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Caballero, Jorge; O'Connor, Ernesto; Amado, Blanca

Conference Paper

Latin America's agricultural exports to China: Recent trends

IAMO Forum 2011, Halle (Saale), June 23 - 24, 2011: Will the 'BRICs Decade' continue? – Prospects for trade and growth

Provided in Cooperation with:
Leibniz Institute of Agricultural Development in Transition Economies (IAMO), Halle (Saale)

Suggested Citation: Caballero, Jorge; O'Connor, Ernesto; Amado, Blanca (2011) : Latin America's agricultural exports to China: Recent trends, IAMO Forum 2011, Halle (Saale), June 23 - 24, 2011: Will the 'BRICs Decade' continue? – Prospects for trade and growth, Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO), Halle (Saale)

This Version is available at:
https://hdl.handle.net/10419/50799

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Mitglied der Leibniz-Gemeinschaft

"Will the 'BRICs Decade' continue? – Prospects for trade and growth"
23-24 June 2011 | Halle (Saale), Germany

LATIN AMERICA'S AGRICULTURAL EXPORTS TO CHINA: RECENT TRENDS

Jorge Caballero, Senior Economist FAO *
Ernesto O'Connor, Consultant FAO **
Blanca Amado, Economist FAO ***

* FAO/TCI, viale delle Terme di Caracalla, 00153 Rome, Italy. jorge.caballeroceruti@fao.org
** Plaza 1687, Buenos Aires, Argentina. eoconnor@arnet.com.ar
*** FAO/TCI, viale delle Terme di Caracalla, 00153 Rome, Italy. blanca.amado@fao.org

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Abstract
Latin America is becoming the fastest growing agricultural production region and Brazil has by far the fastest growing agricultural sector. China from being a small agricultural importer (1.4% of world imports in 1990/01), became the fifth largest importer at 5.4% of world imports in 2006/07. China's overall trade with Latin America has expanded substantially during the last two decades -the rate of growth has been greater than any other region in the world since 2005. Most exports from Latin America to China are primary products while Chinese exports to Latin America are mostly industrial products. The Chinese demand for agricultural products is concentrated in food products such as grains and oilseeds. Countries specialised in those commodities –eg. Brazil and Argentina- exhibit a strong orientation on the Chinese market. In turn, growing subsectors in China, like fruits and vegetables, are posing strong competition to some world supplier countries in Latin America such as Chile and Peru. Since China is promoting structural reforms of its agricultural sector, aimed at increasing productivity and improving food security, and is expanding their direct investments overseas to secure provision of raw materials, Latin American governments need to pursue long-run strategic public policies. They need to optimize trade results and promote production efficiency that on one hand contribute to take advantage of the current market situation but at the same time assure the protection of the natural resources and preserve the production capacity and the agricultural diversity.

Keywords: Latin America, China, trade, agriculture, soybean, agricultural policies.

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LATIN AMERICA'S AGRICULTURAL EXPORTS TO CHINA: RECENT TRENDS

Introduction

This document was prepared as background information for the workshop on Agricultural trade linkages between Latin America and China planned to be held in Rome on 27-28 September 2011. The workshop is being organised by the Investment Centre Division of FAO within the context of the Cooperative Programme FAO-World Bank.

The workshop will provide an opportunity to assess the Latin American-China trade prospects and challenges as well as the growth opportunities and the risks involved. The results would be useful to develop an enhanced framework for guiding interventions by FAO, the World Bank and other international and national development actors in support of better focused investment projects.

Main trends

Recent FAO[1] and World Bank[2] studies indicate that developing countries' share in world agricultural exports increased from 32% in 1990/91 to 42% in 2006/07. Most of this gain came from expansion of exports to other developing countries (about 12%) while the share of their exports to industrial countries declined.

According to OECD-FAO projections, Latin America is the fastest growing production region and Brazil has by far the fastest growing agricultural sector, expecting to grow by over 40% by 2019, when compared to the 2007-09 base period. As stated by OECD-FAO, the developing and emerging economies which are enjoying increasing affluence with rising per capita incomes over a number of years, with population demographics and continuing urbanisation to mega population centres also reinforcing demand, are leading to significant changes in consumption and dietary habits, which explains the trade trends indicated above. This involves a transition from traditional staple foods and grains to more processed and prepared food products and convenience foods, containing a greater proportion of animal protein and with more fruits and vegetables in national diets.

China in turn, from being a small agricultural importer (1.4% of world imports in 1990/01), became the fifth largest importer at 5.4% of world imports in 2006/07 (US$ 4.8 billion to US$ 52.3 billion). But China has also increased dramatically its agricultural exports from US$ 8.0 billion in 1990/91 to US$ 36.9 in 2006/07 at 3.7% of world exports. It is the seventh larger exporter of agricultural products, just after Brazil. "... China has a large agricultural sector and large food economy. The performance in these sectors is of great significance for future outcomes in the rest of the world. As such, what happens inside China's borders will also affect the actions of policy makers globally."[3] China is both a competitor and a dynamic market for Latin American products.

The following are some trends regarded as relevant in the Latin American-China trade relations.

Growing trade flows. The rather sharp growth of China's presence in world trade changed the trade patterns of Latin American countries, or, at least, for some of them. The traditional agricultural and

[1] OECD-FAO (2010). Agricultural Outlook 2010-2019.

[2] The World Bank, "The Evolution of Agricultural Trade Flows", Policy Research Working Paper 5308, May 2010.

[3] IAAE, Beijing, August 2009.

food destination of their exports, mainly Europe, the USA and the intra-trade in the continent, was altered by the increasing demand from China. During the 1990s the intra-area trade and bilateral agreements were the main strategies. Latin American exports and imports developed in the context of trade agreements such as Mercosur, the ALCA initiative, European Union, and a growing trade with the countries of the ASEAN area.

China's overall trade (exports and imports) with Latin America has expanded substantially during the last two decades. The rate of growth has been greater than any other region in the world since 2005 (see table 1). Agricultural trade with China has been an important source of the high economic growth shown in the 2000s by some Latin American economies.

Table 1. China trade: Average annual growth rate by destinations/origins, 1990-2009 (%)

	1990-95	1995-2000	2000-05	2005-09
		China exports to …		
Latin America and the Caribbean	32.2	17.8	26.8	26.0
Asia and Pacific*	26.5	9.3	20.3	11.6
USA	36.7	16.1	25.6	10.2
EU	26.3	15.0	28.8	14.9
Rest of the world	8.6	7.1	26.6	14.3
World	19.1	10.9	25.0	13.4
		China imports from …		
Latin America and the Caribbean	14.5	12.7	37.6	22.8
Asia and Pacific*	32.4	12.2	23.9	7.1
USA	19.7	6.8	16.8	10.2
EU	18.2	7.6	18.6	14.4
Rest of the world	11.2	13.4	26.8	14.5
World	19.9	11.3	24.0	11.7

* Asia, ASEAN, Australia, Korea Republic, Japan and New Zealand.

Source: CEPAL. La República Popular China y América Latina y el Caribe: hacia una relación estratégica. Santiago de Chile. May 2010.

At the same time, exports from Latin America to China have been increasing at an average annual rate of 37.39% since 2002.

During 2009, at the peak of the world financial crisis, Latin American and Caribbean exports to the United States, the European Union and Asia fell by 26%, 28% and 5% respectively while those to China increased by 5%[4].

In 2008 China has become the first destination of exports from Brazil and Chile, the second from Argentina, Costa Rica and Peru and the third from Venezuela, advancing from position 10, 5, 6, 26, 4 and 37 respectively in 2000 (CEPAL, 2010). What have been the impacts in terms of increased employment, production efficiency improvements, etc. are still to be analysed.

Specialisation in primary products. Most Latin American exports to China are petroleum, metals, such as iron ores and concentrates, ferro-alloys, copper ores and concentrates, refined copper and

[4] CEPAL. La República Popular China y América Latina y el Caribe: hacia una relación estratégica. Santiago, Chile. May 2010.

copper alloys, zinc ores and concentrates, oil seeds and animal and vegetable fats –accounting for 72% of total China's imports from Latin America. That is the case of Brazil, Chile, Peru and Argentina (data from Comtrade). In Brazil iron ores and concentrates are the main export products to China with US$ 13,625 million in 2010, just 44% of total exports to China. Soybean is the second largest Brazilian export product to China (US$ 7,133 million in 2010). Chile's copper ores and concentrates and refined copper exports totalized US$ 7,549 million in 2009, equivalent to 61% of total exports to China. With regards to Peru, copper, zinc and iron metals exports amount to US$ 2,639 million to China in 2009, just 65% of total exports to China. Argentina's main export products to China are soybeans and soybean oil, totalizing US$ 2,642 million in 2009[5], equivalent to 53% of total Argentinean exports of these products to the world (INDEC-Argentina).

Foreign direct investments in Latin America are mostly concentrated in those strategic primary sectors in Latin America. China's direct investment policy in the 2000s has focused on diversification, access to raw materials, such as metals, and energy, seeking to secure supply of natural resources and the consolidation of transnational networks of production. One question related to the effects of Chinese direct investment in Latin America concerns the purchase or rent of land. The relation between land property and sovereignty will be a new issue for Latin American countries in their relation with China during the next years.

Latin American imports from China (US$ 81,360 million in 2009) are mainly manufactured goods (mostly electric and electronic equipment as well as machinery, accounting for 55% of the total), where the Chinese competitive advantage is well known. Although trade with Latin America is strategic for China, as it secures the provision of an important portion of the required raw materials, it only represents 14% (2009) of its total import demand for ores, copper, fuels, oil seeds and animal products.

Agricultural exports concentrated in few products: few winner countries and deficit. The rather sharp increase of China's share in world trade and the strong dynamics of trade with Latin America are changing the agricultural trade patterns of some Latin American countries. There is a shift from the traditional destinations, mainly Europe and the regional markets, towards China and the rest of Asia. However, the trade success of individual countries is much related to the country's specialisation. By far grains and oil seeds in temperate areas are the winners over tropical products (coffee, tea, sugar, cocoa, etc.), seafood, fruits and vegetables, which have not seen great changes in exports.

In fact, the Chinese demand for agricultural products is concentrated in food products such as grains and oilseeds although some agro- industrialised foods are also traded -meat, dairy, oils, selected fruit and vegetables, fish and molluscs and leather. Nevertheless, the volumes traded in the former group of products are by far more important than the latter. The main products traded have been the ones related to the soybean chain, mainly produced in Brazil and Argentine but also in Paraguay, Uruguay and Bolivia.

Therefore, countries specialised in those commodities –eg. Brazil and Argentina and Uruguay- exhibit a strong orientation -and increasing dependency- on the Chinese market (see table 2). The same occurs with Peru with regard to crustaceans and molluscs. Countries such as Chile and Costa Rica even showing increasing commercial ties with China have not developed such a strong dependency in their agricultural exports. Uruguay is also augmenting trade with China, mainly in soybean and dairy products, but still the relative importance on its total trade is low. On the other

[5] According to INDEC (Statistical Institute of Argentina) exports of soy bean and soy bean oil in 2009 were particularly low because of drought, whereas in 2008 were US$ 9,266 million.

hand, China relies substantially on Brazil and Argentina for its imports of soybean and soybean oil as they are supplied in the counter season of USA supplies.

Table 2. Share of total and agricultural exports to China (%)

	2003		2008	
	Product export to China/Product export to world	Total country export to China/Total country export to world	Product export to China/Product export to world	Total country export to China/Total country export to world
Argentina - soybeans and soybean oil	52.0%	8.3%	53.5%	9.1%
Brazil - soybeans and soybean oil	28.6%	6.2%	45.2%	8.3%
Chile - fruits and nuts	0.9%	8.8%	1.2%	14.0%
Costa Rica - fruit juices	0.0%	1.5%	1.7%	6.3%
Colombia - coffee	0.0%	0.6%	0.1%	1.2%
Mexico - cotton	0.9%	0.6%	19.5%	0.7%
Peru - crustaceans and molluscs	22.3%	7.5%	64.1%	11.9%
Uruguay - Milk (powder) and cream, concentrated or sweetened	0.2%	4.0%	0.0%	2.90%

Source: Prepared on the basis of data from the United Nations Commodity Trade Statistics Database (COMTRADE).

Such concentration of export products in the market of China may be destabilising for the producer countries if the presumptions about China's difficulties to guaranty food security are wrong and if China's programmes to expand production are more successful than it is commonly thought.

Overall the trade balance with China is a deficit for Latin America, mainly due to the increasing imports of industrial goods which are far more important than exports of primary goods (see table 3). Furthermore, even the successful economies of South America show a deficit since 2006, reduced in 2009[6] mainly due to lower imports. For both Latin America and China exports to each other represent about 6%-7% of total exports to the world. The situation is quite different for MERCOSUR (table 4).

Table 3. Trade balance between Latin America and the Caribbean and China (US Dollar thousand)

	Trade Balance		
	Balance in value in 2007	Balance in value in 2008	Balance in value in 2009
All products	-30,729,630	-54,461,837	-35,541,074
	Latin America and the Caribbean's exports to China		
	Value in 2007	Value in 2008	Value in 2009
All products	37,683,516	41,113,220	45,819,908
	Latin America and the Caribbean's imports from China		

6 Trade figures of year 2009 reflect the effects of the international financial crisis and the severe drought of 2008/2009 in South America.

	Value in 2007	Value in 2008	Value in 2009
All products	68,413,146	95,575,056	81,360,981

Source: COMTRADE

Table 4. Trade Balance between MERCOSUR and China (US Dollar thousand)

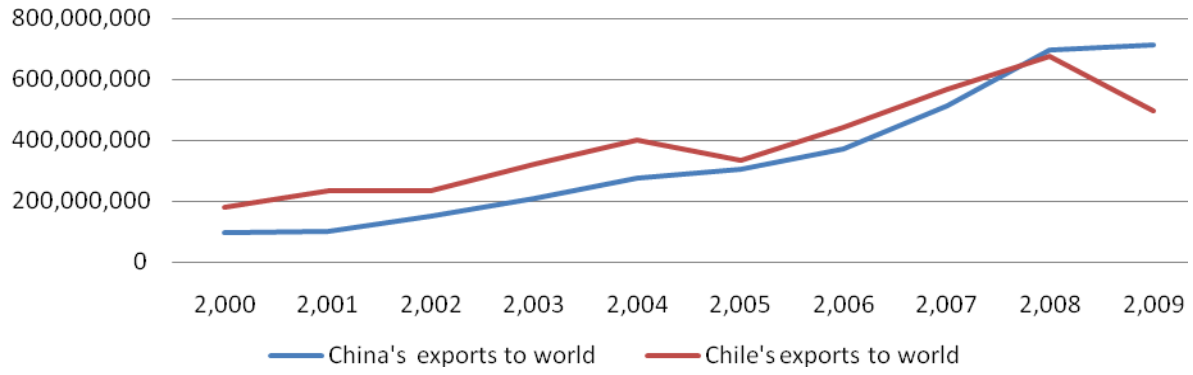
	Balance in value 2001	Balance in value 2002	Balance in value 2003	Balance in value 2004	Balance in value 2005	Balance in value 2006	Balance in value 2007	Balance in value 2008	Balance in value 2009
All products	368,708	1,553,822	3,893,536	2,459,239	2,408,245	-673,700	-3,741,506	-7,498,634	-39,023

Source: COMTRADE

Products and countries in direct competition with China. Whereas the Southern American countries are in the short run directly and greatly benefiting from the current agricultural world market situation, the Andean Countries are in turn more exposed to Chinese competition. In fact, Andean countries are rather specialised in products such as seafood (fresh and processed), fruits and vegetables (fresh and processed) and cut flowers. Nowadays, Chinese commercial competition is increasing in fish, crustaceans and molluscs, some vegetables and fruits such as asparagus, apples and citrus.

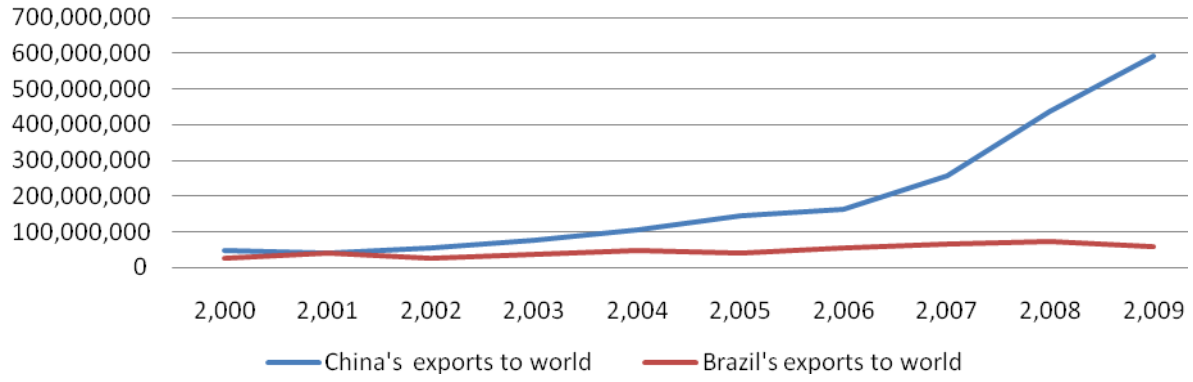
Some agricultural products of Latin America compete with China. For instance, Chile's diversified exports of seasonal fruits, salmon, wine, and forest products may be threatened in the near future by increasing production in China and by Chinese exports to third markets. Similarly, citrus production and exports in Brazil are also competitive with China. See graphs 1 and 2.

Graph 1: Chile's and China's exports of apples (US$)



Source: COMTRADE-ITC

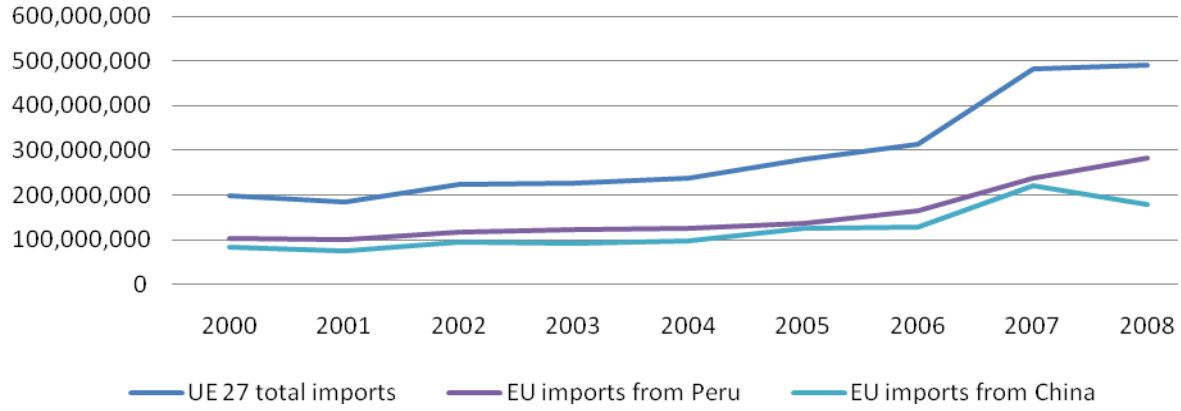
Graph 2: Brazil's and China's exports of citrus, fresh or dried (US$)



Source: COMTRADE-ITC

The case of asparagus is quite typical. China and Peru have been regular suppliers to the EU, the largest consumer market in 2008, with similar market shares. Graph 3 shows the evolution of exports of asparagus to the EU from Peru and China

Graph 3: Asparagus trade (US$)



Source: COMTRADE-ITC

Other countries. Central American countries and to a certain extent Mexico, that are specialised in tropical products like coffee, cocoa, sugar, cotton, nuts, and spices, do not currently seem to have a stable commercial partnership with China. Table 4 shows some of the more important export crops to China over the last decade, and it is evident that there is no clear trend.

Table 5. Exports from Central America to China (US$)

	Coffee, tea, mate and spices									
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Costa Rica	52,874	67,229	750	na	149,662	85,612	91,405	217,719	186,365	111,156
El Salvador	na	9,424	23,306	23,910	na	39,146	na	na	99,723	na
Honduras	na	104,250	na	77,980	201,321	273,294	80,933	45,746	na	na
Nicaragua	na	na	na	51,563	64,310	34,200	na	na	111,577	na

Panama	na	na	na	na	na	na	na	25,766	136,000	na
					Cotton					
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Costa Rica	na	na	na	na	na	33,581	643,114	287,259	1,203,744	na
El Salvador	na	na	na	na	na	na	84,035	na	498,398	26,481
Guatemala	33,992	1,274	849	na	259,479	na	na	111,659	380,969	7,534
Mexico	628,138	64,122	230,661	1,688,526	4,129,136	44,477,073	18,414,776	38,607,074	42,491,124	22,943,157

Source: COMTRADE

However, these countries may be indirectly impacted by the expanded Chinese demand in the international market, for example, with respect to maize, a staple food in Central America. China's demand for maize and the bio-ethanol production in the USA are pushing up prices. China imported some US$ 367 million in 2010 equivalent to more than 1.5 million tonnes, as result of the extreme drought in 2009.

Summing up. China's rapid economic growth and increased share in world trade during the last ten years has had a relevant impact in the emergence and consolidation of commercial and economic linkages between China and Latin American countries. This has been an important source of economic growth for some countries though the impact on overall employment and poverty reduction still needs to be assessed.

Latin America is competitive in most of the agricultural commodities exported to China or exported to third markets in competition with China. For instance, the Revealed Comparative Advantage index[7], a measure of the relative export performance by a country and an industry/commodity, is, for selected countries/commodities, the following: Argentina/soybean 30, Argentina/ soyean oil 89, Brazil/soybean 25, Brazil/soybean oil 17, Paraguay/soybean 33, Peru/fish 37, Peru/molluscs, Ecuador/crustaceans 37, Chile/apples-pears 18 (own calculation on the basis of data from ITC/COMTRADE).

Nevertheless, there has been an asymmetric performance among countries in Latin America. Soybean complex has been driving regional exports in Southern Cone countries. Andean countries have not yet benefited extensively from the expansion of the Chinese demand as their exports of fruits, vegetables and seafood compete in some way with China. Central America and Mexico seem to be strongly affected by the world price shock during the last three years and at the same time face a stagnant demand for their tropical products.

The diagram of opportunities and risks across products and countries in the table below is useful to appreciate the differences.

[7] The Revealed Comparative is defined as a country's share of world exports of a commodity divided by its share of total world exports. The index has a relatively simple interpretation. If it takes a value greater than unity, the country has a revealed comparative advantage in that product.

Table 6. Diagram of opportunities and risks.

	Mercosur	Andean Countries	Central America and Mexico
Food security	Exports Soybeans, soybean oil, meats. Risk of China's self-sufficiency	Risk of corn imports from China	Risk of corn imports from China
Fruits, vegetables and seafood	Exports: Seafood, Fruits and vegetables. Risk of imports from China	Exports: Seafood, Fruits and vegetables. Risk of imports from China	Risk of seafood imports from China
Tropical products	-	-	Risk of sugar imports from China

Source: Data on the basis of COMTRADE-ITC

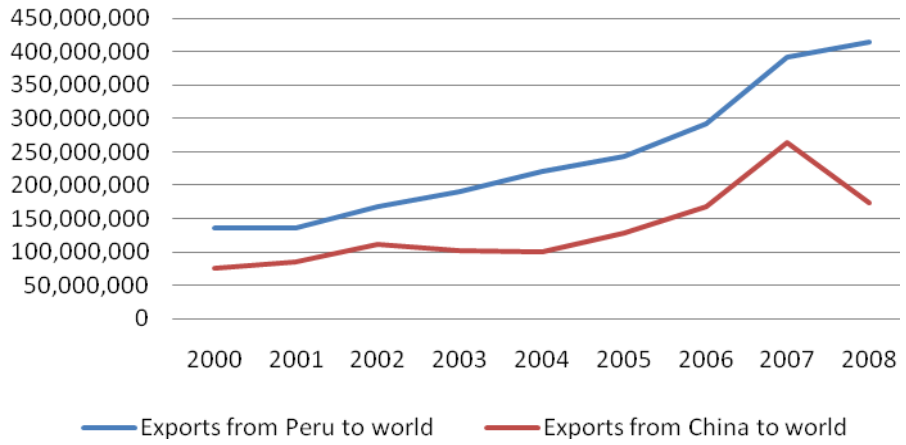
Policy lessons on selected commodities

There are several examples of outstanding agribusiness supply chain development and trade expansion in China and Latin America. They all have important policy implications and are sources of knowledge to analyse the trade prospects for Latin America.

Asparagus in Peru. Peru is one of the most important exporters of asparagus in the world, being number one in volume of fresh asparagus and number two, after China, of preserved asparagus. In 2004, 1,331,955 metric tons of asparagus was produced around the world, out of which China's share was 44.1%, followed by Peru (14.3%) and the United States (7.7%). Peru and China are leading world exporters[8]. See graph 4.

[8] Data from Institute of Developing Economies, 2006.

Graph 4: Asparagus exports (US$)



Source: COMTRADE

Much of China's production is directed primarily to its domestic market, being the 13th exporter of fresh produce. However, China dominates the global market for processed or canned asparagus where they got close to US$ 100 million in 2004 (and has almost double in the following years) versus US$ 1.6 million fresh asparagus. From this point of view China is also a threat to Peru.

Peru first expanded the production and export of preserved asparagus in particular in the 1980s. This was followed by the expansion of fresh asparagus production in the 1990s. The harvested area multiplied more than ten fold to around 20,000 hectares during the 2000s. Its main markets have been France, Germany and the United States.

The expansion from the end of the 1970s to the middle of the 1980s is connected to the change in the international market environment, in which Taiwan, one of the major providers of preserved asparagus, crowded out of the market. There were several other factors in the development of the industry: high yields of produce due to favourable climatic and soil conditions; the introduction of the drip irrigation system, which enabled desert cultivation; the integration of production and exports, which is indispensable for fresh produce exports; and the collective efforts of the industry with help from the public sector[9].

The rapid increase of fresh asparagus export, to a great extent is the result of the integration of production and export by agricultural companies. Vertical integration improves the freshness of produce, allows for better production coordination to access specific niche markets and enables systematic control of safety of the produce.

Furthermore, collective efforts among public and private sectors to improve production and logistics infrastructure helped to increase the competitiveness of the asparagus industry in Peru. The Peruvian export promotion agency PROMPEX has played an important role in the development of the industry by helping to organize producers and exporters, promoting Peruvian asparagus in foreign markets and monitoring the situation of competitors such as China. Also the Peruvian Institute of Asparagus, an association comprised of asparagus producers and exporters, made important contributions by participating in negotiations on preferential tariffs in the U.S. market and developing sanitary programmes for asparagus together with the ministry of agriculture.

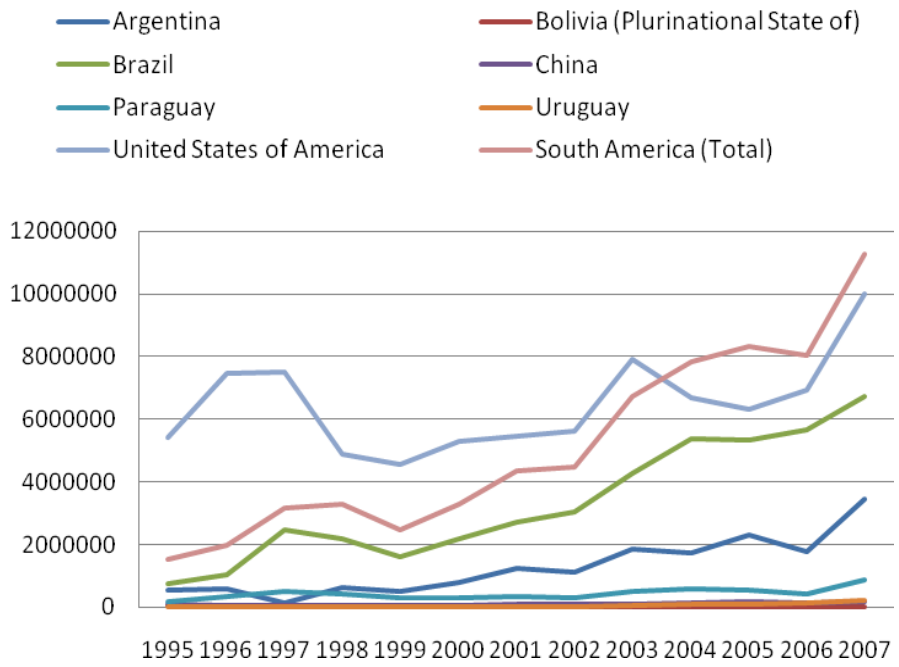
[9] Quoted from Institute of Developing Economies, Expansion of Asparagus Production and Exports in Peru, Discussion Paper 73, Japan, 2006.

Expansion of soy industry in South America. Soybean production in the two major world production zones (South America and USA) and China increased from 113 million tonnes in 1995 to 210 million tonnes in 2008 (85%)[10]. While production in South American countries (Argentina, Bolivia, Brazil, Paraguay and Uruguay) had a record expansion of 177% up to 114 million tonnes in 2008, becoming the world's main soybean production area, USA production increased by 37% up to 81 million tonnes and China increased merely 15%, up to 15 million tonnes.

The extraordinary growth of soybean production in South America was driven by the dynamics of the international market for the soybean chain and by technological innovations. The significant change in profitability pushed the expansion of the cropping area[11]. Key factors were the demand from the modern livestock sector in China and the willingness in China to "sacrifice" soybeans and cotton to keep land and water for rice, wheat and corn where self-sufficiency goals weighed more heavily. From the production side the adoption of zero-tillage, the use of genetically modified seeds and the changes in production organisation, was a key factor. These advances allowed for cropping in inconceivable areas and the reduction of production costs aided by the availability of extensive new areas for soybean cropping; the development of a dynamic processing industry; and a partially favourable public policy framework.

In 2007 the main soybean production countries in South America led the soybean world trade with exports for US$ 11,300 million up from US$ 1,800 in 1995 (FAOSTAT), whereas USA exports increased from US$ 6,000 million to US$ 10,000 million in the same period. See graph 5.

Graph 5: Soybean trade, export value (thousands of US$)



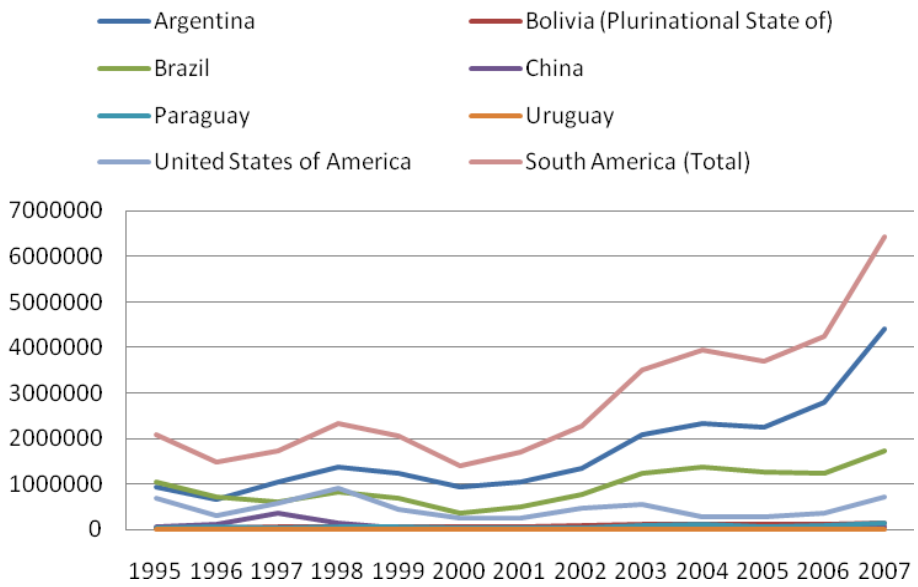
Source: FAOSTAT.

[10] According to FAOSTAT.

[11] The world sown area reached 81 million hectares in 2008, from 52 million in 2005, but in South America the change went from 19 million to 41 million hectares in the same period.

The importance of South America, and in particular Argentina, as key player in the soybean market is demonstrated by the spectacular increased in soybean oil export since 2000. South America soybean oil exports went up from around US$ 1,500 million over US$ 6,000 between 2000 to 2007. See graph 6.

Graph 6: Soybean oil trade, export value (thousands of US$)



Source: FAOSTAT.

Particularly relevant is the fact that about half of the five South American countries' exports of soybean and soybean oil is directed to China. Argentina and Brazil have experienced a significant agroindustrial change characterized by the development of a vigorous soybean processing industry, new industries for the food industry for human and animal consumption, the chemical sector and the energy production of biodiesel.

Challenges ahead-- The expansion of soybean production and exports has contributed to improving the macroeconomic performance and the current account balance of exporter countries but has had effects that embrace structural, institutional, agroindustrial, environmental and social aspects. It also affected agrifood chain performance, on crop rotation and sustainability, caused land concentration and contributed to increased urban migration[12].

The soybean expansion has consolidated a medium and large-scale commercial and highly technological-mechanized production model with a close relation to the international market, whose demand (mainly from China) and high prices have been determining factors. This has also driven to farm land concentration and enlargement, resulting in increasing rural migration, especially in Paraguay. The soybean boom might also have a long-term impact on natural resources. The clearing of native forests and forest areas has further compromised the sustainability of agricultural production and opening questions about water sustainability, mainly in Argentina, Brazil and Paraguay.

[12] FAO, Future expansion of soybean 2005-2014, Santiago de Chile, 2007.

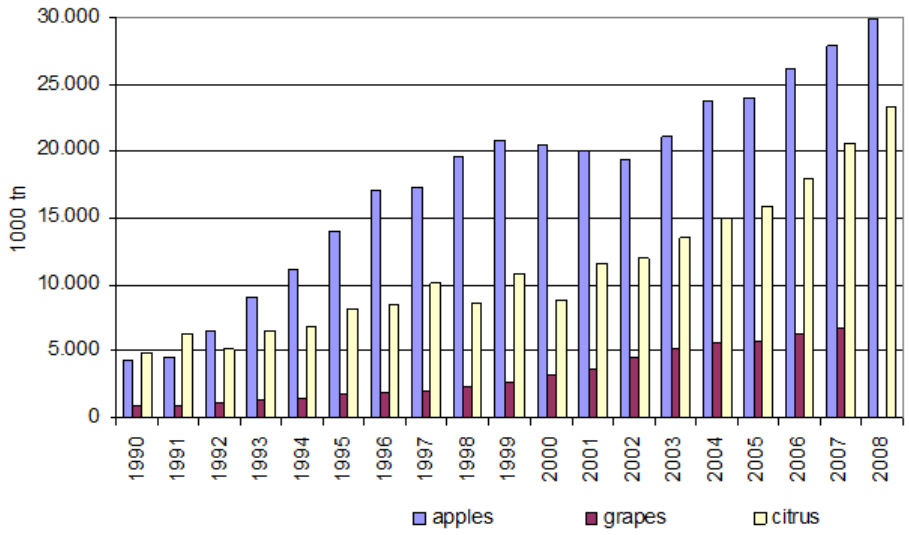
In addition, the soybean boom has displaced other crops and livestock production and has been decisive in the expansion of the agricultural frontier, in particular in Argentina, Brazil and Paraguay. The negative impacts of monocultures have been confirmed, as in the case of Argentina, where there have been less harvested areas of corn and wheat since 2008 . In some areas, sustainability has also been affected by poor crop rotation and inadequate fertilizer use related to zero tillage technology and the adoption of transgenic varieties.

Finally, transport, storage and port logistics may need a new impulse in the Mercosur area if China's soybean demand continues growing as in the 2000s. The expansion requires heavy investment in infrastructure in the five main supplier countries.

The case of apple export chain in China. The expansion of apples export chain in China is an interesting mix of experiences involving institutions, market integration, export promotion, network relationships and governance mechanisms, from where Latin America may draw important lessons.

In the early 1990s China produced less than 5 million tonnes of apples per year. By 2007 more than 42% of all apples produced in the world were originated in China (see graph 7). Due to its rapid expansion, China is now the leading player with a 13.5% market apples share exports by volume but not in value. China is ahead of other apple exporters such as Italy (10.4%), Chile (10.3%), France (9.2%) and the USA (8.8%). Chinese apples are sold at lower prices than the other countries' production in international markets.

Graph 7: China production of apples, grapes and citrus (1990-2008).



Source: ERS, USDA (2010)

China has been able to connect millions of small-scale apple producers at one end with consumers at the other. This showed that small scale farmers can be integrated into a modern supply chain. These lessons were learned on the basis of the experience of the apple export chain in the Shandong province and in particular on the vicinity of Qixia city[13].

[13] Xiaoyong Zhang, Huanguang Qiu and Zhurong Huang, Linking Small Scale Farmers in China with the International Market: A Case of Apple Exports Chains, IAMA, 2009.

The Chinese apple chain's success was attributed to different factors, such as technology innovation and market liberalization. The Shandong province experience focuses on two policy observations. The first one is that globalization has been beneficial to improving food safety and quality in China. In the 1980s, apple production started to take off as a result of domestic market liberalization. Towards the end of the 1990s apple markets were turned from supply driven to demand driven when food safety and quality became a priority due to domestic consumers and pressures from trade partners. After China joined the WTO in 2001, Chinese apples quickly became significant in world markets because of their good quality and low prices, but also domestic consumption increased as a result of the increasingly affluent middle class in China. The second observation is that China has institutional mechanisms to respond to the international demand for food safety. International markets set the standard requirements while Chinese authorities adjusted their policies to help the apple industry meet these requirements.

Nevertheless, the major problem lies at the heart of the apples' boom, the small-scale production, as it makes it difficult to produce homogeneous products. Imperfect land markets hamper the transfer of land use rights to other families. Alongside public extension, R&D investment is also required. The question is whether Chinese farmers will remain small scale and fragmented as they are now, or whether they will be organized as cooperatives in order to enhance their market positions. The fragmented structure of growers is the major institutional obstacle for apple quality improvement as well as for long-term development in the apple sector.

What to expect in the foreseen future?

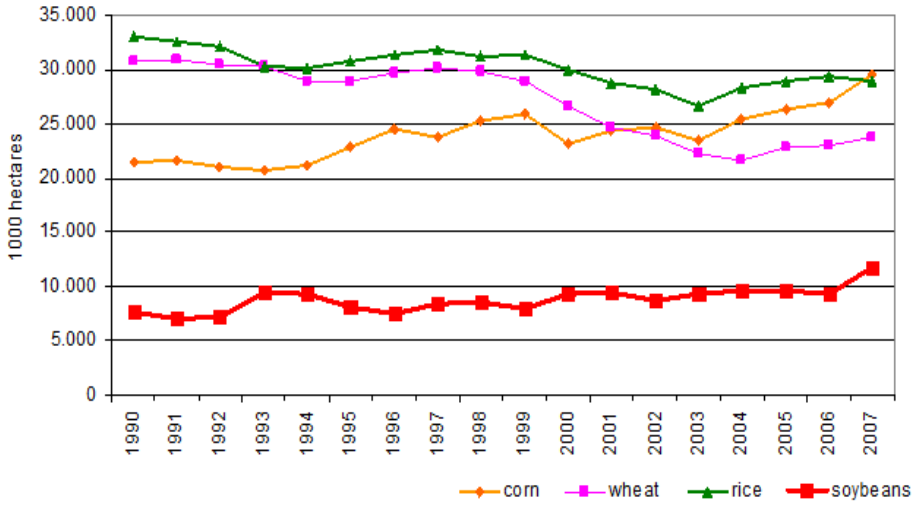
The prospect for international food commodity trade in the foreseen future is consolidated high prices and volatility and growing demand. The expansion of soybean production in South American countries will continue in the 2010s consistently with a sustained demand from Asia and assuming continuing technological innovation and improved crop rotation practices. Deforestation and the use of ecologically fragile land are major constrains to area expansion and are main challenges for the public policy.

Meanwhile China is promoting structural reforms of its agricultural sector aimed at increasing productivity and improving food security. China's grain production has averaged 500 million tonnes annually in 2007-2009. To meet the self-sufficiency goal in grain production over the coming years, China's production must increase to meet the demands of its growing population and diversified consumption.

A major instrument is the National Plan for Expansion of Grain Production Capacity. The plan foresees an expansion of grain[14] production to cover 95% of domestic needs by 2020 and reduce dependency on external supply. According to the plan, with limited land resources (see graph 8) grain yields must increase by 0.9 % annually to meet the target increase of 50 million tonnes in production capacity.

[14] China's definition of grains includes cereals (paddy, corn, wheat, soybeans, sorghum, and barley), tubers (potato) and pulses.

Graph 8: China crop own area: corn, wheat, rice and soybeans (1990-2007)



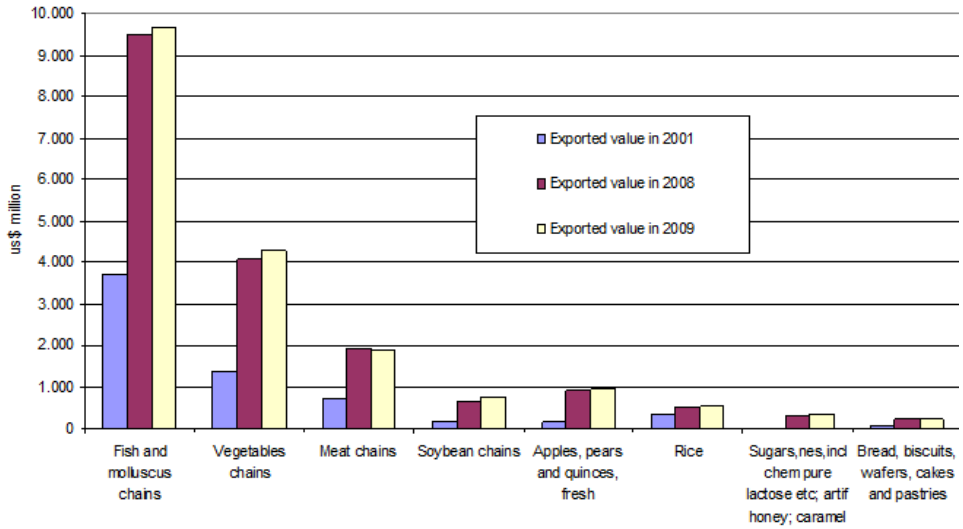
Source: ERS, USDA (2010)

Nowadays China is self-sufficient in rice, maize and wheat, where the consumption-import coefficient is below 1%. But in soybeans, of a total 51.4 million tonnes consumed in 2008, 41.1 million tonnes were imported. The National Plan for Expansion of Grain Production Capacity includes a soybean expansion strategy but it is not expected that there can be extraordinary improvements around the corner.

However, the Chinese Plan foresees for the long run to replace imported soybean oil by increasing quantities of soybean processed in their own soybean processing industries. South American countries that are net exporters of soybean and soybean oil should take this into account and start to adopt measures to maintain crop diversification while preserving the natural resources. Import restrictions imposed by China to soybean oil from Argentina in 2009 are a recent example of the risks faced by exporting countries in South America.

The prospects are somewhat different for the Andean countries though they are very challenging. Their production is to a great extent competitive with China's, as discussed above, but on the positive side there is the fact that the local value chains are well integrated in the global economy both technologically and commercially. This refers to fish, molluscs and crustaceans as well as fruits and other perishable products, what are the strongest commodities in Chinese agricultural exports. Graph 9 shows the more relevant export chains in China.

Graph 9: Main agricultural and food chains exported by China to the world



Source: ITC-COMTRADE

Overall, it is expected that China will continue to make direct investments overseas to secure the supply of natural resources and in particular to control productive land and commercial networks. This is an issue that has not been sufficiently studied. It should be necessary to assess productivity/efficiency impacts of the increasing foreign direct investments from China, especially if one objective is to seize future gains from trade and investment with least uses of (damage on) natural resources.

Finally, trade agreements, both existing and potential, are likely to shape future changes in trade policy and hence trade patterns between the regions, with implications to trade creation and trade diversification. They can be important in determining the relative barriers to entry to different markets. Barriers to entry would include both tariff and non-tarriff barriers, recourse to safeguards, export restrictions etc.

Conclusions and way forward

The data analysis and the discussions in the previous sections present a number of trends and suggest some questions. They include issues related to the demand prospects for agricultural commodities and the Chinese supply response, the expected price developments, the new dynamics of Chinese foreign direct investments, the impact on the domestic economies of past and expected trade expansion, the natural resource limitation to production and trade growth, the relevance of integration policies, etc.

There are some solid evidences of best practices in policy design and implementation, as discussed along the previous pages, but there also are many uncertainties. For instance, China has demonstrated to be able to define effective public policies and to implement them with order and continuity, something that is not one of the most outstanding merits of Latin American governments. But, on the other hand, many Latin American countries are having improved business and investment environments in a context of abundant financial resources in the region. This is an opportunity to take advantage of.

Agricultural production and agro-industrial development may be key objectives of public policies in some Latin American countries as the probability of China's self-sufficiency does not look certain for the moment. To meet the challenges, Latin American governments need to pursue long-run strategic public policies, optimizing trade results and promoting tradable activities, that on one hand contribute to take advantage of the current market situation but at the same time assure the protection of the natural resources and preserve the production capacity and the agricultural diversity. In addition, countries with export profiles in competition with China in world agricultural markets need to pursue production efficiency policies along with trade facilitating actions.

In general, it is necessary to develop better and more efficient transport infrastructure, to guaranty a public framework favourable to property rights and technology innovation and to improve functioning of Sanitary and Phytosanitary Systems. In addition, efforts should be made to develop supply chain integration programmes targeted to improve farm to market linkages of small scale farmers. Collective public-private action is a most appropriate strategy to deal with market aims and social targets. Trade gains and direct foreign investments have to be monitored and evaluated in order to assure positive impacts in terms of national factor gains.

Finally, assessments should be made on the impacts on factor markets (labour, land, natural resources, etc.) that the Latin American-China trade expansion have brought so far and are expected for the foreseeable future. This will help policy makers envision what can be done to enhance and target the gain from trade. This can be looked at country or region level.

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