginning of 2007, but will apparently not take place

Source: Author, based on information from SE (2007) and own information from press.

Mexico's total FDI during 1994–2007.[10] In addition, bilateral FDI shows an interesting specialization pattern: while China's investments in Mexico have focused on manufacturing and increasingly on the automobile auto part and electronic chains, Mexico's FDI is almost exclusively concentrated on food, led by Grupo Maseca (GRUMA) and Bimbo (Dussel Peters 2007).

Bearing in mind the problems of trade data (Dussel Peters 2005b); what are the main trade patterns between Mexico and China, both bilaterally and in the US?

Based on Mexican statistics, China has become Mexico's second trading partner since 2003[11] after the United States.[12] Table 4 shows some of the general characteristics of bilateral trade:

- Broadly speaking, the 1993–2006 period can be divided into two sub-periods: a) 1993–2000, in which total Mexican exports increased at an average annual growth rate (AAGR) of 19.3% and, b) 2000-2006, with an AAGR of only 7%.
- Mexico's trade structure reflects a high degree of concentration, especially of exports. Since 2000, Mexican exports to the US represented more than 88% of the total, i.e. for Mexico exports to the NAFTA-region (Canada and the US) are predominant. No other destination accounts for more than 2% of Mexican exports.
- With the exception of Aruba, Mexican exports to China were the most dynamic during 1995–2006, with an AAGR of 41.5%; i.e. China has become an increasingly significant export-market and was the 6th largest in 2006. This performance, however, changes significantly if we consider Hong Kong and China as one entity: the AAGR falls to 12.5% for 1995–2006, as exports to Hong Kong in 1995 already accounted for more than US$500 million, while exports to China were less than US$40 million.[13]

10 Until mid-2007 the investment of ZX and Chamco Auto was still being discussed in the news. However, by November 2007, this investment had been postponed indefinitely. Independently of the specific investment, China's FDI is still much greater than Mexico's in China.

11 In 2006 trade with China represented 9.5% of Mexico's total imports and 0.7% of its exports, comprising 5.2% of Mexico's total trade.

12 On the other hand, based on Chinese statistics Mexico was China's 22nd and 35th trading partner in 2004 in terms of exports and imports, respectively.

13 The topic requires more detailed analysis in the future, but it stands out that Mexican exports to Hong Kong have fallen continuously, with an AAGR of -8.4%. During the

- Mexican imports from China have been even more dynamic, with an AAGR of 41.9% during 1995-2006; if we include Hong Kong, imports account for an AAGR of 38.8%. Mexican imports, however, show a very different structure from exports: since the implementation of NAFTA in 1994 the share of imports from the US has declined substantially, accounting for 50.92% in 2006, while imports from Asia, and particularly China, Japan, Korea, Taiwan and Malaysia have increased and substituted US imports, accounting together for around 30% of Mexican imports in 2006 (Dussel Peters 2007a).
- In 2006 the ratio of Mexican imports from China relative to Mexican exports to China was 15:1 and China was the country with which Mexico had the largest trade deficit (of more than US$22 billion).
- Mexico's trade structure (see Table 4) reflects a high degree of integration with the US economy. The US is the only trading partner with which Mexico has a trade surplus, which increased from US$3 billion in 1993 to more than US$80 billion in 2006. Thus, the US market is of major importance to Mexico, not only as its main trading partner but also as it is the main and only major trading partner with which it achieves a surplus.

Table 5 allows for a deeper understanding of bilateral trade between Mexico and China for 1993–2006, with the following points in particular:[14]

- Mexico's exports are highly concentrated in a small group of chapters with the top five accounting for 72.47% of total exports and 59.30% of imports in 2006. This concentration is even higher in the case of Mexican exports to the US, the main engine of growth of Mexico's economy since the end of the 1980s.
- Generally, Mexican exports show a strong similarity with those of China, since electronics and autoparts are the largest and fastest growing chapters of the Harmonized Tariff System (HTS) in both coun-

period exports to Hong Kong have not played an important role and have been shipped directly to China (and not through Hong Kong).

14 Tables 4 and 5 present trade statistics for Hong Kong and China as well as for China alone. Mexico's trade with Hong Kong plays a minor role – 0.12% and 1.25% of Mexican exports and imports in 2006, respectively – but will require a more detailed analysis in the future, in particular for understanding the final destination of Mexican exports and the effective source of these imports to Mexico. Trade with Hong Kong, however, does not change bilateral and disaggregated trade patterns between China and Mexico.

tries. Both chapters accounted for more than 35% of Mexican exports in 2006. The main differences in exports between the countries, however, are that Mexico exports automobiles – accounting for 15.77% of total Mexican exports (or US$39.5 billion) – while these accounted for only 2.31% of China's exports (or US$22.4 billion) in 2006.

- Mexico's trade structure is, rather surprisingly, relatively similar to China's, i.e. it imports and exports in similar chapters: it exports electronics, autoparts, automobiles and oil, and imports within the same chapters.[15]
- It is important to emphasize that Mexico has had a trade deficit with China in primary products (chapters 1–25 of the HTS) since 1995 despite China's high demand in these chapters. Thus, it is important to understand these trade patterns and Mexico's overall limitations in exporting agricultural and agroindustrial goods to China.
- Table 5 illustrates the main features of bilateral trade between China and Mexico. There is an increasing diversification of Mexican exports to China (at the chapter level): while electronics, autoparts and automobiles accounted for more than 60% of Mexican exports until 2004 (Dussel Peters 2005a), Mexican exports to China have since shifted substantially. In 2006 the main export chapter was copper, and exports from the autoparts-automobile commodity chain only accounted for 35.70%.[16] Thus, Mexico's exports to China show an increasing Latin Americanization, i.e. raw materials have been the most dynamic chapters to be exported to China in the most recent years.
- Mexican exports – as well as Chinese – depend heavily on imported inputs being re-exported. As discussed in the last section: in the case of total exports, 75% of Mexican exports depended on these programs during 2001–2006; in the case of exports to China, they fell from 95.5% in 1999 to 39.5% in 2006.

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15 The topic refers to the issue of intraindustry trade. Mexico accounted for an intraindustry trade coefficient with the US of above 50% until the end of the 1990s and presented a tendency to fall since then, while the same coefficient was below 5% with China (León / Dussel 2006).

16 This is the only case in which Hong Kong's trade makes a difference, i.e. autoparts would still be Mexico's main export chapter to Hong Kong and China in 2006 (ahead of copper) (see Table 5).

Tables 6a and 6b delve into the specific trade between Hong Kong and China and Mexico (and are based on Mexico's statistics). Three issues are significant in this respect.

First is the dramatic growth of Mexican copper exports (in very different forms from waste and scrap to refined copper and copper mattes, among others), considering that these began in 2005–2006. Similarly exports of aluminum, iron ores and cotton, among other raw materials, are becoming the main export products to China and Hong Kong and explain the sudden growth in the share of the 20 main 4-digit items that Mexico exports to Hong Kong and China, increasing their share of total Mexican exports from 51% in 2004 to 76% in 2006. Within these 20 main 4-digit items, those related to raw materials increased from US$104 million in 2004 to US$744 in 2006 and accounted for 37.76% of total Mexican exports to Hong Kong and China.[17]

Second, the detailed 4-digit analysis shows that bilateral trade is extremely dynamic, with growth rates above 1,000% during 2004–2006 in several cases; total exports and imports increased by 161% and 68% respectively in these two years.

Third, Table 6b permits a greater understanding of Mexican imports from China and Hong Kong for the main 4-digit items: most of them are closely related to the electronics (telecommunications and PCs) chains, irrespective of their specific position within chapters of the Harmonized Tariff System: data processing machines and their parts and components (several items under 8471 and 8473, but also 8542, 8534, 9013 and 8541), television parts and radios and video equipment (items 8529, 8504, 8518, 8544, 8521 and 8414). Toys and autoparts also account for an increasing share of Mexico's imports from China and include some of the most dynamic 4-digit imports from China.[18] The topic will be discussed in detail for the

17 From this perspective, Mexican exports to China seem to be in a transition from manufacturing to raw materials and are currently relatively diversified, both in terms of the wide variety of products exported and also very probably in terms of firms. However, it has not been possible to link exports at the 4 and 6-digit level with the corresponding firms in Mexico.

18 The autoparts-automobile chain will probably be one of the most important chains for future competition and cooperation between China and Mexico, both in the domestic and US markets, although little analysis has been carried out so far on the subject. For an initial analysis, see Dussel Peters (2007b) and Alvarez Medina (2007).

electronics sector in Jalisco (Dussel Peters s. a). In addition, Figure 5 shows that Mexican imports from China and Hong Kong are not only growing but are also changing their structure: the share of definitive imports (i.e. those for consumption in Mexico according to their tariff treatment) has fallen from 55.4% in 1995 to levels below 40% since 2004. Thus, these imports are increasingly being used for exports.[19]

In addition to the previously mentioned sectoral studies of the bilateral relationship – in particular in the electronics and yarn-textile-garment chains – two issues have been of concern: a) the increasing illegal import of Chinese goods and, b) the "triangulation" of Chinese goods.

The private sector has been publicly outspoken regarding the first topic: in the yarn-textile-garment chain, for example, trade associations estimate that up to 65% of domestic consumption is illegally imported, particularly from China (CANAINTEX 2007; Zaga 2007).[20] Another form of illegal trade, known as *"technical smuggling",* refers to the possibility of defining goods under the wrong HTS 6 or 8-digit label, such as classifying new clothes as used, for example.[21]

Massive *"triangulation"* of Chinese goods through US ports, mainly through Long Beach, is also increasingly acknowledged by US public institutions (USGAO 2004). This is when Chinese goods enter the US as temporary imports and are exported to Mexico, now with the label "*made in USA*". It has not been possible to quantify the dimension of this kind of irregular trade.

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19 Current trade data does not allow for a more in depth analysis, i.e. to investigate whether these imports substitute those from other countries, particularly the United States; and furthermore, whether, these imports are caused by intrafirm decisions or by interfirm competition. The next chapter elucidates some of these topics for the specific case of electronics (Dussel Peters s. a.).

20 Other goods such as steel and watering cans are also discussed as being imported illegally on a massive scale. In the latter case it is estimated that 80% are imported illegally (*Reforma*, July 23, 2007)

21 There is little detailed information on the matter. The Ministry of the Economy, however, established that imports of rags and used cloths increased from 6,500 to 17,500 tons during 2003–2005 (*Reforma*, January 6, 2006)

Table 4: Mexico: Main trading partners (1993–2006)

		Exports: $US millions						
		1993	**1995**	**2000**	**2004**	**2005**	**2006**	**1995–2006**
1	United States	42.851	66.273	147.686	167.455	183.437	212.285	--
2	Canada	1.569	1.987	3.353	2.796	4.232	5.183	--
3	Spain	918	797	1.520	2.016	2.880	3.280	--
4	Germany	430	515	1.544	1.926	2.290	2.975	--
5	Colombia	239	453	462	625	1.545	2.133	--
	China and Hong Kong	140	541	391	754	1.326	1.971	
6	China	45	37	204	474	1.134	1.690	--
7	Japan	686	979	931	553	1.476	1.604	--
8	Aruba	18	31	15	1.374	1.447	1.469	--
9	Holland	193	177	439	559	801	1.334	--
10	Brazil	292	800	517	574	890	1.148	--
11	Guatemala	204	310	535	602	864	935	--
12	United King and Ireland	202	481	870	775	1.186	927	--
13	India	10	25	60	454	522	671	--
14	Switzerland	141	608	553	780	117	95	--
15	Dutch Antilles	32	59	871	11	11	31	--
	Subtotal	47.969	74.075	159.949	181.729	204.159	237.733	--
	Rest	3.863	5.465	6.506	7.472	9.835	12.728	--
	Total	51.832	79.541	166.455	189.200	213.995	250.461	--

Table 4 (cont.): Mexico: Main trading partners (1993–2006)

		Exports: Share (percentage over total)						
		1993	**1995**	**2000**	**2004**	**2005**	**2006**	**1995–2006**
1	United States	82,67	83,32	88,72	88,51	85,72	84,76	--
2	Canada	3,03	2,50	2,01	1,48	1,98	2,07	--
3	Spain	1,77	1,00	0,91	1,07	1,35	1,31	--
4	Germany	0,83	0,65	0,93	1,02	1,07	1,19	--
5	Colombia	0,46	0,57	0,28	0,33	0,72	0,85	--
	China and Hong Kong	0,27	0,68	0,23	0,40	0,62	0,79	--
6	China	0,09	0,05	0,12	0,25	0,53	0,67	--
7	Japan	1,32	1,23	0,56	0,29	0,69	0,64	--
8	Aruba	0,03	0,04	0,01	0,73	0,68	0,59	--
9	Holland	0,37	0,22	0,26	0,30	0,37	0,53	--
10	Brazil	0,56	1,01	0,31	0,30	0,42	0,46	--
11	Guatemala	0,39	0,39	0,32	0,32	0,40	0,37	--
12	United King and Ireland	0,39	0,60	0,52	0,41	0,55	0,37	--
13	India	0,02	0,03	0,04	0,24	0,24	0,27	--
14	Switzerland	0,27	0,76	0,33	0,41	0,05	0,04	--
15	Dutch Antilles	0,06	0,07	0,52	0,01	0,01	0,01	--
	Subtotal	92,55	93,13	96,09	96,05	95,40	94,92	--
	Rest	7,45	6,87	3,91	3,95	4,60	5,08	--
	Total	100,00	100,00	100,00	100,00	100,00	100,00	

Table 4 (cont.): Mexico: Main trading partners (1993–2006)

	Exports: Growth rate							
		1993	**1995**	**2000**	**2004**	**2005**	**2006**	**1995–2006**
1	United States	--	24,4	17,4	3,2	9,5	15,7	11,2
2	Canada	--	12,6	11,0	-4,4	51,4	22,5	9,1
3	Spain	--	-6,8	13,8	7,3	42,8	13,9	13,7
4	Germany	--	9,4	24,5	5,7	18,9	29,9	17,3
5	Colombia	--	37,8	0,4	7,8	147,4	38,1	15,1
	China and Hong Kong	--	96,3	-6,3	17,9	75,8	48,7	12,5
6	China	--	-9,1	40,6	23,5	139,1	49,0	41,5
7	Japan	--	19,4	-1,0	-12,2	166,8	8,7	4,6
8	Aruba	--	33,4	-13,2	207,0	5,3	1,5	41,9
9	Holland	--	-4,3	19,9	6,2	43,3	66,5	20,1
10	Brazil	--	65,5	-8,4	2,6	54,9	29,1	3,3
11	Guatemala	--	23,4	11,5	3,0	43,6	8,3	10,6
12	United King and Ireland	--	54,4	12,6	-2,8	53,1	-21,9	6,1
13	India	--	61,6	18,9	66,1	14,8	28,7	34,8
14	Switzerland	--	107,7	-1,9	9,0	-85,0	-19,0	-15,5
15	Dutch Antilles	--	35,6	71,3	-66,5	4,1	176,9	-5,6
	Subtotal	--	24,3	16,6	3,2	12,3	16,4	11,2
	Rest	--	18,9	3,5	3,5	31,6	29,4	8,0
	Total	--	23,9	15,9	3,3	13,1	17,0	11,0

Table 4 (cont.): Mexico: Main trading partners (1993–2006)

	Imports: $US millions							
		1993	**1995**	**2000**	**2004**	**2005**	**2006**	**1995–2006**
1	United States	45.293	53.902	127.534	110.940	118.406	130.453	--
2	Canada	729	680	3.336	14.891	18.182	25.058	--
3	Spain	386	521	2.880	14.481	17.631	24.444	--
4	Germany	3.929	3.952	6.466	10.640	13.023	15.294	--
5	Colombia	2.852	2.687	5.758	7.160	8.665	9.437	--
	China and Hong Kong	1.175	1.374	4.017	5.337	6.163	7.375	--
6	China	837	771	3.690	5.271	6.465	10.617	--
7	Japan	1.201	565	1.803	4.344	5.211	5.558	--
8	Aruba	717	716	1.994	3.509	4.046	4.974	--
9	Holland	245	436	1.354	3.408	3.637	4.476	--
10	Brazil	1.155	694	1.430	2.853	3.324	3.638	--
11	Guatemala	835	771	1.849	2.822	3.496	4.109	--
12	United King and Ireland	1.105	979	1.467	2.398	2.563	2.661	--
13	India	215	289	606	2.230	2.215	1.955	--
14	Switzerland	130	154	894	1.464	1.754	2.470	--
15	Dutch Antilles	593	532	1.091	1.461	1.865	2.141	--
	Subtotal	61.400	69.024	166.169	193.208	216.646	254.661	--
	Rest	3.965	3.429	8.289	4.095	4.769	1.543	--
	Total	65.365	72.453	174.458	197.303	221.414	256.205	--

Table 4 (cont.): Mexico: Main trading partners (1993–2006)

		Imports: Share (percentage over total)						
		1993	**1995**	**2000**	**2004**	**2005**	**2006**	**1995–2006**
1	United States	69,29	74,40	73,10	56,23	53,48	50,92	--
2	Canada	1,12	0,94	1,91	7,55	8,21	9,78	--
3	Spain	0,59	0,72	1,65	7,34	7,96	9,54	--
4	Germany	6,01	5,45	3,71	5,39	5,88	5,97	--
5	Colombia	4,36	3,71	3,30	3,63	3,91	3,68	--
	China and Hong Kong	1,80	1,90	2,30	2,70	2,78	2,88	--
6	China	1,28	1,06	2,12	2,67	2,92	4,14	--
7	Japan	1,84	0,78	1,03	2,20	2,35	2,17	--
8	Aruba	1,10	0,99	1,14	1,78	1,83	1,94	--
9	Holland	0,38	0,60	0,78	1,73	1,64	1,75	--
10	Brazil	1,77	0,96	0,82	1,45	1,50	1,42	--
11	Guatemala	1,28	1,06	1,06	1,43	1,58	1,60	--
12	United King and Ireland	1,69	1,35	0,84	1,22	1,16	1,04	--
13	India	0,33	0,40	0,35	1,13	1,00	0,76	--
14	Switzerland	0,20	0,21	0,51	0,74	0,79	0,96	--
15	Dutch Antilles	0,91	0,73	0,63	0,74	0,84	0,84	--
	Subtotal	93,93	95,27	95,25	97,92	97,85	99,40	--
	Rest	6,07	4,73	4,75	2,08	2,15	0,60	--
	Total	100,00	100,00	100,00	100,00	100,00	100,00	

Table 4 (cont.): Mexico: Main trading partners (1993–2006)

Imports: Growth rate

		1993	1995	2000	2004	2005	2006	1995–2006
1	United States	--	9,1	18,8	-3,4	6,7	10,2	8,4
2	Canada	--	-3,5	37,5	45,4	22,1	37,8	38,8
3	Spain	--	16,1	40,8	49,7	21,8	38,6	41,9
4	Germany	--	0,3	10,3	13,3	22,4	17,4	13,1
5	Colombia	--	-2,9	16,5	5,6	21,0	8,9	12,1
	China and Hong Kong	--	8,1	23,9	7,4	15,5	19,7	16,5
6	China	--	-4,1	36,8	9,3	22,6	64,2	26,9
7	Japan	--	-31,4	26,1	24,6	19,9	6,7	23,1
8	Aruba	--	-0,1	22,7	15,2	15,3	22,9	19,3
9	Holland	--	33,3	25,4	26,0	6,7	23,1	23,6
10	Brazil	--	-22,5	15,6	18,9	16,5	9,4	16,3
11	Guatemala	--	-3,9	19,1	11,1	23,9	17,5	16,4
12	United King and Ireland	--	-5,9	8,4	13,1	6,9	3,9	9,5
13	India	--	15,9	16,0	38,5	-0,6	-11,8	19,0
14	Switzerland	--	8,9	42,1	13,1	19,8	40,8	28,7
15	Dutch Antilles	--	-5,3	15,5	7,6	27,6	14,9	13,5
	Subtotal	--	6,0	19,2	3,8	12,1	17,5	12,6
	Rest	--	-7,0	19,3	-16,2	16,4	-67,6	-7,0
	Total	--	5,3	19,2	3,1	12,2	15,7	12,2

Source: Author, based on information from Bancomext (WTA)

Table 5: Mexico: Trade by chapters with United States and China (1993–2006; AAGR 1995–2007)

		1993	1995	2000	2004	2005	2006	AAGR 1995–2007	Share 2007
Exports									
US$ millions									
Total exports		51.832	79.541	166.455	189.200	213.995	250.461	11,0	100,00
	Main 5 chapters	34.287	50.978	118.402	134.390	152.432	181.512	12,2	72,47
	Rest	17.545	28.563	48.053	54.811	61.562	68.949	8,3	27,53
85	Electronics	13.778	20.315	47.521	46.850	51.782	61.705	10,6	24,64
87	Automobiles	7.051	12.223	28.158	28.574	32.149	39.495	11,3	15,77
27	Oil	7.229	8.203	16.073	23.515	31.989	38.989	15,2	15,57
84	Autoparts	5.080	8.807	22.201	29.228	28.855	32.660	12,7	13,04
90	Optical equipment and instruments	1.149	1.431	4.449	6.223	7.656	8.664	17,8	3,46
Exports to the United States									
Total		42.851	66.273	147.686	167.455	183.437	212.285	11,2	100,00
	Main 5 chapters	28.740	44.765	107.564	122.468	133.992	157.898	12,1	74,38
	Rest	14.110	21.508	40.121	44.987	49.445	54.387	8,8	25,62

Table 5 (cont.): Mexico: Trade by chapters with United States and China (1993–2006; AAGR 1995–2007)

		1993	1995	2000	2004	2005	2006	AAGR 1995–2007	Share 2007
US$ millions									
Exports to the United States (cont.)									
85	Electronics	13.428	19.694	46.275	44.749	47.686	56.038	10,0	26,40
87	Automobiles	3.778	7.136	19.278	26.677	25.336	27.947	13,2	13,16
27	Oil	5.733	10.270	25.402	26.364	28.259	34.074	11,5	16,05
84	Autoparts	4.696	6.366	12.364	19.037	25.790	31.960	15,8	15,06
90	Optical equipment and instruments	1.105	1.300	4.245	5.641	6.921	7.879	17,8	3,71
Exports to China									
Total		45	37	204	474	1.136	1.688	41,5	100,00
	Main 5 chapters	5	165	371	698	1.304	66,0	77,23	
	Rest	32	39	104	438	384	25,3	22,77	
74	Copper	0	0	15	146	429	--	25,43	
84	Autoparts	0	1	157	271	294	403	74,6	23,89
87	Automobiles	0	0	5	14	51	199	90,0	11,81

Table 5 (cont.): Mexico: Trade by chapters with United States and China (1993–2006; AAGR 1995–2007)

		1993	1995	2000	2004	2005	2006	AAGR 1995–2007	Share 2007
	US$ millions								
	Exports to China (cont.)								
29	Organic chemicals	2	4	3	22	104	139	38,4	8,21
26	Ores, slag, ashes	0	0	0	49	101	133	--	7,88
	Exports to China and Hong Kong								
Total		--	541	391	755	1.328	1.970	12,5	100,00
	Main 5 chapters	--	39	288	394	745	1.384	38,2	70,28
	Rest	--	502	103	361	583	585	1,4	29,72
84	Autoparts	--	19	277	276	329	467	--	23,73
74	Copper	--	0	0	15	148	436	108,4	22,15
87	Automobiles	--	0	5	15	53	202	77,9	10,27
29	Organic chemicals	--	19	6	39	114	143	20,1	7,28
26	Ores, slag, ashes	--	0	0	50	102	135	--	6,84

Table 5 (cont.): Mexico: Trade by chapters with United States and China (1993–2006; AAGR 1995–2007)

		1993	1995	2000	2004	2005	2006	AAGR 1995–2007	Share 2007
Imports									
US$ millions									
Total imports		65.365	72.453	174.458	197.303	221.414	256.205	12,2	100,00
	Main 5 chapters	29.429	37.461	104.413	116.800	132.527	151.920	13,6	59,30
	Rest	35.936	34.992	70.045	80.504	88.887	104.285	10,4	40,70
85	Electronics	12.821	17.322	46.263	44.432	47.976	56.521	11,4	22,06
84	Autoparts	9.455	9.990	25.340	33.735	35.932	39.884	13,4	15,57
87	Automobiles	1.929	3.861	17.061	18.474	22.150	25.098	18,6	9,80
39	Plastic materials and goods	3.655	4.783	10.443	12.665	14.301	15.942	11,6	6,22
27	Oil	1.570	1.506	5.306	7.494	12.167	14.476	22,8	5,65
Imports from the United States									
Total		45.293	53.902	127.534	110.940	118.406	130.453	8,4	100,00
	Main 5 chapters	21.123	28.471	78.073	62.426	67.029	73.341	9,0	56,22
	Rest	24.170	25.431	49.461	48.514	51.377	57.112	7,6	43,78

Table 5 (cont.): Mexico: Trade by chapters with United States and China (1993–2006; AAGR 1995–2007)

		1993	1995	2000	2004	2005	2006	AAGR 1995–2007	Share 2007
					US$ millions				
					Imports from the United States (cont.)				
85	Electronics	9.522	13.713	35.393	20.188	18.245	19.684	3,3	15,09
84	Autoparts	5.762	6.107	16.881	15.638	16.813	18.632	10,7	14,28
87	Automobiles	1.306	3.093	12.315	10.726	12.353	13.792	14,6	10,57
39	Plastic materials and goods	3.293	4.286	9.303	10.242	11.260	12.515	10,2	9,59
27	Oil	1.239	1.272	4.182	5.632	8.358	8.718	19,1	6,68
					Imports from China				
Total		386	521	2.880	14.481	17.696	24.438	41,9	100,00
	Main 5 chapters	146	292	1.729	11.097	13.148	18.886	46,1	77,28
	Rest	240	229	1.151	3.384	4.548	5.552	33,6	22,72
85	Electronics	57	140	904	5.377	7.110	10.608	48,3	43,41
84	Autoparts	26	38	415	4.615	4.567	5.655	57,7	23,14
95	Toys	32	68	204	478	625	1.067	28,4	4,37

Table 5 (cont.): Mexico: Trade by chapters with United States and China (1993–2006; AAGR 1995–2007)

		1993	1995	2000	2004	2005	2006	AAGR 1995–2007	Share 2007
US$ millions									
Imports from China (cont.)									
90	Optical equipment and instruments	15	20	114	388	511	927	41,5	3,79
39	Plastic materials and goods	16	26	92	239	336	629	33,7	2,57
Imports from China and Hong Kong									
	Total	--	680	3.335	14.891	18.248	25.052	38,8	100,00
	Main 5 chapters	--	374	1.958	11.334	13.552	19.213	43,0	76,69
	Rest	--	306	1.377	3.557	4.696	5.839	30,8	23,31
85	Electronics	--	187	1.078	5.499	7.312	10.830	44,6	43,23
84	Autoparts	--	54	433	4.657	4.613	5.698	52,6	22,74
95	Toys	--	74	212	490	629	1.077	27,5	4,30
90	Optical equipment and instruments	--	28	128	288	480	964	38,2	3,85
39	Plastic materials and goods	--	31	106	400	519	644	31,9	2,57

Source: Own ellaboration based on Bancomext (2008)

Table 6a: Mexico: 20 leading 4-digit items exported to China and Hong Kong (2006)

			2004	2006	2004	2006	
			US$ millions		Share over total		Growth rate
1	8473	Parts etc for typewriters & other office machines	210	300	27.82	15.23	42.9
2	7404	Copper waste and scrap	0	293	0.03	14.87	117,961.0
3	8708	Parts & access for motor vehicles (Head 8701-8705)	14	151	1.91	7.68	951.4
4	2933	Heterocyclic comp, Nit Hetero-Atoms only	17	109	2.19	5.51	556.7
5	7403	Refined copper & alloys (no mast alloy) unwrought	6	94	0.85	4.78	1,367.1
6	8471	Automatic data process machines; Magn reader etc.	2	92	0.27	4.68	4,367.6
7	2603	Copper ores and concentrates	49	64	6.46	3.26	31.7
8	3915	Waste, pairings and scrap, of plastics	7	59	0.94	2.95	716.7
9	8703	Motor cars & vehicles for transporting persons	0	51	0.00	2.57	708,527.2

Table 6a (cont.): Mexico: 20 leading 4-digit items exported to China and Hong Kong (2006)

			2004	2006	2004	2006	
			US$ millions		Share over total		Growth rate
10	7401	Copper mattes; cement copper (precipitated copper)	8	36	1.02	1.81	361.2
11	7602	Aluminum waste and scrap	0	33	0.02	1.66	20,434.9
12	2408	Zinc ores and concentrates	0	32	0.00	1.61	241,915.8
13	8409	Parts for engines of heading 8407 or 8408	34	31	4.52	1.57	-9.2
14	2601	Iron ores and concentrates, including roast pyrites	0	29	0.00	1.47	- -
15	4107	Leather of animals Nesoi, no hair Nesoi	11	27	1.41	1.36	151.7
16	2917	Polycarboxylic acids & anhyd etc, halog, sulf etc	6	26	0.85	1.32	306.5
17	8518	Electric apparatus for line telephony etc, parts	3	21	0.42	1.08	568.1
18	0306	Crustcns lve frsh etc, Ckd etc, Flrs Mls H consumption	5	21	0.72	1.06	280.6

Table 6a (cont.): Mexico: 20 leading 4-digit items exported to China and Hong Kong (2006)

			2004	2006	2004	2006	
			US$ millions		**Share over total**		**Growth rate**
19	5201	Cotton, not carded or combed	4	17	0.55	0.87	310.2
20	7220	F1-R1 stainless steel products, under 600mm wide	7	15	0.97	0.75	102.2
		20 main 4-digit items	385	1,499	50.97	76.09	289.7
		Rest	370	471	49.03	23.91	27.3
		Total exports	755	1,970	100	100	161.1

Source: Author, based on information from Bancomext (2008)

Table 6b: Mexico: 20 leading 4-digit items imported to China and Hong Kong (2006)

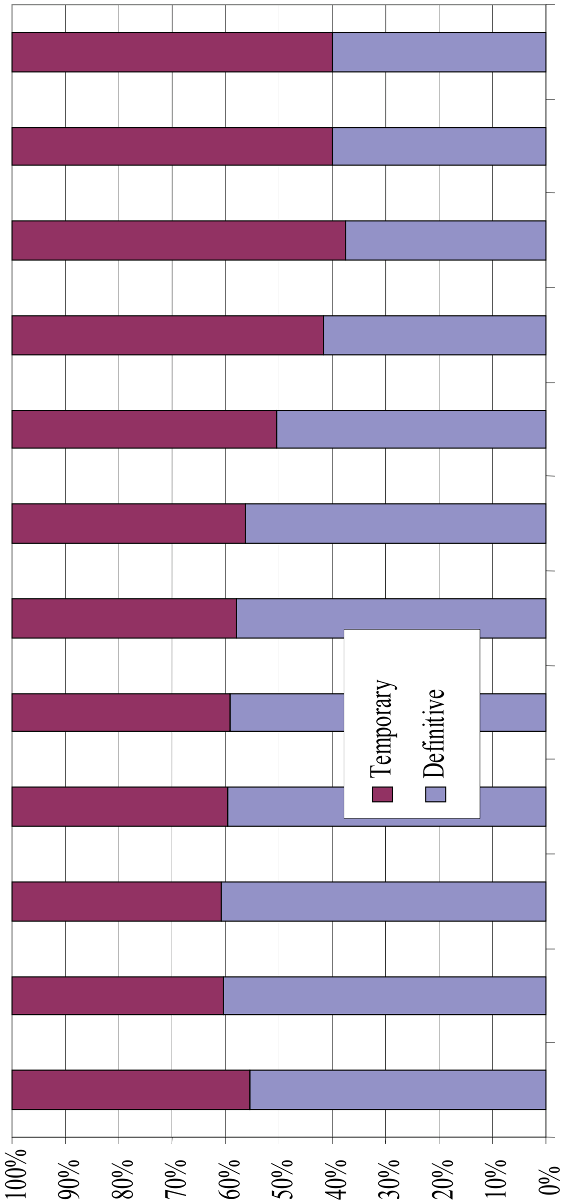
			2004	2006	2004	2006	
			US$ millions		**Share over total**		**Growth rate**
1	8471	Automatic data process machines; magn reader etc.	2,419	2,555	16.24	10.20	5.6
2	8529	Parts for television, radio and radio apparatus	878	2,520	5.9.0	10.06	186.9
3	8473	Parts for typewriters & other office machines	1,654	1,866	11.11	7.45	12.8
4	75258	Trans appar for radiotele etc; TV camera & rec	247	1,088	1.66	4.34	340.0
5	7542	Electronic integrated circuits & microassem-bly pts	765	1,062	5.14	4.24	38.8
6	7524	Elec trans, static conv & induct, adp pwr supp, pt	558	801	3.75	3.20	43.5
7	7534	Printed circuits	327	640	2.20	2.56	95.8
8	9013	Liquid crystal devices Nesoi; lasers; opt appl; pt	92	553	0.62	2.21	502.3
9	8517	Electric apparatus for line telephony etc parts	220	550	1.48	2.20	150.2
10	9802	Expts charity Nesoi; Impts return articles, advanced	365	537	2.45	2.14	47.3
11	9504	Articles for arcade, table or parlor games, pt	61	490	0.41	1.95	698.5
12	8518	Microphones; loudspeakers; sound amplifier etc, pt	249	462	1.67	1.84	85.7

Table 6b (cont.): Mexico: 20 leading 4-digit items imported to China and Hong Kong (2006)

			2004	2006	2004	2006	
			US$ millions		**Share over total**		**Growth rate**
13	8536	Electrical apparatus for switching etc, Nov 1000v	241	396	1.62	1.58	64.8
14	8544	Insulated wire, cable etc; opt sheath fib cables	240	380	1.61	1.52	58.1
15	8521	Video record/play appar wheth/nt video tuner	284	373	1.91	1.49	31.4
16	3926	Articles of plastics (inc polymers & resins) Nesoi	197	318	1.33	1.27	60.9
17	9503	Toys Nesoi; scale models etc; puzzles; parts etc.	252	314	1.69	1.26	25.0
18	8541	Semiconductor devices; light-emit diodes etc, pts	177	258	1.19	1.03	45.8
19	8708	Parts & access for motor vehicles (Head 8701-8705)	81	220	0.54	0.88	173.4
20	8414	Air or vac pumps, compr & fans; hoods & fans; pts	144	206	0.77	0.82	80.5
		20 main 4-digit items	9,421	15,591	62.27	62.23	65.5
		Rest	5,469	9,461	36.73	37.77	73.0
		Total exports	14,891	25,052	100	100	68.2

Source: Author, based on information from Bancomext (2008)

Figure 5: Mexican imports from China and Hong Kong by type (1995–2006) (percentage over total)



Source: Author, based on information from Bancomext (2008)

3.2 Existing bilateral institutions

Even though Mexico initiated diplomatic relations with the People's Republic of China in February of 1972 and with China in 1899, its relationship with China after its period of reforms at the end of the seventies, despite several high-level visits (Gómez / Palacio 2005), was not formally through the Bilateral Commission. As a result, in September of 2004 both governments established a High Level Group / Grupo de Alto Nivel (GAN) on a broad number of bilateral topics, including trade and investment; GAN held its first meeting in January of 2005.[22] During the group's first meeting, various subgroups were created, including the Subgroup on Statistical Cooperation, the Subgroup on the Status Recognition of the Market Economy in China and the Subgroup on Industrial Policy Material. Similarly, various agreements were signed to avoid double taxation (September 2005), for maritime transport (January 2005), and to combat illegal trade and for cooperation between Bancomext and Eximbank of China (September 14th 2004), with the intention of opening reciprocal lines of credit of up to 300 million dollars to promote bilateral trade. Since then, some progress has been made in the bilateral trade of specific products, such as table grapes and avocados, among others (GAN 2005; Anguiano 2007; Villalobos 2007). Both institutions – the Bilateral Commission and GAN – have however so far lacked overall results on short, medium and long term issues; the lack of high-level support and leadership in both countries has been one of the main shortcomings of these institutions.

A second significant initiative connected to the bilateral relationship with China is recent activities carried out by the National Foreign Trade Bank (Bancomext in Spanish), which was renamed *"Pro-México"* in 2007 and operates under the Ministry of the Economy. Bancomext has made a serious effort, considering the budget granted to it by the federal government, to establish points of contact in China (Shanghai, Beijing, Guangzhou and Hong Kong) after a few offices were closed in earlier years. One of Bancomext's current priorities is attaining in depth knowledge of the Chinese market and identifying products for which there could be significant Chi-

22 By the end of 2006, agreements had been reached on sanitary and phystosanitary measures for Chinese exports to Mexico of various agricultural products and the import of others from Mexico, working groups were created and an Agreement on the Reciprocal Promotion and Protection of Investments (APPRI in Spanish) was negotiated to consolidate bilateral investments (Villalobos 2007).

nese demand. These efforts will be carried out via trade promotion such as trade missions, campaigns for special products, participation in international fairs, reciprocal visits between buyers and investors and the Program to Boost Exports to the Chinese Market, which had funding of 25 million pesos in 2005.[23] There has not been an evaluation of the program so far, although resources and personnel clearly fall short of expectations.

Finally, the government of the state of Michoacán and the Mexican Association of Economic Secretaries (AMSDE in Spanish), with support from the Federal Ministry of the Economy, initiated the China-Mexico Business Scholarship Program in 2005. This initiative, supported since 2006 by the Center for Chinese-Mexican Studies of the National Autonomous University of Mexico, represents the first long-term activity to allow for a deeper socioeconomic understanding of the bilateral relationship, as well as language training (AMSDE 2007). There has not been an evaluation of the program yet, as the first projects were being implemented in 2007.

Finally, it is important to understand that the bilateral relationship has been under increasing strain in the last years, particularly from the point of view of trade. On the one hand, Mexico was the last country to negotiate bilaterally for China's accession to the World Trade Organization (WTO) in December of 2001; as part of this accord, both countries agreed that Mexico could keep anti-dumping measures for more than 1300 tariff lines covering products such as textiles, clothing, footwear, organic chemicals, toys and pencils, among others (Dussel Peters 2005a). These measures would only be subject to the provisions of the WTO Agreement on December 12th, 2007 (Dussel Peters 2007b; Dussel Peters 2007a). In addition, both the United States (on 2 February, 2007) and Mexico (on 26 February, 2007) requested a WTO Panel challenging China's incentive programs for policies such as research & development (R&D), trade and industry, among others.[24] Finally, Mexico is one of the few countries in Latin America that has not granted market economy status to China in the context of the WTO.

23 The program helps companies – especially small ones – obtain access to their products in areas such as information services, consultancy, supply promotion, international fairs and agendas in Mexico, in most cases covering 50% of costs (Casas 2005). About two years ago Bancomext offered various specialized courses to businessmen who wanted to invest in China under the slogan, *"How to Do Business in China"*.

24 In March 2007 China eliminated one of the subsidy programs and implemented a new income tax providing tax breaks for qualifying firms. Additional consultations were held in June 2007. Panel proceedings in that dispute are underway.

Part of this increasing tension is reflected in the lack of GAN results since 2004 on topics such as statistics, the recognition of China as a market economy, and illegal trade and tourism, among others. In the short run, until the first quarter of 2008, at least two scenarios are imaginable: a) one in which increasing trade disputes in the framework of the WTO and in bilateral institutions and in which China challenges the anti-dumping measures implemented by Mexico since 2001, while Mexico continues – together with the US – challenging China's wide range of instruments and incentives for firms, trade and production; and b) one in which China does not challenge Mexico's anti-dumping measures, because most of these items are already being imported, either illegally or through the discussed *"triangulation",* while Mexico engages in more effective and results-oriented bilateral negotiations, instead of a confrontation within multilateral institutions such as the WTO.

4 The Trade Relationship between China and Mexico in the US Market

If we acknowledge the existing analysis of the trade relationship between China and Mexico in the US market,[25] what have been the main recent developments? The first part of this section provides an overview of the evolution of Mexico's and China's positions in the US market. This is taken further in the second part which analyzes the Export-Similarity Index of China and Mexico's exports to the US at an aggregate and disaggregated level to understand, through this methodology, the extent to which the two countries compete in the US market. The third part presents a simple *"shift-and-share"* analysis of Mexico and China's exports to the US market for several particular sectors. The last part analyzes trends in the unit values of Mexican exports to the US in an attempt to identify the impact of Chinese competition on prices as well as the share of Mexico in the US market.

25 See for example: Cárdenas (2006); Dussel Peters (2007b); Zaga (2007); Oropeza (2006); Watkins (2007).

4.1 Mexico and China in the US market

First, as shown in Figure 6, both Mexico and China have been the most successful exporters to the US during 1990–2006, with AAGRs of 12.4% and 20.2%, respectively. Out of the ten main exporters to the US, China and Mexico have been able to increase their share of total US imports: in the case of China from 3.1% in 1990 to 15.5% in 2006 (or from 4.9% to 15.9% if we include Hong Kong); and from 6.1% to 10.7% in the case of Mexico. China could become the main exporter to the US in 2007, superseding Canada (USITC s.a.).[26]

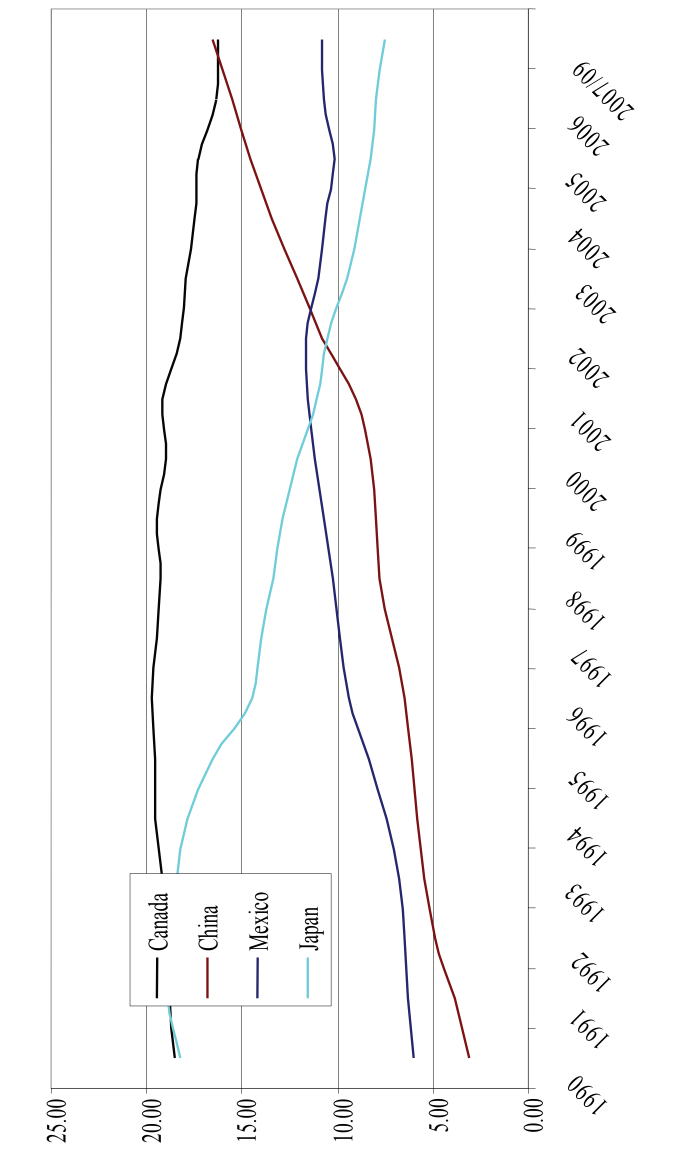
Second, the period from 1990-2006 can be divided in two sub-periods: a) 1990–2000 in which both China and Mexico increased their share of total US imports and presented an AAGR of 9.5% of total US imports, and b) 2001–2006, in which the AAGR of US imports was 10.5% and with a negative dynamism during 2001–2003. It is particularly in this second period that China's presence increased, while Latin America's, Central America's and Mexico's fell substantially: China's exports to the US increased with an AAGR of 23%, and Mexico's with 8.7%, resulting in a falling share in US imports for this second period.

Third, Table 7 reflects the intense competition of Chinese and Mexican products in the US market. Both countries have specialized generally in electronics and autoparts, with a share of 35.7% and 37.5% of total Chinese and Mexican exports respectively to the US in 2006. While both countries compete in these chains, China has clearly taken the lead since 2001–2002. In electronics, for example, imports from China increased by an AAGR of 22% during 2001–2006, while Mexico's AAGR was 4.8% (see Dussel Peters 2008a).

Fourth, three chapters differentiate Chinese and Mexican exports to the US: automobiles (Chapter 87), which is an important chapter for Mexico but still small – though very dynamic – for China; oil (Chapter 27), accounting for Mexican exports of US$32.2 billion in 2006; and third, China's exports in chapters such as toys (Chapter 95) and furniture (Chapter 94), which are significantly smaller in absolute and relative terms for Mexico.

26 Until September 2007 China had already accumulated the highest exports to the US, ahead of Canada.

Figure 6: United States: Total imports from selected countries (1990–2007/09)



Source: Author, based on information from PEF (2008) and IMSS

Table 7: United States: Imports from China and Mexico (1990–2006)

		1990	1995	2000	2002	2004	2005
		US$ millions					
Total imports		492,978	743,505	1,216,887	1,163,548	1,460,160	1,662,380
	5 Main Chapters	275,667	420,163	698,501	635,346	813,075	947,392
	Rest	217,311	323,342	518,386	528,202	647,086	714,988
84	Autoparts	66,530	122,600	180,908	161,872	199,054	221,345
27	Oil	63,867	58,493	131,020	116,067	194,368	271,717
87	Automobiles	73,857	102,329	163,854	170,516	191,614	201,178
85	Electronics	58,138	114,190	186,099	152,087	183,725	206,446
90	Optical equipment & instruments	13,274	22,551	36,620	34,805	44,313	46,706
From China		15,200	45,555	100,063	125,168	196,160	242,638
	5 Main Chapters	6,274	25,534	61,748	79,209	126,756	154,196
	Rest	8,926	20,021	38,315	45,959	69,403	88,442
84	Autoparts	472	3,624	13,406	20,215	43,783	52,598

Table 7 (cont.): United States: Imports from China and Mexico (1990–2006)

		1990	1995	2000	2002	2004	2005
		US$ millions					
85	Electronics	1,926	7,886	19,564	24,404	39,988	52,820
95	Toys	2,122	6,222	12,382	14,441	17,219	19,079
94	Furniture	276	1,979	7,202	9,923	14,417	17,045
64	Shoes	1,477	5,824	9,195	10,227	11,348	12,654
From Mexico		30,164	61,705	135,911	134,732	154,959	169,216
	5 Main Chapters	19,745	41,086	96,075	94,428	108,413	119,282
	Rest	10,478	20,619	39,836	40,304	46,546	49,934
85	Electronics	7,745	16,478	35,778	32,707	37,327	39,783
87	Automobiles	3,656	10,316	26,026	26,358	26,111	26,767
84	Autoparts	2,387	6,324	17,046	17,806	20,022	21,381
27	Oil	5,288	5,837	12,779	12,213	18,934	24,998
90	Optical equipment & instruments	669	2,131	4,446	5,344	6,018	6,354

Table 7 (cont.): United States: Imports from China and Mexico (1990–2006)

		2006	AAGR 1990–2006	1990	2000	2005	2006
		US$ M	Share				
Total imports		1,845,053	8.6	100.00	100.00	100.00	100.00
	5 Main Chapters	1,053,921	8.7	55.92	57.40	56.99	57.12
	Rest	791,132	8.4	44.08	42.60	43.01	42.88
84	Autoparts	242,634	8.4	13.50	14.87	13.31	13.15
27	Oil	316,705	10.5	12.96	10.77	16.35	17.17
87	Automobiles	216,334	6.9	14.98	13.47	12.10	11.73
85	Electronics	227,839	8.9	11.79	15.29	12.42	12.35
90	Optical equipment & instruments	50,410	8.7	2.69	3.01	2.81	2.73
From China		287,052	201.2	100.00	100.00	100.00	100.00
	5 Main Chapters	180,796	23.4	41.27	56.05	61.71	63.28
	Rest	106,256	16.7	58.73	43.95	38.29	36.72
84	Autoparts	62,165	35.7	3.10	7.96	13.40	16.15
85	Electronics	64,637	24.6	12.67	17.31	19.55	19.50

Table 7 (cont.): United States: Imports from China and Mexico (1990–2006)

		2006	AAGR 1990–2006	1990	2000	2005	2006
		US$ M	Share				
95	Toys	20,848	15.3	13.96	13.66	12.37	11.54
94	Furniture	19,351	30.4	1.82	4.34	7.20	7.93
64	Shoes	13,795	15.0	9.72	12.78	9.19	8.17
From Mexico		197,056	12.4	100.00	100.00	100.00	100.00
	5 Main Chapters	142,953	13.2	65.46	66.59	70.69	70.09
	Rest	54,102	10.8	34.54	33.41	29.31	29.91
85	Electronics	47,335	12.0	25.68	26.71	26.32	24.28
87	Automobiles	33,232	14.8	12.12	16.72	19.15	19.56
84	Autoparts	23,442	15.3	7.91	10.25	12.54	13.22
27	Oil	32,161	11.9	17.53	9.46	9.40	9.06
90	Optical equipment & instruments	6,783	15.6	2.22	3.45	3.27	3.97

Source: Author, based on information from USITC (s. a.)

The issue of the costs of transportation from Mexico and China to the US market is also of great importance and has received little attention so far. In general, it is believed that geographical proximity remains a significant comparative advantage in comparison with China. Recent analysis (Dussel Peters 2008b), however, suggests that while transport costs are much lower for Mexico than for China – 6.26% and 1.14% of the value of imported goods from China and Mexico respectively, in 2006 – Mexico is using the most expensive mode of transportation, i.e. 83% of Mexican exports enter the US through buses and trucks. In terms of the cost of transport in relation to the distance covered this mode of transport is the most expensive. Thus, and this was shown concretely in several case studies, while transportation is expensive from Mexico, its main attraction is the possibility of supplying the US market quickly, almost in *"real time"* under the heading of quick replenishment. This still poses a barrier for exports from Asia and China.

4.2 Export-Similarity Index (ESI) of Chinese and Mexican exports to the US (1990–2006)

The Export-Similarity Index (ESI) is a rather simple methodology used to compare the trade structure of two countries and establish the similarities in the shares of different products in the total exports of a country. The ESI for two countries i and j is defined as:

ESI_{ij}= sum [min(X_{ci},X_{cj}) * 100], where

X_{ci} = share of exports of good c in total exports of country i.

The coefficient varies between 1, when the composition of exports in both countries is absolutely similar, and 0, when there is no similarity at all. The ESI can be calculated for different levels of disaggregation and the results will also depend on the level of disaggregation, as with calculations on intraindustry trade (Finger / Kreinin 1979). [27] The main results of the ESI are presented in Table 8, highlighting that:

27 As previously discussed, the ESI accounts for the similarity between both export structures to the United States in specific sectors. The ESI could also be discussed in more detail – at the 10-digit HTS level – and would probably lead to more specific results in the future. Chapter 27, oil, for example, refers to hundreds of specific oil-related products with different levels of value-added, technology and degree of transformation.

- Rather surprisingly the ESI between Mexico and China and Brazil and China in the US market is not that different of either 2 digits or 10 digits. This runs against several of the formerly discussed regional analyses, as Mexico is usually seen as a loser and Brazil a winner in their relationships with China. In both cases – Brazil and Mexico – the ESI with China increased significantly between 1990 and 2006.
- The ESI between China and Mexico in the computers, peripherals and parts sector is very high and rather homogeneous for 1990–2006, reflecting a high degree of similarity between both countries regarding their exports in the US market.
- At the chapters or 2-digit HTS level it is interesting to highlight that the coefficient has increased between Mexico and China for all 5 main chapters exported by Mexico, and in particular in electronics, autoparts and optical equipment and instruments, while the index is rather high – but remains constant – for the period. From this perspective, the ESI reinforces the previously discussed conclusion that Mexico and China compete in the US market – so far – in electronics, optical equipment and instruments and autoparts, while competition in automobiles is so far low.

Finally, Figure 7 calculates the ESI for China and Mexico for a number of important Mexican chapters, i.e. at a 2-digit HTS level, for specific periods and attempting to go beyond annual changes. With the exception of oil, in all the rest of the considered chapters the ESI increases significantly from 1990–2000 to 2001–2006 and at relatively high levels.

Thus, the ESI in some cases can lead to misleading results, for example in the case of chapter 27 in which China and Mexico apparently account for a rather high ESI, while their exports and export-specialization are very different.

Table 8: United States: Export Similarity Index (ESI) for different countries and levels of disaggregation

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Mexico-China, total commodities									
2 digits of the HTS	38.79	40.46	40.74	41.13	46.00	50.57	51.81	53.34	56.24
10 digits of the HTS	15.96	14.27	13.74	12.53	12.65	13.33	14.59	15.70	16.27
Brazil-China, total commodities									
2 digits of the HTS	34.48	38.75	38.47	40.07	39.80	40.67	40.73	42.81	41.54
10 digits of the HTS	8.25	9.53	11.24	10.74	10.69	10.75	9.84	9.47	9.83
Mexico-China in computers, peripherals and parts									
Total (109 commodities)	20.64	60.55	50.75	34.35	69.33	79.74	31.64	34.49	42.69
25 main Mexican commodities (according to share of 2006)	0.00	100.00	0.00	100.00	73.16	82.52	15.59	18.68	23.87
25 main Mexican commodities (according to share of 1990–2006)	0.00	100.00	0.00	100.00	71.11	81.83	37.12	39.65	49.55
25 main Chinese commodities (according to share of 2006)	0.00	0.00	0.00	0.00	71.11	83.99	32.02	34.34	43.29
25 main Chinese commodities (according to share of 1990–2006)	0.00	0.00	0.00	0.00	73.16	84.72	31.19	34.14	43.97

Table 8 (cont.): United States: Export Similarity Index (ESI) for different countries and levels of disaggregation

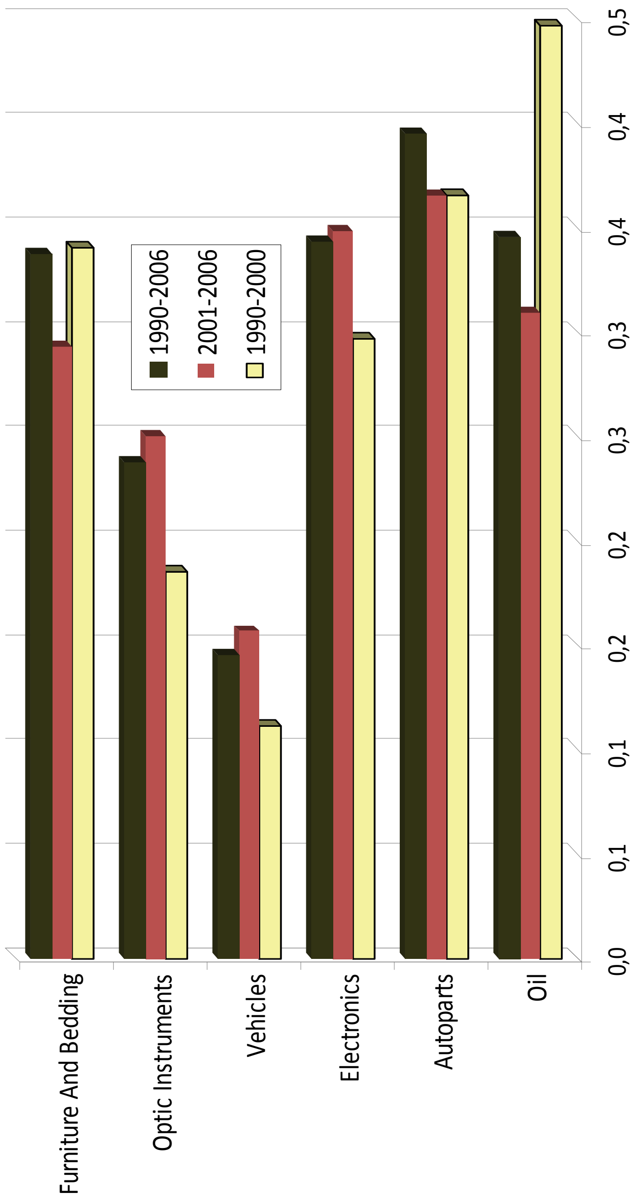
	1990	1991	1992	1993	1994	1995	1996	1997	1998
Mexico-China for Mexican 5 main export Chapters									
Electronics	16.80	19.88	23.66	23.94	24.13	26.47	28.15	30.32	28.28
Automobiles	13.64	13.00	15.06	13.07	10.50	9.68	8.38	8.12	9.36
Autoparts	17.48	23.97	29.49	27.86	23.12	27.04	27.22	31.35	37.60
Oil	36.40	42.57	37.91	39.27	42.19	49.71	48.73	49.43	47.95
Optical equipment and Instruments	17.85	14.01	20.63	14.94	15.74	15.20	17.98	14.12	18.05
		1999	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Mexico-China, total commodities									
2 digits of the HTS		57.28	57.73	57.68	57.86	56.41	58.09	58.46	56.98
10 digits of the HTS		16.20	15.93	15.87	16.11	14.94	15.45	17.19	16.85
Brazil-China, total commodities									
2 digits of the HTS		40.24	41.18	42.22	43.57	41.52	37.92	39.38	38.50
10 digits of the HTS		9.98	10.87	11.77	12.77	12.91	13.23	14.79	13.62

Table 8 (cont.): United States: Export Similarity Index (ESI) for different countries and levels of disaggregation

	1999	2000	2001	2002	2003	2004	2005	2006
Mexico-China in computers, peripherals and parts								
Total (109 commodities)	46.25	50.00	52.31	51.25	50.54	37.65	38.83	37.87
25 main Mexican commodities (according to share of 2006)	29.18	37.27	45.93	52.05	51.14	38.96	40.26	39.89
25 main Mexican commodities (according to share of 1990–2006)	52.60	57.00	56.21	56.27	52.03	38.63	39.37	38.74
25 main Chinese commodities (according to share of 2006)	50.13	52.13	52.63	51.81	50.98	38.01	39.50	37.84
25 main Chinese commodities (according to share of 1990–2006)	46.95	51.59	53.09	51.72	51.25	37.85	39.27	37.79
Mexico-China for Mexican 5 main export Chapters								
Electronics	29.72	31.33	30.08	31.99	31.52	32.61	32.46	33.87
Automobiles	10.89	11.47	11.68	13.02	14.83	15.84	18.11	17.45
Autoparts	39.95	42.72	38.79	38.06	33.19	25.98	25.68	25.13
Oil	30.95	41.63	36.38	27.33	23.33	20.27	32.30	36.63
Optical equipment and Instruments	17.08	16.39	18.47	21.33	22.45	21.92	23.61	26.51

Source: Author, based on USITC (1991–2006)

Figure 7: Export-Similarity Index (ESI) for Mexico and China in the US (1990–2006)



Source: Author, based on information from USITC (s. a.)

4.3 A shift-and-share analysis of Chinese and Mexican exports to the US (1990–2006)

The shift-and-share analysis has been widely used in the last decades to examine differences in variables such as trade, employment and productivity (Richardson 1978). In general it has proved to be a useful descriptive tool for isolating trends in respective performances. The goal in this section is to compare China and Mexico's export performance – at an aggregate level, but also for electronics in general and specifically for PCs – according to its highest share in total US imports. As a result, this brief analysis will focus on the shift effect – i.e. based on changes in the share of total exports and said changes measured in absolute US dollar terms – among both countries.[28] From this perspective, this analysis does not include a causal and dynamic analysis and does not identify the reasons for these changes, but rather presents the extent of the changes that have taken place.

The previous section highlighted the increasing presence of China in US imports during the period from 1990–2006. Table 9 calculates changes in China and Mexico's exports to the US considering their respective maximum share in total US imports, and keeping the rest of exports to the US constant. This exercise is performed for total imports, electronics and PCs. In all three sectors considered (total imports and those in electronics and in PCs) China increased its share in total US imports dramatically: the share of China's exports to the US increased by a factor greater than 5 for the period, accounting for 15.6% in 2006, and the dynamism has been even more impressive in electronics and PCs, increasing its share of US imports in the latter from 0.02% to 47.9% between 1990 and 2006. In this context, Mexico's integration with the US market has also been positive but, as discussed earlier, this was primarily during 1990–2001/2002, and its share has fallen since then for total imports, electronics and PCs. In the case of the latter, for example, the share has fallen from 14.3% in 2001 to 7.9% in 2006.

The results presented in Table 9 are also significant from several perspectives. On the one hand they show that Mexico's export performance in the US was highly positive until 2001, but has fallen since then, i.e. in 2006 Mexican exports represented 92% of exports achieved through its highest share of 2001.

28 For a more detailed analysis, see Dussel Peters (2007b).

Table 9: United States: Imports from Mexico and China based on real performance vs. calculations based on highest achieved share (1990–2006)[a]

	1990	1991	1992	1993	1994	1995
Total imports						
China-total (million US$)	15,120.00	18,855.00	25,514.00	31,425.00	38,592.00	45,370.00
Mexico-total (million US$)	29,506.00	30,445.00	33,935.00	38,668.00	48,605.00	61,721.00
China (share over total)	3.08	3.90	4.86	5.47	5.86	6.13
Mexico (share over total)	6.01	6.29	6.46	6.73	7.39	8.34
Mexico-total (based on a maximum share of 2001) (million US$)	57,043.00	56,162.00	60,967.00	66,742.00	76,380.00	85,875.00
China (based on a maximum share of 2006) (million US$)	76,450.00	75,270.00	81,710.00	89,449.00	102,367.00	115,091.00
Total imports in electronics						
China-total imports in electronics (million US$)	489.00	646.00	964.00	1,378.00	3,089.00	4,556.00
Mexico-total imports in electronics (million US$)	14,721.00	1,632.00	2,101.00	2,464.00	5,662.00	6,462.00

Table 9 (cont.): United States: Imports from Mexico and China based on real performance vs. calculations based on highest achieved share (1990–2006)[a]

	1990	1991	1992	1993	1994	1995
China-total imports in electronics (share over total)	2.25	2.69	3.70	4.43	5.86	7.17
Mexico-total imports in electronics (share over total)	6.53	6.78	8.06	7.93	10.75	10.17
Mexico (based on maximum share of 2001) (million US$)	3,512.00	3,882.00	4,205.00	5,016.00	8,501.00	10,252.00
China (based on maximum share of 2006) (million US$)	6,751.00	7,464.00	8,083.00	9,664.00	16,344.00	19,710.00
Total imports in PC's						
China (million US$)	0.00	0.00	0.00	0.00	326.00	490.00
Mexico (million US$)	0.00	0.00	0.00	0.00	242.00	215.00
China (share over total)	0.02	0.14	0.01	0.00	5.47	6.77
Mexico (share over total)	0.01	0.07	0.03	0.08	4.05	2.97
Mexico (based on maximum share in 2001) (million US$)	29.00	26.00	27..00	41.00	856.00	1,038.00
China (based on maximum share in 2006) (million US$)	98.00	88.00	91.00	138.00	2,857.00	3,464.00

Table 9 (cont.): United States: Imports from Mexico and China based on real performance vs. calculations based on highest achieved share (1990–2006)[a]

	1996	1997	1998	1999	2000	2001
Total imports						
China-total (million US$)	51,209.00	61,996.00	70,815.00	81,522.00	99,581.00	102,069.00
Mexico-total (million US$)	74,179.00	85,005.00	93,017.00	109,018.00	134,734.00	130,509.00
China (share over total)	6.48	7.19	7.80	8.01	8.26	9.01
Mexico (share over total)	9.38	9.86	10.25	10.71	11.18	11.52
Mexico-total (based on a maximum share of 2001) (million US$)	91,774.00	100,128.00	105,378.00	118,124.00	139,940.00	131,499.00
China (based on a maximum share of 2006) (million US$)	122,997.00	134,194.00	141,230.00	158,313.00	187,551.00	176,238.00
Total imports in electronics						
China-total imports in electronics (million US$)	9,421.00	12,966.00	16,446.00	19,711.00	25,961.00	27,226.00
Mexico-total imports in electronics (million US$)	12,958.00	17,391.00	23,152.00	27,258.00	35,092.00	36,962.00

Table 9 (cont.): United States: Imports from Mexico and China based on real performance vs. calculations based on highest achieved share (1990–2006)[a]

	1996	1997	1998	1999	2000	2001
China-total imports in electronics (share over total)	6.51	7.70	9.07	9.66	10.34	11.89
Mexico-total imports in electronics (share over total)	8.96	10.33	12.77	13.36	13.97	16.14
Mexico (based on maximum share of 2001) (million US$)	23,340.00	27,160.00	29,269.00	32,936.00	40,535.00	36,969.00
China (based on maximum share of 2006) (million US$)	44,872.00	52,216.00	56,272.00	63,321.00	77,931.00	71,075.00
Total imports in PC's						
China (million US$)	2,309.00	3,355.00	4,404.00	5,971.00	8,256.00	8,173.00
Mexico (million US$)	2,117.00	3,455.00	4,012.00	5,493.00	6,869.00	8,466.00
China (share over total)	4.84	6.02	8.01	9.74	12.05	13.84
Mexico (share over total)	4.44	6.20	7.29	8.96	10.02	14.34
Mexico (based on maximum share in 2001) (million US$)	6,844.00	7,996.00	7,889.00	8,787.00	9,828.00	8,468.00
China (based on maximum share in 2006) (million US$)	22,848.00	26,692.00	26,337.00	29,334.00	32,809.00	28,267.00

Table 9 (cont): United States: Imports from Mexico and China based on real performance vs. calculations based on highest achieved share (1990–2006)[a]

	2002	2003	2004	2005	2006	1990–2006
Total imports						
China-total (million US$)	124,796.00	151,620.00	196,160.00	242,638.00	287,052.00	1,644,315.00
Mexico-total (million US$)	134,121.00	137,199.00	154,959.00	169,216.00	197,056.00	1,661,893.00
China (share over total)	10.81	12.13	13.43	14.60	15.56	9.81
Mexico (share over total)	11.61	10.98	10.61	10.18	10.68	9.92
Mexico-total (based on a maximum share of 2001) (million US$)	134,074.00	145,136.00	169,525.00	193,002.00	214,211.00	1,945,958.00
China (based on a maximum share of 2006) (million US$)	179,689.00	194,515.00	227,201.00	258,666.00	287,090.00	2,608,019.00
Total imports in electronics						
China-total imports in electronics (million US$)	36,433.00	47,445.00	69,323.00	86,979.00	102,727.00	465,758.00
Mexico-total imports in electronics (million US$)	35,134.00	34,620.00	39,047.00	40,219.00	46,576.00	368,150.00
China-total imports in electronics (share over total)	15.81	19.71	24.60	28.38	31.03	16.71

Table 9 (cont): United States: Imports from Mexico and China based on real performance vs. calculations based on highest achieved share (1990–2006)[a]

	2002	2003	2004	2005	2006	1990–2006
Mexico-total imports in electronics (share over total)	15.25	14.38	13.86	13.12	14.07	13.20
Mexico (based on maximum share of 2001) (million US$)	37,191.00	38,851.00	45,480.00	49,462.00	53,437.00	449,998.00
China (based on maximum share of 2006) (million US$)	71,502.00	74,694.00	87,438	95,093.00	102,736.00	865,146.00
Total imports in PC's						
China (million US$)	11,947.00	18,653.00	29,486.00	35,465.00	40,020.00	168,856.00
Mexico (million US$)	7,906.00	6,956.00	7,375.00	6,732.00	6,576.00	66,414.00
China (share over total)	19.17	29.14	39.91	46.36	47.87	23.34
Mexico (share over total)	12.68	10.87	9.98	8.61	7.87	9.18
Mexico (based on maximum share in 2001) (million US$)	8.937	9,181.00	10,594.00	11,212.00	11,989.00	103,744.00
China (based on maximum share in 2006) (million US$)	29,834.00	30,647.00	35,367.00	37,427.00	40,022.00	346,318.00

a The calculations for Mexico and China consider the highest share over total US-imports achieved during 1990–2006

Source: Author, based on information from USITC

In contrast, China accounted for its highest share of total US imports in 2006 as a result of increasing exports to the US since 1990. On the other hand, Table 8 also shows that for the case of specific chains or segments there has been a substantial fall in Mexico's share of total US imports: in electronics, for example, which accounted for 25% of total Mexican exports to the US, the level in 2006 was 18% below its potential share of 2001. In the case of PCs, the fall in Mexico's share represented more than 45% of its actual exports in 2006. In all three cases China achieved its highest share in 2006.

From this perspective, while it is true that Mexico has lost its share in total US imports, as previously discussed, it is also true that it has recovered slightly since 2004 and that in 2006 aggregate exports are not significantly below their highest share of 2001. On the other hand, specific chains and segments such as PCs have suffered substantially as a result of a dramatic share loss.

Table 10 shows the results of the shift-and-share analysis in greater detail, highlighting specifically that[29]:

- The global demand effect (GDE), which reflects the calculated results if growth were similar in all sectors of the considered countries, shows that Mexico and China did benefit substantially during 1990–2000 and that actual exports to the US increased far more than could be accounted for by the GDE. The situation, however, changes for the 2001–2006 period, as previously mentioned. The GDE estimates were calculated in two forms: a) with the growth rate for 1990-2006 and, b) with the growth rate for 2001–2006. The results are contrasting: in the case of Mexico, for example, in the first case estimated exports to the US were only 56.23% of actual exports, while estimated exports – calculated using the growth rate for 2001-2006 – were much higher than actual exports (107.9%),. This shows that the GDE accounts for significant benefits in Mexico's exports to the US in the first period (1990–2000), but a strong fall in the second.[30]

29 For a detailed explanation of the shift-and-share analysis, also widely used by ECLAC in its MAGIC-software, see: Buitelaar (1997) and Dussel Peters (2001).

30 As already discussed, Mexico's difficulty in integrating to the US is a result of a falling demand for imports in the US as well as Mexico's problems increasing exports to the US.

Table 10: Shift-and-share analysis: Imports to the United States 1990–2006

	1990	2000	2001	2006	1990–2006
Total					
China	15,120	99,581	102,069	287,052	1,644,315
Mexico	29,506	134,734	130,509	197,056	1,661,893
Rest	446,697	971,024	900,057	1,360,945	13,454,840
Total	491,322	1,205,339	1,132,635	1,845,053	16,761,049
Total imports in electronics					
China	489	25,961	27,226	102,727	465,758
Mexico	1,421	35,092	36,962	46,576	368,150
Rest	19,848	190,095	164,865	181,783	1,954,187
Total	21,758	251,148	229,053	331,085	2,788,095
Total imports in PCs					
China	0	8,256	8,173	40,020	168,856
Mexico	0	6,868	8,466	6,576	66,414
Rest	204	53,412	42,410	37,010	488,186
Total	204	68,538	59,049	83,606	723,456

Table 10 (cont.): Shift-and-share analysis: Imports to the United States 1990–2006

	1990	2000	2001	2006	1990–2006
Total imports in non-electronics					
China	14,631	73,620	74,843	184,326	1,178,557
Mexico	28,085	99,643	93,547	150,480	1,293,743
Rest	426,849	780,929	735,192	1,179,162	11,500,654
Total	469,565	954,191	903,582	1,513,968	13,972,954
Total imports in non-PCs					
China	15,120	91,324	93,897	247,033	1,475,459
Mexico	29,506	127,865	122,043	190,480	1,595,480
Rest	446,493	917,612	857,647	1,323,935	12,966,654
Total	491,119	1,136,801	1,073,587	1,761,447	16,037,593

Global demand effect

	Estimated			Difference with real imports (real = 100)		
Total imports	**2000 [a]**	**2006[a]**	**2006[b]**	**2000[a]**	**2006[a]**	**2006[b]**
China	37,093	56,779	166,270	37.25	19.78	57.92
Mexico	72,386	110,803	212,598	53.72	56.23	107.89

Table 10 (cont.): Shift-and-share analysis: Imports to the United States 1990–2006

	Estimated			Difference with real imports (real = 100)		
Total imports	**2000 [a]**	**2006[a]**	**2006[b]**	**2000[a]**	**2006[a]**	**2006[b]**
Rest	1,095,861	1,677,471	1,466,185	112.86	123.26	107.73
Total	1,205,339	1,845,053	1,845,053	100.00	100.00	100.00
Structural demand effect						
Total imports in Electronics[c]	**Total**					
	2000[a]	**2006[a]**	**2006[b]**			
China	-1,716	-2,164	-1,515			
Mexico	1,085	1,369	-2,432			
Rest	631	795	3,947			
Total	0	0	0			
	Electronics			**Non-electronics**		
	2000[a]	**2006[a]**	**2006[b]**	**2000[a]**	**2006[a]**	**2006[b]**
China	4,446	5,606	-4,997	-6,162	-7,770	3,482
Mexico	12,914	16,284	-6,784	-11,829	-14,916	4,352
Rest	180,410	227,487	-30,260	-179,779	-226,692	34,206
Total	197,770	249,378	-42,041	-197,770	-249,378	42,041

Table 10 (cont.): Shift-and-share analysis: Imports to the United States 1990–2006

Structural demand effect (cont.)

Total imports in PCs[c]	**Total**					
	2000[a]	**2006[a]**	**2006[b]**			
China	-2,082	-2,535	-641			
Mexico	-4,079	-4,967	-374			
Rest	6,161	7,502	1,015			
Total	0	0	0			
	PCs			**Non-PCs**		
	2000[a]	**2006[a]**	**2006[b]**	**2000[a]**	**2006[a]**	**2006[b]**
China	12	15	-1,742	-2,095	-2,550	1,101
Mexico	9	10	-1,804	-4,088	-4,977	1,431
Rest	68,017	82,816	-9,038	-61,856	-75,314	10,053
Total	68,038	82,841	-12,584	-68,038	-82,841	12,584

a Based on the total imports growth rate of the US for 1990-2006, base year 1990.
b Based on the total imports growth rate of the US for 2001-2006, base year 2001.
c Considering two sectors, electronics and non-electronics (for the rest of the respective imports).

Source: Author, based on information from USITC

On the other hand, the GDE shows that China's exports to the US were, in both cases, well beyond the estimated exports and in 2006 accounted for 19.78% and 57.92%, respectively. Thus, while Mexico showed a performance below global demand for total US imports, China was far above this effect for the period 2001–2006.

- The structural demand effect (SDE) – which reflects the benefits of a country specializing in products, such as electronics and PCs in this case – accounts for massive benefits for Mexico and China for specializing in electronics and PCs during 1990–2006, as well as for the exports from the rest of the world to the US. The situation changes, however, when estimating the SDE for 2006 and when considering the growth rates for 2001–2006; both China and Mexico present massive losses according to this estimation.

4.4 Unit value of Mexican exports to the US and the net barter terms of trade

The literature on the statistical debate on the terms of trade (TT) traditionally involved the analysis of the net barter terms of trade (NBTT) between primary products and manufactured goods (Diakosavvas / Scandizzo 1991; Sarkar 2001; Ocampo / Parra 2003; Torres 2006). However, interest in this topic broadened in three ways: a) considering all goods and not only primary-manufacturing, b) the direction of trade, i.e. the origin and destination of the goods considered, and c) classifications of goods according to different degrees of innovation and technology (Sarkar / Singer 1991; Berge / Crowe 1997; Maizels 2000).

Given the trade structure of Mexico, what has happened to the NBTT, bearing in mind the potential effects of China's penetration of the US market on Mexico (Kaplinsky 2006)? The section will include an analysis of China's and Mexico's trends in NBTT in the US market and presents the basis for future more detailed work.[31]

31 A previous detailed analysis with Chinese and Mexican customs data at the 6-digit level proved not to be useful for this analysis, particularly as a result of difficulties in calculating the unit value as a result of short time series and changes in the unit of imports (such as in Mexico before and after 2003).

In the work of León and Soto (1995), which evaluated the NBTT of the majority of Latin American countries with ECLAC data, they found that for the period 1928−1993 there was no statistically significant tendency for Mexico. For US manufacturing, Maizels (2000) found that for the first half of the 1980s a significant improvement was seen in the NBTT with developing countries, while the relationship with industrialized countries was trendless. In the case of the latter countries the NBTT turned negative until 1997.

In the case of China, Zheng / Zhao (2002) estimated a 13% deterioration of total trade in 1993–2000 (not including oil). For the case of trade with the US, China suffered a fall of 23% and 24% for all goods and manufacturing, respectively.

Below we will analyze the unit values of imports and NBTT for Mexico and China in the US, based on US statistics.[32] We will include total US trade with Mexico and China by way of the Harmonized Tariff System (HTS) at 10-digits. According to our literature review, only 5-digit level analysis – in accordance with the Standard International Trade Classification (SITC) – has been done so far; and there has been no NBTT analysis for exports and imports for 1990–2006.[33]

A few technical topics are helpful in understanding the results:

1. Although several hundred 10-digit items were eliminated in order to calculate the unit values and to eliminate outliers, representativity was still very high: for total US imports, for example, 10-digit items used accounted for 82%, 74% and 78% of total US imports and of imports from China and Mexico, respectively during 1990-2006 (see Table 11).

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32 Given the scope of this analysis, we will not include a detailed description of the construction of indices, its selection (Paasche, Laspeyres, Fisher, etc.), its specificity (simple or chained) and the base year, as well as the selection of the goods to be included in the index (either full series or specific criteria for considering only a group of commodities). The chained Laspeyres Index was used for calculating the NBTT, considering that chaining will reduce the spread between the indices, i.e. in terms of the amount of price change that has occurred between the two periods under consideration.

33 Kaplinsky and Santos-Paulino (2005, 2006) use the information from EUROSTAT for the European Union based on the Harmonized Tariff System at the 8-digit level, but only for its import prices.

Table 11: Representativity of data according to specific criteria used (% of total)						
	World		**Mexico**		**China**	
	1990–2006	2001–2006	1990–2006	2001–2006	1990–2006	2001–2006
			Imports			
Total (chapters 1-99)	100	100	100	100	100	100
Total, used for construction of indices and including outliers (chapters 1-99)[a]	82	82	78	79	75	74
Final used data[b]						
Raw Materials	20	22	18	18	4	3
Manufacturing	62	60	61	61	72	71
Total	82	82	78	79	75	74
Competition with Mexico						
Total US-imports						
Raw materials	18	21	Does not apply		3	2
Manufacturing	60	58			71	70
Total	78	79			73	72
Criteria 1 (China's >20% share in product)						
Raw materials	1	1	0	0	2	2
Manufacturing	16	19	16	16	58	62
Total	17	19	16	16	59	63

Table 11 (cont.): Representativity of data according to specific criteria used (% of total)

	World		Mexico		China	
	1990–2006	2001–2006	1990–2006	2001–2006	1990–2006	2001–2006
Criteria 2 (China's >14% share in growth of product)						
Raw materials	1	1	1	1	1	1
Manufacturing	24	27	29	32	26	33
Total	25	28	30	32	27	33
			Exports			
Total exports	100	100	100	100	100	100
Total, used for construction of indices and including outliers	77	73	68	69	77	81
Without representative atypical unitary prices	74	72	66	68	76	80

a Here we incorporated all the data for 10-digit items that include quantities and values.

b Several items were eliminated given their high volatility and their effects on the respective index; their weight on total trade is very small and is not significant.

Source: Author, based on information from USITC (s. a.)

2. Bearing in mind the goal of this section; to analyze the possible effects of Chinese exports on Mexican exports – in this case to the US market, which accounted for 84% of total Mexican exports during 2000–2007 – 21 indices were calculated: 12 for total US imports from China and 9 for Mexican imports.
    a. The following indices were calculated for imports: i. Total US imports for chapters 1-29 (a proxy for primary products) and 30-99 (a proxy for manufactured commodities) of the HTS; ii. A selection of total and Chinese imports based on Mexican exports to

US in order to detail China's competition with Mexican exports in the US market thus eliminating China's exports to the US that do not compete with Mexico. This new universe of US imports was also disaggregated into total imports, for primary and manufacturing goods; iii. In addition, and based on the former universe of goods from China and total US imports that compete with Mexican exports, two groups of products were calculated based on the following criteria: I. Those in which the share of China at the 10-digit level is above 20% of total US imports for the period 2001–2006; and II. Those in which the growth of its share over total US imports during 2001–2006 was above China's total growth share of 14%. That is, in this group of items the share increased substantially and above the impressive growth of the share of China during 2001–2006. For both groups the division into total, primary and manufacturing goods was also calculated.

What are the main results of the calculations? They can be divided under two headings: the tendencies in unit values of US imports during 1990-2006 and tendencies in NBTT for the same period. In all cases 2001 was defined as the base year for the calculations, given the prior analysis showing that China has entered the US market on a massive scale since 2001, with a significant impact on other exporters, including Mexico.

The tendencies in unit values of imports during 1990–2006 do reflect interesting differences. On the one hand, while manufacturing unit values only increased slightly since 2001, they rose sharply for raw materials, reaching 125% in 2006. Considering that Chinese exports to the US (and in general) concentrate exclusively on manufacturing, Chinese unit values only increased slightly, while the differences are substantial for Mexico: unit values for exports of raw materials to the US increased by 36.3% in 2006, and only by 2.7% for manufacturing. These tendencies are also true when only considering the unit values for Mexican exports and those that compete with Chinese and total imports from the US (see Table 12).

Table 12: US imports: Unitary prices (1991–2006)

	1991	1992	1993	1994	1995	1996	1997	1998
Total imports								
Mexico								
Raw materials	103.08	112.50	101.36	113.61	116.55	120.26	112.05	89.40
Manufacturing	101.87	95.53	88.32	74.08	88.32	78.41	91.93	91.03
Total Mexico	107.45	106.19	97.94	90.07	101.87	94.29	104.13	99.54
China								
Raw materials	84.32	97.22	88.20	101.95	100.39	101.95	97.05	89.51
Manufacturing	117.96	113.38	108.53	97.00	95.68	101.67	110.23	107.34
Total China	114.34	112.33	107.17	97.41	96.05	101.80	109.55	106.39
Total imports from US								
Raw materials	98.03	107.67	92.68	104.80	105.49	112.57	105.95	87.00
Manufacturing	102.01	101.81	102.81	90.41	103.02	83.63	97.17	95.84
Total US imports	100.78	103.16	100.38	93.54	103.59	89.19	99.04	94.09

Table 12 (cont.): US imports: Unitary prices (1991–2006)

	1991	1992	1993	1994	1995	1996	1997	1998
Imports only according to Mexican exports to the US								
Mexico								
Raw materials	103.08	112.50	101.36	113.62	116.55	120.23	112.04	89.47
Manufacturing	101.88	95.54	88.33	74.21	88.33	78.41	91.93	91.03
Total Mexico	107.45	106.19	97.94	90.17	110.36	116.99	106.59	122.44
China								
Raw materials	84.85	99.55	90.23	103.44	110.59	104.63	97.34	89.48
Manufacturing	119.00	112.88	109.80	98.45	100.55	102.17	110.35	107.51
Total China	115.43	112.19	108.63	98.86	101.13	102.38	109.82	106.73
Total imports from US								
Raw materials	97.46	103.75	92.26	102.16	106.96	111.74	102.32	84.13
Manufacturing	100.39	101.33	102.75	89.92	103.18	84.93	96.87	95.67
Total US imports	99.49	101.83	100.31	92.50	103.98	89.89	97.99	93.46

Table 12 (cont.): US imports: Unitary prices (1991–2006)

	1999	2000	2001	2002	2003	2004	2005	2006
Total imports								
Mexico								
Raw materials	133.60	154.55	100.00	103.41	129.55	135.29	138.37	136.26
Manufacturing	94.63	97.03	100.00	90.17	95.12	93.88	96.15	102.68
Total Mexico	93.81	104.12	100.00	110.31	115.46	110.31	113.65	119.11
China								
Raw materials	95.77	101.28	100.00	83.98	102.16	108.89	121.01	103.90
Manufacturing	108.62	110.94	100.00	102.51	110.32	116.99	110.70	113.35
Total China	107.98	110.45	100.00	101.60	109.91	116.58	111.18	112.87
Total imports from US								
Raw materials	118.31	140.84	100.00	68.19	118.90	122.12	135.86	124.88
Manufacturing	98.44	104.93	100.00	91.56	102.68	106.36	103.26	105.87
Total US imports	102.07	111.68	100.00	86.25	106.25	110.15	111.54	111.14

Table 12 (cont.): US imports: Unitary prices (1991–2006)

	1999	2000	2001	2002	2003	2004	2005	2006
Imports only according to Mexican exports to the US								
Mexico								
Raw materials	133.53	154.55	100.00	103.41	129.55	135.29	138.37	136.26
Manufacturing	94.64	97.03	100.00	90.17	95.12	93.94	96.33	102.66
Total Mexico	93.81	104.12	100.00	110.31	115.46	110.31	113.79	119.09
China								
Raw materials	97.88	107.98	100.00	84.09	102.78	107.46	119.89	107.02
Manufacturing	108.50	111.03	100.00	102.68	110.46	117.13	110.50	113.42
Total China	108.08	110.88	100.00	101.95	110.15	116.75	110.79	113.15
Total imports from US								
Raw materials	118.56	142.01	100.00	66.80	117.45	119.00	131.67	125.17
Manufacturing	98.38	104.89	100.00	90.50	102.64	106.39	103.52	105.64
Total US imports	101.84	111.47	100.00	85.24	105.79	109.33	110.50	110.99

Source: Author, based on USITC (s. a.)

More detailed analysis, however, shows a different picture: Table 13 indicates that using the earlier specified criteria – i.e. criteria 1 defined by all 10-digit items in which China presents a share above 20% of all respective imports in 2006, and criteria 2, in which China's share increased by more than 14% during 2001–2006. Two patterns arise: a) under criteria 1 Mexico's unit values benefit in manufacturing – reaching 119% in 2006, and do much better than China; b) under criteria 2 – i.e. all those 10-digit items in which China's share increased by more than 14% during 2001–2006 – Mexico's unit values show a particularly bad performance as of 2001 and account for 98% in 2006, for manufacturing. This differentiated performance is relevant, as it shows that unit values have performed well since 2001 in items in which China already has a big share (over 20%); while the unit values in those where China is still increasing its share and competing are falling significantly. In Mexico's case the difference in performance between both groups of export-items is very significant and accounts for competition of Chinese and Mexican products in the US market (see Figure 8).[34]

Tendencies for Net Barter Terms of Trade (NBTT) also show important differentiated trends for total trade, Mexico, and China, during 1990-2006. In general, both data sets – i.e. for total trade and only for those goods traded between Mexico and the US – display a similar tendency: Mexico's NBTT in manufacturing have moved in favor of the US and against Mexico by 19% for 2001–2006, while they fell by 1% for Chinese manufacturing imports (see also Figure 9).

As a result, the United States has benefited substantially from competition between China and other countries, including Mexico. Thus, NBTT have benefited the US since 2001 with China's massive exports to the US. One of the main losing parties of this process has been Mexico, with significant losses in NBTT in Mexico's main export item: manufacturing.

34 The results for unitary values of total US imports also reflect important differences between trends in raw materials and in manufacturing, i.e. an improvement in unitary prices for raw materials imports since 2003. This would favor a more detailed discussion on the topic, such as suggested by Kaplinsky (2006).

Table 13: Unitary values of US imports: Trends according to different sets of imports[a]

	1991	1992	1993	1994	1995	1996	1997	1998
Criteria 1[b]								
Mexico								
Raw materials	88	92	94	89	97	99	90	96
Manufacturing	108	114	103	105	100	98	98	99
Total of Mexico	107	113	102	105	100	98	98	99
China								
Raw materials	108	103	89	102	121	107	98	98
Manufacturing	115	106	104	102	109	106	102	100
Total of China	114	106	104	102	109	106	102	100
Total US								
Raw materials	104	99	80	110	157	102	93	90
Manufacturing	103	102	100	101	106	104	99	96
Total	104	102	99	102	109	104	99	96

Table 13 (cont.): Unitary values of US imports: Trends according to different sets of imports[a]

	1991	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
Criteria 2[c]								
Mexico								
Raw materials	105	102	78	96	102	98	111	92
Manufacturing	101	101	94	94	93	90	94	89
Total of Mexico	101	100	92	94	93	90	94	89
China								
Raw materials	115	92	93	98	119	97	105	93
Manufacturing	122	106	111	101	115	109	105	107
Total of China	122	105	110	101	115	109	105	107
Total US								
Raw materials	105	93	79	98	131	95	91	90
Manufacturing	105	102	108	101	107	105	99	95
Total	105	101	106	101	108	104	98	94

Table 13 (cont.): Unitary values of US imports: Trends according to different sets of imports[a]

	1999	2000	2001	2002	2003	2004	2005	2006
Criteria 1[b]								
Mexico								
Raw materials	89	96	100	101	100	99	108	110
Manufacturing	101	103	100	94	100	97	106	119
Total of Mexico	101	103	100	95	99	97	106	119
China								
Raw materials	97	108	100	100	109	117	118	109
Manufacturing	98	101	100	98	101	107	102	105
Total of China	98	101	100	98	102	107	102	105
Total US								
Raw materials	94	91	100	86	98	101	104	100
Manufacturing	96	101	100	95	99	103	100	104
Total	96	100	100	94	99	103	100	104

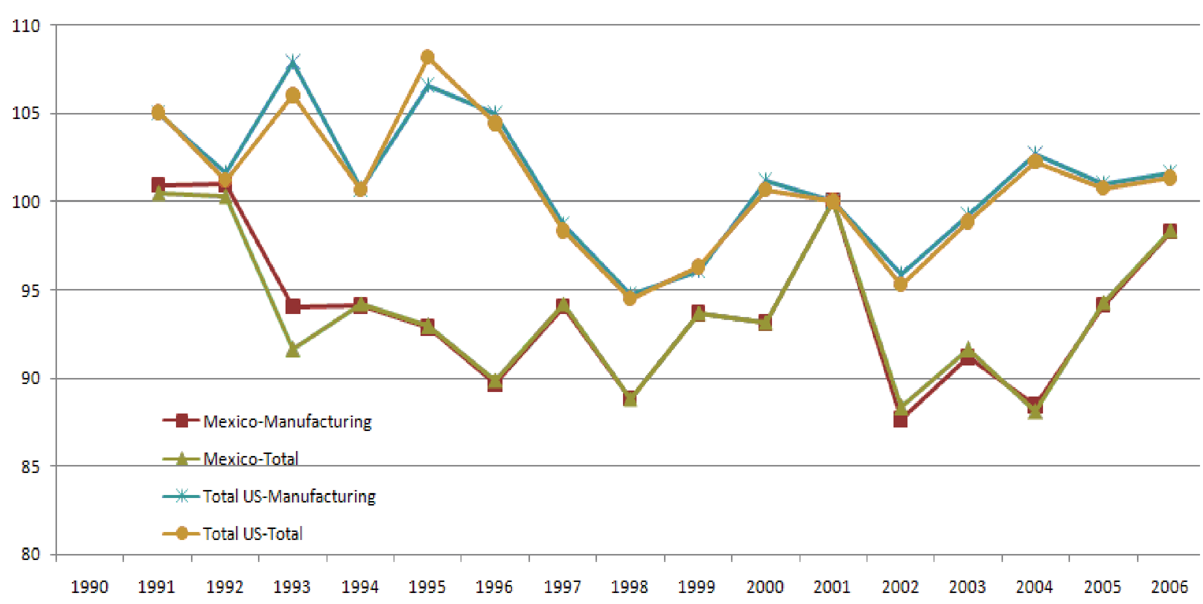
Table 13 (cont.): Unitary values of US imports: Trends according to different sets of imports[a]

	1999	2000	2001	2002	2003	2004	2005	2006
Criteria 2[c]								
Mexico								
Raw materials	100	99	100	104	103	97	105	107
Manufacturing	94	93	100	88	91	88	94	98
Total of Mexico	94	93	100	88	92	88	94	98
China								
Raw materials	95	115	100	100	96	105	115	101
Manufacturing	97	105	100	99	98	107	94	100
Total of China	97	105	100	99	98	107	94	100
Total US								
Raw materials	100	91	100	85	92	94	96	95
Manufacturing	96	101	100	96	99	103	101	102
Total	96	101	100	95	99	102	101	101

a In all cases, on Mexican item imports define the set of imported items, also for Chinese and total imports
b Refers to all 10-digit items in which China has a share on total US-imports above 20%
c Refers to all 10-digit items in which China's share increased by more than 14% during 2001–2006

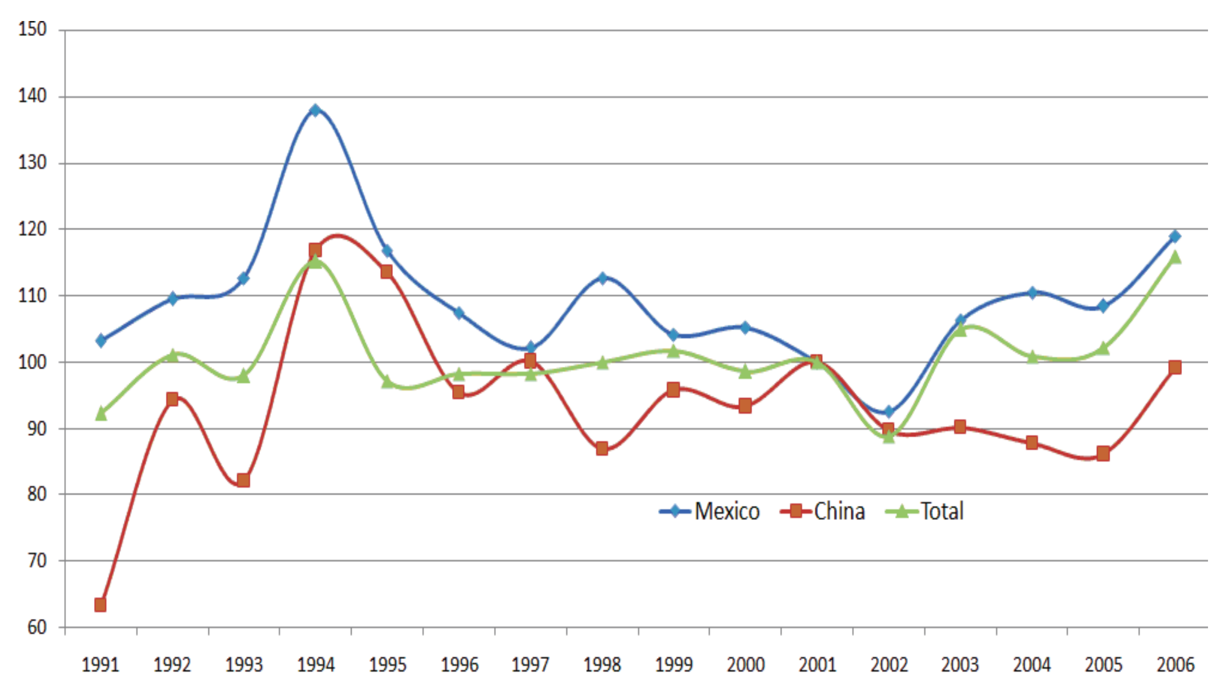
Source: Author, based on information from USITC (s. a.)

Figure 8: Unit value of US-imports for 10-digit items in which China's share increased by more than 14% during 1990–2006



Source: Author, based on information from USITC (s. a.)

Figure 9: NBTT of the US in manufacturing: Total, China and Mexico



Source: Author, based on information from USITC (s. a.)

5 Effects of China's trade on Mexico's manufacturing employment

This section deepens some of the existing analysis of the bilateral relationship between Mexico and China, particularly in terms of trade and the effects of China's increasing presence in Mexico on its manufacturing employment. Topics analyzed previously, particularly Mexico's poor employment record in manufacturing and the increased penetration of the domestic market by Chinese imports, are relevant for this section.

In the case of Argentina, Castro, Olarreaga and Saslavsky (2007) found that a 1% increase in imports generates a 0.07% decrease in manufacturing employment. Imports from China only explain between 0.1% and 0.2% of the fall of manufacturing employment resulting from total imports. In the case of Brazil, the effect on employment is twice as high.

From this perspective, what is the effect of imports on Mexico's manufacturing employment, and in particular as a result of imports from China?[35] To estimate the impact of changes in import penetration on labor demand, we follow Greenway / Hine / Wright (1998) and assume a Cobb-Douglas production function across industry and time. From a firm's optimization conditions we can establish a base model whose dependent variable is labor demand, explained by its own lagged labor demand, wages and production (or capital stock).

In addition, international trade variables explain labor demand: import penetration (understood as total imports over apparent consumption) and imported inputs used for production (which could be understood as complementary to employment). As an option, the interaction between import penetration and the share of total US imports from Mexico is also considered. Finally, several time and sector dummies were included in order to control for heterogeneity.

Ordinary Least Squares (OLS), Instrumental Variables (IV) and Generalized Method of Moment (GMM) estimations were pursued to correct for potential biases in the respective estimations (Arellano / Bond 1991). These methods allowed for bias corrections in the estimations. The first, caused by joint determination, is the endogeneity of an independent variable and the dependent variable. The second can occur as a result of inertia

35 For a full discussion see Castro, Olarreaga and Saslavsky (2007).

of some aggregated variables such as employment, whose magnitude can be explained by its prior, lagged behavior, causing serial correlation. GMM is usually used in the case of both problems, as it lacks the biases which arise in the estimates in the context of these problems.

Variables for Mexico's manufacturing sector and its 49 branches were obtained for the 1994–2003 period from the Instituto Nacional de Estadística, Geografía e Información (INEGI). All variables are expressed in nominal terms and were transformed to US$; in the case of imports and exports they were additionally deflated by Mexico's inflation. In the case of the variables expressed in current pesos (wages, production and imported inputs), these variables were also deflated by Mexico's inflation. In some other cases INEGI's data was obtained on a monthly basis and they had to be annualized. In all cases, the information is exclusively for Mexico's manufacturing sector, not including *maquiladoras*. Trade variables – the only exception – were obtained from Comtrade.

The methodology and model used for estimating the effects of Mexico's trade with China on its manufacturing sector is similar to the one used by Castro, Olarreaga and Saslavsky (2007), i.e. following Greenway / Hine / Wright (1998). We start from a Cobb-Douglas production function for a representative firm i in time t:

$$q_{it} = A^{\gamma} k_{it}^{\alpha} l_{it}^{\beta} \tag{1}$$

where q is gross real production, k is capital stock and l units of labor utilized, and where α and β are the share of each factor used in production. Firms demand labor and capital until the marginal benefit of labor is equal to the cost of labor (w) and the marginal benefit of capital is equal to the interest rate (c). Deriving the first order conditions for l in (1), we obtain the following expression:

$$l_{it} = \beta p_{it} q_{it} / w_{it} \tag{2}$$

where p is the price of the good i and w is the wage. Replacing (1) in (2) and rearranging the equation yields the following expression:

$$l_{it} = \beta p \left[\quad Ak_{it}^{\alpha} l^{\beta} \quad \right] \Big/ w_{it} \tag{3}$$

From the first order conditions of *l*, it follows that,

$$\beta \, q_{it} / l_{it} = w_{it}$$

$$\beta A k^{\alpha} l^{\beta} / l_{it} = w_{it}$$

thus, the derived labor demand for the industry *i* in time *t* can be written as:

$$l_{it} = \left\{ \; \left(\beta \mathrm{Ak}_{\mathrm{it}}^{\alpha} \right) / w_{it} \; \right\}^{(1/1-\beta)} \tag{4}$$

Taking logarithms and rearranging equation (4), we obtain the derived labor demand for the firm and thus industry *i*:

$$\ln l_{it} = \alpha_0 + \alpha_1 \ln K_{it} + \alpha_2 \ln w_{it} \tag{5}$$

In view that the technical efficiency of production increases over time and that the rate of technological adoption and increases in x-efficiency is correlated with trade changes, we assume that parameter *A* in the production function varies in the following way:

$$A_{it} = e^{\,(\lambda_0 T_i)} M_{it}^{\;\lambda_1} X_{it}^{\;\lambda_2} \, , \; \lambda_0, \lambda_1, \lambda_2 \rangle 0 \tag{6}$$

where *T* is a time trend, *M* is a measure of import penetration, and *X* is a measure of export penetration. This implies that labor demand for industry *i* in time *t* is:

$$\ln l_{it} = \alpha_0 + \alpha_1 \ln K_{it} + \alpha_2 \ln w_{it} + \alpha_3 \ln M_{it} + \alpha_4 \ln X_{it} + \alpha_5 T + \varepsilon \tag{7}$$

with:

$$\alpha_0 = \ln \beta / 1 - \beta$$
$$\alpha_1 = \alpha_0 / 1 - \beta$$
$$\alpha_2 = -1/1 - \beta$$
$$\alpha_3 = \lambda_1 / 1 - \beta$$
$$\alpha_4 = \lambda_2 / 1 - \beta$$
$$\alpha_5 = \lambda_0 / 1 - \beta$$

This implies that labor demand is a function of changes in industry capital, wages, import penetration and export penetration. Formally:

$$L^* = L(K, w, M, X) \tag{8}$$

Additionally we used equation (7) of lagged employment in logarithms as an explanatory variable. This and the wage variable were introduced with respective lags in order to control for endogeneity bias. A similar methodology can be found in Fajnzylber and Maloney (2000).

The main results for manufacturing employment show that (see Table 14):

- The *"base model"* presents the expected sign in almost all cases, although the statistical significance is sensitive to the technique for estimation and to the inclusion (or not) of fixed effects by industry through dummy variables.
- The lagged employment variable is always significant at the 1% level and positive; although the magnitude of the coefficient depends on the inclusion (or not) of the industry dummy. In cases with the dummy variable, the coefficient varies from 0.39 to 0.58. When the dummy is not included, the coefficient is close to 1.

- The hourly wage is always negative, although not always significant, especially in the case of GMM estimations where a higher efficiency of estimations is expected. The inclusion of the dummy variable for the industry is also sensible (the coefficient is close to –0.2).
- Production is positively associated with different degrees of significance, with the exception of the last two GMM models.
    - When trade variables are included, it is more difficult to detect a trade pattern. First, import penetration is not always significant (only in regressions 1, 4, 5, 9 and 10) and the sign is not always as expected, i.e. negative.
    - Imported inputs are never significant and the sign and coefficient also vary substantially.
    - On the other hand, the interaction of import penetration with the share of imports from the United States (not including *maquiladoras*) is always positive, and significant in 7 out of the 9 regressions. This interaction captures the non-linear effects of a variable that accounts jointly for the penetration of imports from the world and the share of imports from the US.
    - In the cases in which time and industry dummies were included, as well as import penetration, both variables have the expected sign and are significant (regressions 1, 4 and 5); i.e. under *ceteris paribus* conditions, the growth of total import penetration has a negative effect on employment of -0.06 and -0.08%.
    - Equations 1, 4 and 5 control for total penetration and imported inputs; when trade penetration of industrial goods from the US increases (or its share over total), labor demand in Mexico ranges between 0.07% and 0.09%.
    - When we included China with a significant share of imports, we did not find definitive and significant results. Only in regression 3 did we find a weak and significant result with a negative relationship between the share of imports from China and employment in Mexico.

Table 14: Dependent variable: Employment

	-1	-2	-3	-4	-5	-6
	OLS	**OLS**	**OLS**	**IV**	**IV**	**IV**
Employment (-1)	0.585* (-0.057)	0.979* (-0.009)	0.983* (-0.009)	0.431* (-0.087)	0.397* (-0.088)	0.397* (-0.088)
	-0.237* (-0.060)	-0.036* (-0.011)	-0.037* (-0.011)	-0.178 (-0.109)	-0.200+ (-0.11)	-0.200+ (-0.11)
Production	0.259* (-0.029)	0.031* (-0.009)	0.027* (-0.009)	0.299* (-0.041)	0.298* (-0.041)	0.298* (-0.041)
Total import penetration	-0.061** (-0.025)	-0.006 (-0.01)	0.0010 (-0.009)	-0.071* (-0.025)	-0.082* (-0.029)	0.014 (-0.018)
Total imported inputs	-0.011 (-0.013)	0.001 (-0.003)	0.001 (-0.003)	-0.015 (-0.015)	-0.012 (-0.016)	-0.012 (-0.016)
Total import penetration * import share	0.078* (-0.024)	0.013+ (-0.007)	0.008 (-0.006)	0.083* (-0.023)	0.096* (-0.025)	
Share of imports from China			-0.003+ (-0.002)		-0.004 (-0.005)	-0.004 (-0.005)
Share of imports from USA						0.096* (-0.025)

Table 14 (cont.): Dependent variable: Employment

	-1	-2	-3	-4	-5	-6
	OLS	**OLS**	**OLS**	**IV**	**IV**	**IV**
Constant	0.861+	-0.216*	-0.208*	1.634**	1.983*	1.983*
	(-0.519)	(-0.057)	(-0.057)	(-0.682)	(-0.715)	(-0.715)
Observations	439	439	428	391	384	384
R-squared	0.997	0.994	0.994	0.997	0.997	0.997
Dummies	Time & sector	Time	Time	Time & sector	Time & sector	Time & sector
	-7	**-8**	**-9**	**-10**	**-11**	**-12**
	IV	**IV**	**IV**	**GMM**	**GMM**	**GMM**
Employment (-1)	0.984*	0.985*	0.985*	0.963*	0.955*	0.955*
	(-0.01)	(-0.01)	(-0.01)	(-0.054)	(-0.064)	(-0.064)
	-0.023**	-0.026**	-0.026**	-0.118+	-0.14	-0.14
	(-0.011)	(-0.011)	(-0.011)	(-0.067)	(-0.10)	(-0.10)
Production	0.024**	0.024**	0.024**	0.068+	0.054	0.054
	(-0.010)	(-0.010)	(-0.010)	(-0.034)	(-0.039)	(-0.039)
Total import penetration	-0.005	-0.002	0.008+	-0.291+	-0.198	0.017
	(-0.010)	(-0.010)	(-0.004)	(-0.154)	(-0.13)	(-0.032)

Table 14 (cont.): Dependent variable: Employment

	-7	-8	-9	-10	-11	-12
	IV	**IV**	**IV**	**GMM**	**GMM**	**GMM**
Total imported inputs	0.001 (-0.003)	0.001 (-0.003)	0.001 (-0.003)	-0.013 (-0.020)	0.002 (-0.028)	0.002 (-0.028)
Total import penetration * import share	0.012+ (-0.007)	0.01 (-0.007)		0.309** (-0.143)	0.215+ (-0.11)	
Share of imports from China		-0.003 (-0.002)	-0.003 (-0.002)		-0.009 (-0.016)	-0.009 (-0.016)
Share of imports from USA			0.01 -0.007			0.215+ -0.11
Constant	-0.126** (-0.061)	-0.136** (-0.063)	-0.136** (-0.063)	0.020 (-0.386)	0.105 (-0.414)	0.105 (-0.414)
Observations	391	384	384	439	428	428
R-squared	0.995	0.995	0.995			
Dummies	Time	Time	Time	Time	Time	Time

+ significant at 10%; ** significant at 5%; * significant at 1%
Robust standard errors in parentheses

Source: Author

6 Conclusions and policy proposals

The Mexican government implemented an export-oriented strategy in the late 1980s based on macroeconomic stabilization, expecting that proximity to the United States, import liberalization and cheap labor power would be sufficient to develop a country with 105 million inhabitants. Most of the variables performed in the expected direction; a significant export-orientation was achieved, macroeconomic stability in Mexico became a symbol for most of Latin America, and integration to the US market also allowed for significant growth in specific trade-related branches and sectors. From this perspective, most of the expected goals of the strategy were achieved.

On the other hand, both growth and development were only achieved in a limited way in the best of cases. Even when comparing export-industrialization to earlier decades of Import Substitution Industrialization (ISI) in Mexico the results were not positive. Performance in terms of growth, employment generation and wages, but also consumption, investment, GDP per capita, technological development and absorption of export-oriented products and processes, was disappointing; only some of these issues have been addressed in detail in this study. As discussed in the first section, many of these gaps were the result of processes and incentives inherent to export-orientation: specialization in exports through imports to be re-exported characterized Mexico's engine of growth with few linkages, little employment generation and even fewer developments in R&D and technological spillovers. In addition, NAFTA allowed for an initial deepening of the regional integration process, but began to decline by the late 1990s: falling tariffs in the US and the practical abolition of tariffs in sectors such as electronics, as well as a massive shift of segments or production chains from the US to Asia and China, resulted in the need to either enhance the regional integration process through new mechanisms – a *"NAFTA plus"* – or face the slowly declining weight of NAFTA.

It is in this context that China's fast and massive integration into the world market since the 1980s, but particularly since the 1990s, has played a considerable role in Latin America, and particularly in Mexico. In quantitative terms, China's increasing role in terms of GDP, trade, upgrading and long-term growth and development, is significant for Latin America and the world market in general. However, China presents a great challenge for most of Latin America, and particularly for Mexico, from a more qualitative perspective: for more than 25 years it has outperformed Mexico while following an ideologically and conceptually different development path. China's GDP per capita growth during 1980-2006 was ten times higher than Mexico's. China's success, from this perspective, leads to a deep questioning of Latin America's and Mexico's export orientation and macroeconomic stability. Clearly, this is not only a matter of semantics and concepts. Up to now, China has continued to maintain massive public policies, in addition to substantial direct ownership and control over property, a fixed exchange rate, a planned economy and highly controlled markets including trade, labor, services and capital, among others.

It is in this context that the bilateral relationship between both countries, while formally and diplomatically satisfactory, has become increasingly tense from an economic and trade perspective. Particularly for Mexico: China has become its second trading partner since 2003, while this relationship is far important for China. Important FDI from China – in sectors such as yarn-textile-garment, electronics and more recently in autoparts-automobiles – present China as a *"new unexpected neighbor"* for Mexico. While these increases in trade and economic relations are indisputable, Chinese imports and competition in the US have been much more problematic. From this perspective, it is possible that in the short term, the bilateral relationship worsens significantly as a result of trade disputes within the WTO. Other topics such as illegal imports, triangulation and poor statistics have increased the tension between both countries. The difficulties in this bilateral relationship also increase in the most important export market, United States. While exports have become increasingly significant for China, which has a relatively diversified export structure to the US, the EU, Asia and other nations; the US accounts for more than 85% of Mexican exports, i.e. it is the critical destination for Mexican exports and its strategy.

As discussed in greater detail in section 4 of this study, China has increased exports to the US since the 1980s, particularly since 2001, displacing practically all other nations including Mexico. The Export-Similarity Index and chapter-level statistics show that Mexico and China's main exports to the US, at least at the chapter-level, are relatively similar. Therefore, it is not expected that the fierce competition with (and displacement of) Mexico will change in the medium term. In addition, estimates of terms of trade based on US statistics show significant benefits for China and losses in Mexico during 1990–2006. It is expected that auto-parts and automobiles will be the next chains in which competition will increase in the next years.

Initial statistical analysis still presents considerable difficulties in measuring the impact of Mexico's trade with China on Mexican employment. Preliminary results so far estimate negative, but statistically non-significant, effects for 1994–2003. While this kind of modeling still requires sizeable improvements, it is certain that in specific chains such as yarn-garment-textiles, the competition with Asian and Chinese legal and specifically illegal imports in Mexico's domestic market has been significant and has effectively displaced Mexican production and employment. It is not difficult to understand that Mexico's 15:1 trade relationship with China in 2006 – i.e. exporting 1 unit and importing 15 – has generated massive displacement in terms of production and employment; although an increasing proportion of China's imports are also being used as inputs for exports (mainly to the US).

The initial findings regarding the unit value of US imports from China and Mexico, as well as the NBTT, also show that China is competing with Mexico in the US market through lower unit values, and that this is affecting Mexico's NBTT in the US. The topic clearly requires further research, but apparently China has been successful in displacing Mexican exports through lower unit values and significantly affecting Mexico's NBTT in manufacturing.

In terms of policy proposals a few issues stand out. On the one hand, there is the need to promote the potential of FDI in a development framework; i.e., FDI can clearly allow for development in terms of technology, employment, wages, and overall learning processes, only if it is part of a larger socioeconomic strategy with specific instruments parallel to FDI flows. The lack of such instruments and overall perspective does not allow for integration of these processes in terms of territorial endogeneity. Specifically for Mexico there have been no such policies to accompany FDI flows in terms of regional-sectoral policies regarding technological development, training, specific support of particular products and processes, etc. The most recent document of the new government, the National Development Plan for 2007–2012 (PEF 2007), clearly reflects this perspective:

macroeconomic stabilization in terms of fiscal and monetary policy are the basis for competitiveness, while other issues such as trade, industrial, regional and sectoral policies have been left aside since the late 1980s. Specific instruments and costs in terms of programs and qualified personnel are not considered within a framework of macroeconomic adjustment. Thus, the public sector at the municipal, regional and national level in Mexico should implement policies that allow for such an integration process.

The bilateral relationship between China and Mexico is currently in a phase where strategic long-term decisions are needed. The trade and economic dynamics between the two nations do not coincide with their political and diplomatic weight, or with the real and effective relationship that should exist between the two countries. Beyond debates on the *"Chinese threat"* it is essential that public, private and academic sectors seek to formalize the bilateral relationship with the People's Republic of China and be capable of overcoming the current incongruent relationship. From a Mexican perspective, China is not only Mexico's second trading partner, and an active competitor in the domestic and US markets, but also a socio-economic gate to the Pacific and the twenty-first century.

Why is normalizing the relationship with China relevant? There are multiple benefits. In addition to being Mexico's second biggest trading partner and having a dynamism that exceeds that of Mexico's other trading partners, three aspects stand out. First, it is essential that Mexico take advantage of the enormous demand for imports in China. They are a significant global exporter, and will soon become the main global exporter, and their imports show the same dynamics. However, Mexico has yet to take advantage of this opportunity. Secondly, regularizing the trade and economic relationship with Mexico would be important, in view of the possibility that imports from China and the establishment of Chinese companies in Mexico could increase the competitiveness of Mexican production. In several sectors, from agriculture to science and technology, China has products, processes and experiences that are relevant to Mexico. This opportunity should not be rejected by Mexico – which is currently replacing US imports with Asian imports, particularly from China – and should be actively benefited from instead. Third, China has undoubtedly replaced a substantial sector of Mexican production, both for the domestic market and exports, especially those oriented to the United States, and therefore it is imperative that preparation measures be taken in the short, medium, and long term. Since the nineties, China has become a *"global player"*; the potential for strategic and short, medium and long-term strategies shows great opportunities and the need to take action regarding the implied challenges.

Mexico's current relationship with its second biggest trading partner is irregular and requires short, medium, and long-term solutions such as compensatory quotas. The current debate over whether or not to accept China as a market economy, timely debates in the WTO, and numerous international forums, among many others, all lead to the conclusion that greater institutional measures are required to improve and deepen the bilateral relationship, at least in socio-economic terms.

Two measures can be taken in the next years to overcome the bilateral impasse:

1. The creation of an Assessment Board. We propose the creation of an Assessment Board of the Executive Office, the Senate, and the House of Deputies on China. Its objective would be to serve as a center of information, analysis and proposals for the Executive Office, the Senate and the House of Deputies and would be made up of high level government employees, businesspeople, Non-governmental Organizations (NGOs), and associations, as well as by a large group of experts and academics that would allow proposals to be sustained in the bilateral relationship. Trade and economic aspects would be priorities, although it is also conceivable that other commissions would be created, on topics such as politics, culture, science, academics, sports, tourism, labor and migratory issues, sectorial and even *"intersectoral"* issues.[36] The Board should work in the same capacity for the Bilateral Mexico-China Commission. The Executive Office, the Senate, and the House of Deputies ought to provide sufficient financing for the medium-term functioning of the Commission, while specific projects could be financed by academic institutions and the private sector.

36 The NAFTA Assessment Board was made up of 20 people, including the chancellors of various universities, appointed by the Executive. This process without a doubt requires a greater opening to the integration of other segments of Mexican society.

2. Strengthening of existing bilateral institutions. Today bilateral institutions – particularly the Bilateral Mexico-China Commission and its High-Level Group (GAL) – have pointed out significant topics, as discussed in the second section of this paper, but have lacked the political support in both countries to solve important issues in the short, medium and long-term. In the meetings of the various bilateral institutions problematic issues such as illegal trade, industrial policy, R&D cooperation, tourism, visa problems and academic exchange, have already been highlighted, among many others. These topics may be solved in the very near future with financial support and adequate personnel.

These measures should be taken in the very short term in several cases. As discussed in the document, several issues will arise in the bilateral relationship in the close future – particularly in the framework of the WTO – that can generate massive obstacles and tensions. The proposal of China's President, in Mexico in 2005, to create a long-term strategic relationship is still open and needs to be realized; otherwise the bilateral relationship could easily head for major conflicts.

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ANNEX

Annex: Mexico and China: Export-Similarity Index (ESI) of China and Mexico at the chapter level for specific periods (1990–2006)				
Chapter		1990–2000	2001–2006	1990–2006
1	Live animals	0.0	0.0	0.0
2	Meat	0.0	0.0	0.0
3	Fish and seafood	0.3	0.1	0.2
4	Dairy, eggs, honey etc.	0.5	0.2	0.3
5	Other, of animal origin	0.2	0.3	0.3
6	Live trees and plants	0.3	0.4	0.3
7	Vegetables	0.0	0.1	0.1
8	Edible fruits and nuts	0.0	0.0	0.0
9	Spices, coffee and tea	0.0	0.1	0.1
10	Cereals	0.1	0.0	0.0
11	Milling; malt; starch	0.1	0.1	0.1
12	Misc. grain, seed, fruit	0.2	0.3	0.2
13	Lac; Vegetable sap; extrct	0.3	0.6	0.5
14	Other, vegetable	0.2	0.4	0.3
15	Fats and oils	0.1	0.2	0.2
16	Prepared meat, fish etc.	0.1	0.2	0.1
17	Sugars	0.6	0.6	0.6
18	Cocoa	0.3	0.2	0.2
19	Baking related	0.3	0.3	0.3
20	Preserved food	0.1	0.1	0.1
21	Miscellaneous food	0.2	0.3	0.3
22	Beverages	0.6	0.2	0.4
23	Food waste; animal feed	0.1	0.3	0.3

Annex (cont.):	**Mexico and China: Export-Similarity Index (ESI) of China and Mexico at the chapter level for specific periods (1990–2006)**			
24	Tobacco	0.1	0.1	0.1
25	Salt; sulfur, earth, stone	0.2	0.3	0.3
26	Ores, slag, ash	0.1	0.0	0.1
27	Mineral fuel, oil, etc.	0.4	0.3	0.3
28	Inorg. Chem.; rare earth mt	0.1	0.2	0.1
29	Organic chemicals	0.1	0.1	0.1
30	Pharmaceutical products	0.1	0.1	0.1
31	Fertilizers	0.7	0.1	0.6
32	Tanning, dye, paint, putty	0.3	0.4	0.4
33	Perfume ind., cosmetic, etc.	0.4	0.4	0.4
34	Soap, wax, etc.; dental prep.	0.2	0.3	0.3
35	Albumens; mod starch; glue	0.4	0.5	0.5
36	Explosives	0.0	0.0	0.0
37	Photographic/Cinematogr.	0.2	0.4	0.3
38	Misc. chemical products	0.1	0.2	0.0
39	Plastic	0.4	0.4	0.4
40	Rubber	0.4	0.3	0.4
41	Hides and skins	0.2	0.1	0.1
42	Leather art; saddlry, bags	0.3	0.4	0.4
43	Fur skin and artificial fur	0.2	0.2	0.2
44	Wood	0.3	0.3	0.3
45	Cork	0.5	0.7	0.6
46	Straw, Esparto	0.4	0.3	0.4
47	Woodpulp etc.	0.0	0.0	0.1

Annex (cont.): Mexico and China: Export-Similarity Index (ESI) of China and Mexico at the chapter level for specific periods (1990–2006)

48	Paper, paperboard	0.3	0.3	0.3
49	Book + newspaper; manuscript	0.5	0.5	0.5
50	Silk; silk yarn, fabric	0.0	0.3	0.1
51	Animal hair+yarn, fabric	0.3	0.2	0.3
52	Cotton+yarn, fabric	0.1	0.1	0.2
53	Other veg. textile fiber	0.2	0.1	0.1
54	Manmade filament, fabric	0.2	0.3	0.3
55	Manmade staple fibers	0.1	0.2	0.2
56	Wadding felt, twine, rope	0.2	0.3	0.3
57	Textile floor coverings	0.1	0.2	0.2
58	Spcl. woven fabric, etc	0.3	0.6	0.5
59	Impregnated text fabrics	0.3	0.4	0.4
60	Knit, crocheted fabrics	0.2	0.3	0.3
61	Knit apparel	0.3	0.3	0.3
62	Woven apparel	0.3	0.3	0.3
63	Misc. textile articles	0.4	0.5	0.4
64	Footwear	0.3	0.3	0.3
65	Headgear	0.3	0.4	0.4
66	Umbrella, wlk-sticks, etc.	0.2	0.4	0.3
67	Artif. flowers, feathers	0.5	0.2	0.4
68	Stone, plaster, cement etc.	0.3	0.3	0.3
69	Ceramic products	0.2	0.2	0.2
70	Glass and glassware	0.3	0.3	0.3

Annex (cont.): Mexico and China: Export-Similarity Index (ESI) of China and Mexico at the chapter level for specific periods (1990–2006)

71	Precious stones, metals	0.3	0.3	0.3
72	Iron and steel	0.2	0.2	0.3
73	Iron/steel products	0.3	0.3	0.3
74	Copper and articles thereof	0.1	0.3	0.3
75	Nickel and articles thereof	0.3	0.4	0.4
76	Aluminum	0.4	0.5	0.5
78	Lead	0.4	0.8	0.7
79	Zinc and articles thereof	0.6	0.3	0.4
80	Tin and articles thereof	0.8	0.3	0.7
81	Other base metals etc.	0.2	0.2	0.2
82	Tools, cutlry, of base mtls.	0.3	0.3	0.3
83	Misc. art. of base metal	0.3	0.3	0.3
84	Machinery	0.4	0.4	0.4
85	Electrical machinery	0.3	0.3	0.3
86	Railway; trf. sign eq.	0.4	0.5	0.5
87	Vehicles, not railway	0.1	0.2	0.1
88	Aircraft, spacecraft	0.1	0.4	0.3
89	Ships and boats	0.2	0.1	0.1
90	Optic, nt 8544; med. instr.	0.2	0.2	0.2
91	Clocks and watches	0.1	0.1	0.1
92	Musical instruments	0.2	0.4	0.3
93	Arms and ammunition	0.1	0.3	0.2
94	Furniture and bedding	0.3	0.3	0.3
95	Toys and sports equipment	0.4	0.5	0.5

Annex (cont.):	**Mexico and China: Export-Similarity Index (ESI) of China and Mexico at the chapter level for specific periods (1990–2006)**			
96	Miscellaneous manufact.	0.4	0.6	0.5
97	Art and antiques	0.3	0.4	0.3
98	Special Other	0.5	0.5	0.5
99	O Specl. Impr. Provisions	1.0	1.0	1.0
Source:	Author, based on information from USITC (s. a.)			

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