The Reversal of the Structural Transformation in Latin America After China's Emergence

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1. Introduction

Starting in the 1980s, China's economic growth has been characterized by a rapid acceleration (see Figure 1). Even though the Asian financial crisis caused China's growth to decelerate somewhat, the very high growth rates that picked up again in 2000 have more than doubled per-capita income and total GDP in just a decade.

Since the 1990s, but especially during the 2000s, China's volume and diversity of imports from across the world began to rapidly increase. Table 1 shows how the volume of Chinese top imports increased significantly starting in the 1990s, with the value of equipment, raw materials and chemicals more than doubling from 1990 to 1995. It was after 2000, however, that the value of imports more than tripled in all sectors including mineral fuels. Moreover, while China's growth spilled over to Asia, Europe and North America since the 1990s, it was until the 2000s that Latin America and Africa also experienced increased demand from China.

Some argue that increased demand of Latin American imports from China has been the result of industrial policies that favored the expansion of heavy industries over light manufactures (as shown in the lower part of Table 1). Since heavy industries are much more intensive in certain metals, such as iron ore and copper, as well as mineral fuels, this shift in

Chinese production has stimulated demand of imports from Latin America. At the same time, recent Chinese growth has been associated with a rapid expansion of urban centers and increased incomes for urban workers. This, in turn, has generated a large increase in the demand for food, which explains the rapid expansion in imports of soybeans and other food products. There is no doubt that this pattern of trade follows the predictions of the standard trade theory, given that Latin America is relatively abundant in natural resources compared to China. The question is why this pattern of trade based on comparative advantage only materialized a decade ago. The Inter-American Development Bank (2010) argues that this break is the result of China reaching a binding resource constraint after a long period of high growth. It is feasible that high transport costs from the rest of the world led China to first exploit its own natural resources until resources became so scarce that the only option was to turn to the rest of the world for natural resources.

Regardless of the reasons behind the rise in Chinese imports from Latin America, the significant expansion in the demand for commodities during the last decade has been a mixed blessing for Latin America. On the one hand, it has brought a unique trade opportunity, which Latin America and other regions have benefited from. On the other hand, the pattern of specialization and appreciation of the currencies has reversed the process of industrialization in Latin America and encouraged the expansion of non-tradable sectors, at a cost in terms of output per worker. Within Latin America there has been a sharp divide: some countries have been left-out of the expansion of exports to China, while almost all have experienced the effects of greater manufacturing imports from China.

Section 2 in the paper describes in detail the pattern of trade between China and Latin America over the last decades. Section 3 describes how trade with China may have contributed to the slowdown or partial reversal of the process of structural transformation in

Latin America. Section 4 discusses how Latin American policies should adjust given the potential slowdown in demand from China. Section 5 concludes.

2. China-Latin America Trade

Since the beginning of the early 2000s, trade between China and Latin America has increased exponentially for reasons that we only now begin to understand. Table 2 shows that trade between the Latin America's eight largest economies (LAC8) and China was virtually non-existent before 2000, but both imports and exports increased sharply during the last decade.

In just one decade, China's imports from Brazil and Chile— the two countries with the most significant bilateral trade with China— experienced 23- and 13-fold increases, respectively. China's imports from Colombia and Venezuela rose 65 and 70 times respectively—albeit from a very low initial base. Figure 2 illustrates the share of exports to China in total exports for the same group of Latin American countries. In 2000, these shares were well under 5 percent for the majority of countries. In 2010, they were close to one quarter of total exports for Chile, 15 percent for Peru and 13 percent for Brazil.

China's exports to the region have also increased considerably. Argentina's and Chile's imports from China are 10 times larger today than they were in 2000. Brazil's imports from China are 20 times larger now, Mexico's 14 times, and Colombia and Peru's 25 times compared to 2000.

In some Latin American countries this has meant the emergence of large trade surpluses with China. As a percentage of GDP, these surpluses represent significant figures: 4.8 percent in Chile, 1.7 percent in Peru, 1 percent in Venezuela, and 0.6 percent in Brazil. However, these countries, which are mineral or oil exporters, are exceptions, as the majority

of Latin American countries have a trade deficit with China. This is the case of Mexico ($11 billion), Colombia ($1.7 billion) and Uruguay ($300 million). Argentina has a nearly balanced trade with China.

Figure 3 shows the composition of trade with China for Argentina, Brazil and Chile. What is interesting is that exports from the Latin American countries are heavily concentrated in one or two products, while imports from China to Latin America are much more diversified. In Argentina, vegetable products are by far the largest export to China; other export products, such as vegetable oils, minerals, leather, fuels, live animals, etc., represent a much lower amount. In the case of Brazil, mineral products are the major export; minerals exports are six times larger than vegetable products, the second largest export. Another important export from Brazil to China is vegetable oil, but it is still miniscule when compared to mineral exports. In the case of Chile, the number one export to China is metal base, which is more than double the second largest export of mineral products. Clearly, exports to China are heavily concentrated in a few products, which change from country to country.

By contrast, imports from China to Latin American countries tend to be relatively diversified and similar across countries. The top imports from China to Latin America are machinery and nuclear reactors, electrical machinery and equipment, base metals, chemicals, textiles, transport vehicles and plastic articles.

3. Commodity Prices and Structural Change in Latin America

As China emerged as a significant trading partner for Latin American countries, commodity prices also increased considerably during the past decade impacting the production structures of these countries in a major way. Table 3 shows that an increase in the overall commodity price index has contributed to the real appreciation of Latin American

currencies. This Dutch disease type problem may have contributed to the shift away from manufacturing and towards non-tradable sectors. Table 4 also shows that the share of manufacturing as a share of GDP falls with an increase in commodity prices, though the decline is not significant.

Figure 4 shows a decline in the share of manufacturing out of GDP in Latin America since the early 1990s, but a further recent decline since 2004. Similarly, East Asia and Sub-Saharan Africa, two regions which have also increased trade with China in recent years, have also experienced declines in their manufacturing sectors.

Table 4 shows more clearly the changes in the composition of output and employment for Latin American countries between 1990 and 2005. There is an unambiguous pattern in all countries (with the exception of Mexico), where the share of the manufacturing sector in total output has declined while the opposite has happened in the mining sector. Output in the service sector has increased significantly in countries such as Chile (3 percentage points) and Colombia (5 percentage points) and to a lesser extent in countries such as Mexico and Venezuela (1.5 and 1.7 percentage points).

Figure 5 uses quarterly data available until 2010 on manufacturing and construction shares out of GDP for the LAC8 economies. The trends are striking, with manufacturing shares declining steadily since 2000 and construction becoming a larger economic sector in most countries. In most Latin American countries, specialization in the mining sector has coincided with the decline of manufacturing and the expansion of non-tradable sectors such as construction and services.

Perhaps more dramatic are the trends in employment shares, which have skyrocketed in the services sector. In many countries, employment shares in services show double-digit increases. This means that the tertiary sector is a crucial employer to offset the decline in manufacturing, along with the fact that mining has experienced a relatively jobless

expansion.

All these changes have important implications for productivity in the region. Figure 6 shows that changes in labor productivity in Latin America remain uneven and are pro-cyclical. This contrasts with the increase in labor productivity in China which has remained high since its sharp increase in the early 1990s. Table 5 shows output per worker by sector. What is remarkable about output per worker trends in Latin America is the fast expansion in the capital-intensive mining sector— which employs a very small fraction of the population. Another noteworthy development is the heterogeneous performance in manufacturing, with countries that reduced employment in this sector experiencing larger productivity increases. By contrast, there have been either reductions or slight growth in labor productivity in the services sector. Table 6 highlights how the productivity gap in the services sector has been widening vis-à-vis mining and, to a lesser but still significant extent, relative to manufacturing. Not surprisingly, more service-oriented economies have emerged at the expense of efficiency. In fact, McMillan and Rodrick (2011) show that if Latin America had the industrial composition of OECD countries, its labor productivity would increase substantially due to the differences in the share of services between Latin America and the OECD countries.

Within manufacturing there have also been important compositional changes reversing the structural transformation towards more sophisticated production that had taken place early in the 1990s in Latin America. Figure 7 shows that while Latin American exports became increasingly more sophisticated during the 1990s, with the share in resource-based and low-tech exports declining and the share of medium- and high-tech manufacturing exports increasing. Unfortunately, this trend reversed with the rise in the demand from China. In the early 2000s, the share of primary and resource-based exports from Latin America rose back almost to their 1990 level and the share of medium and high-tech exports shrank

substantially. Table 4 shows that a rise in commodity prices not only overvalues the exchange rate but also shifts manufacturing exports from more sophisticated products, especially high-tech products, toward less sophisticated resource-based exports.

Gallagher and Porzecanski (2010) argue that the decline of manufacturing in Latin America and its rise in China are the result of different development paths determined by policy choices. Specifically, they blame the "Washington Consensus approach, which stresses the rapid liberalization of trade and investment, and the general reduction of the state in economic affairs". Washington Consensus policies were certainly not the cause of China's high demand for commodities and its impacts on structural change in the Latin American region. In fact, as argued before, it is relatively simple to predict this trade relationship simply using the standard trade model based on comparative advantage. Latin America is well endowed in terms of natural resources. Rather lagging education, as well as poor investment in research and development, has prevented a sustained structural transformation in the region. In other words, changing static comparative advantage has been extremely difficult; but arguing that this is directly attributable to the Washington Consensus is simplistic and misses the important point on the need to invest more on education and technology.

Moreover, careful studies for Colombia (Eslava et al. (2004)) and Chile (Bergoeing et al. (2010), Pavcnic (2003)) show that productivity growth within manufacturing increased due to the increased ease of reallocation within the manufacturing sector, which was helped by a number of the structural reforms in labor and financial markets in the region. On the other hand, productivity growth as a result of learning has not helped as much in the region most likely because of the lack of a more skilled labor force and more sophisticated technologies. This contrasts with a similar study by Deng et al. (2007) which shows that the exact opposite is true for China, where productivity growth from learning has been

substantial but reallocation has been lacking. This raises the issue of whether productive development policies (PDPs) merit further consideration in the region.

4. What the Future holds for Chinese-Latin American Trade

China has followed the same export-driven economic model of both Japan and South Korea. This comparison is useful in forecasting China's future demand for commodities from Latin America. A recent study by the UBS investment research group (Garran and Staines, 2010) examines the question of when commodity demand by China will peak. In other words, when will China's income pass through the 'high intensity' threshold? In order to answer this question, the authors look at the intensity of commodity use across countries and correlate that with per capita income. In the case of China, urbanization has also been a key driver of commodity demand. For example, steel demand has exploded with the tearing down of old residential buildings to develop modern business centers and with the relocation of households into new suburban residential apartments. However, Garran and Staines argue that the demand for construction peaks when societies reach $13,000 per-capita income threshold, which is predicted to happen in China in 2015. This means that China's steel, iron ore and coal intensity is likely to peak soon.

More broadly, as income grows, there is greater consumption of durable goods (such as automobiles and appliances), which require copper, aluminum, nickel and other base metals for production. But past a point, the demand for durable goods recedes and services become more relevant. According to this study, the peak demand for steel, iron ore and coal will be reached when a country reaches a level of per-capita income close to $10,000 in PPP terms. Likewise, base metals demand peaks at around $15,000, while the demand for oil per unit of output reaches a maximum with annual per capita income close to $25,000. The study estimates that the majority of the world population will reach these per capita income levels by 2015, 2020 and 2025, so that the peak demand for steel, iron ore and coal is predicted to

take place in about five years, in 10 years for base metals and in 15 years for oil.

Since income demand elasticity is likely to drop in the near future, the Latin American region will have to diversify its exports over the next decade to avoid the impact of slower growth in global demand for primary commodities. Many argue that even if China's commodity demand decelerates, India can take the lead. However, India's development path is very different since savings in India are not directed into heavy industry but rather into the services sector, which is less commodity-intensive.[2] To further reinforce the view that commodity prices may stabilize or even decline in the future, supply considerations have to be brought in. High commodity prices have stimulated large investments in expanding productive capacity, not just in Latin America but elsewhere. In China alone, state-owned enterprises and large private corporate entities, with heavy government support, including China's Development Bank, are aggressively investing in order to guarantee long-term supply of key resource-based inputs.[3]

As discussed earlier, soybeans are an important component of Argentina and Brazil's exports to China. Per capita consumption of soybeans in Japan and South Korea followed an inverted U-curve—consumption grows until it peaks at a level of around 40–45 kg per capita and then drops in response to a substitution of soybean oil for other vegetable oils like sunflower oil and olive oil. This is likely to happen in China as well, although the peak can be slightly higher than in other countries, as China's diet heavily relies on fried foods.[4]

Looking at trends in China from a macroeconomic angle, Eichengreen et al. (2011) argue that rapidly growing economies slow down significantly— by at least 2 percentage points— when their per capita incomes reach around $17,000 in year-2005 constant

[2] Japan's steel intensity peaked in 1973 when its urban population had an average income of $24,000 and the consumer mix was shifted to higher value-added, less commodities-intense goods and services. At that level of income there are no longer economies of scale for heavy industry.
[3] See Downs (2011).
[4] See Valdez et al. (2009).

international prices. This is the level that China should achieve by 2015 or soon after. An increasing number of analysts, as well as the Chinese government Five-Year Plan, are convinced that China's GDP growth will slow down to somewhere around 7 percent. There is excess capacity in a number of sectors and symptoms of overinvestment are apparent, which is natural given the high investment rates over the past few years. The slowdown could be more drastic in China for two reasons. The first reason is the high ratio of elderly people to active labor force participants, which is increasing as a result of higher life expectancy and China's one-child policy implemented in the 1970s. The second reason is the large share of employment in manufacturing, which employs more than 20 percent of the labor force. As employment shifts into lower productivity growth in the services sector, overall economic growth will also slow down.

Therefore, Latin America cannot remain indifferent to the possibility that China's demand for commodities will peak soon as overall economic growth in China slows down. The region has to be prepared to find alternative sources of trade and growth. This should guide policies today in order to ensure that sectors that can play an important role in the future are not phased-out prematurely in the midst of a short-lived boom that can have negative long-term repercussions.

A positive response to this recent Chinese demand driven commodity boom has been the restraint that Latin American countries have shown in terms of increasing spending. Instead, the countries in the region have changed the composition of spending towards infrastructure and education investments, which should help in adjusting to the production of more sophisticated goods in the future. Table 7 shows that an increase in the commodity price index has increased the share of spending in investment out of GDP and the share of spending in education out of total spending. For example, an increase in the overall price index by half a standard deviation increases the share of spending in investment out of GDP

by 35%. By contrast, total spending has not gone up. It is well known that natural resource wealth can be a curse by increasing spending in non-productive investments. The recent increase in resource-based rents due to higher primary commodity prices in Latin America has instead kept spending levels the same but changed spending towards productive investments in the region, which should help the region prepare for the slowdown in demand from China.

5. Conclusions and Policy Implications

Since 2000, China has greatly benefitted Latin America, but at the same time has encouraged a reversal in the structural shift in the region from manufacturing towards mining and commodity-intensive sectors. With little change in total shares of employment, the mining sector across Latin America's major economies has witnessed a dramatic rise in productivity that corresponds with a growing emphasis on heavy industry over light manufactures in China. During this period, trade between China and Latin America has grown tremendously. While China exports a diverse range of products to its trading partners in Latin America, it imports a large and rapidly increasing amount of just a few primary and resource-based products. The services sector, on the other hand, has remained the largest employer and contributor to total output across Latin America, yet productivity gains have been very low in comparison to the mining sector, which has most recently benefitted from China's shift toward heavy industries.

As China continues on its growth trajectory, its rising income levels and national strategy to shift toward domestic-driven, less commodity-intensive sources of growth suggest a slowdown in Chinese demand for the commodity-focused products that come from Latin America. As this occurs over the next 10-15 years, Latin America must prepare for declining

external demand for its resources by reversing the recent structural changes that it has been witnessing over China's current phase of growth. Latin America's manufacturing sector will likely need to play an important role and begin to increase its declining share of total output. As Latin America's income grows, this needed reversal in the structural shift of the region's production structure will coincide with the expansion of the middle class. Latin America must leverage the expansion of its manufacturing sector on the larger domestic market.

To embrace the anticipated structural change in Latin America as external demand for its commodities begins to slowdown and retreat, the region's policymakers must already start designing and enacting productive development policies to encourage a shift that supports growth and builds on the economic momentum that the region is now experiencing. Industrial policies in particular are being redefined to reflect this anticipated change. Part of the current boom, for instance, should be used to fund innovation and encourage the development of new areas for growth. This means channeling some of the extra revenues in putting in motion ambitious research and development at the sector level through private-public partnerships. China's growth and its spillovers into Latin America have surely benefited the region, but it is known that eventually China will enter a new phase of slower growth and Latin America will need to re-adjust accordingly. The region needs to be prepared for these new phase when the tail winds from China will need to be replaced with more endogenous forces.

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Table 1: Chinese Imports

(Billions USD)

	1990	1995	2000	2005	2010
By Product (Top 6)					
Iron Ore	0	1	2	18	79
Motor Vehicles[a]	1	2	1	5	31
Grain	2	4	-	-	28
Rolled Steel	3	7	9	25	20
Parts of Motor Vehicles[b]	0	1	2	7	19
Cars	0	0	0	3	14
By Sector (Top 6)					
Machinery and Transport Eq.	17	53	92	290	550
Non Food Raw Materials	4	10	20	70	211
Mineral Fuels[c]	1	5	21	64	189
Chemicals[d]	7	17	30	78	150
Light, textile, rubber, minerals, iron	9	29	42	81	131
Miscellaneous	2	8	13	61	114
By Region					
Asia	29	78	141	441	835
Europe	13	28	41	96	218
North America	8	19	26	56	117
Latin America	2	3	5	27	91
Africa	0	1	6	21	67
Memorandum					
Composition of China's Industrial Output (percent)					
Heavy Industry	51	53	60	68	71
Light Industry	49	47	40	30	29

Source: General Administration of Customs; CEIC

Note: Top 6 products and sectors as of 2010

[a] Motor vehicles and chassis; [b] Parts of motor vehicles and tractors; [c] Mineral fuels, lubricants, and others; [d] Chemicals and allied products.

Table 2: China-LAC8 Trade

(Billions USD)

	China's Exports to:			China's Imports from:			China's Trade Balance with:		
	1990	2000	2010	1990	2000	2010	1990	2000	2010
Argentina	0.0	0.6	6.1	0.3	0.9	6.8	-0.3	-0.3	-0.7
Brazil	0.1	1.2	24.5	0.5	1.6	38.0	-0.4	-0.4	-13.6
Chile	0.1	0.8	8.0	0.0	1.3	17.8	0.0	-0.6	-9.7
Colombia	0.0	0.2	3.8	0.0	0.0	2.1	0.0	0.1	1.7
Mexico	0.1	1.3	17.9	0.1	0.5	6.8	0.0	0.8	11.1
Peru	0.0	0.1	3.6	0.1	0.6	6.1	-0.1	-0.4	-2.6
Uruguay	0.0	0.2	1.5	0.1	0.1	1.2	-0.1	0.1	0.3
Venezuela	0.0	0.3	3.6	0.0	0.1	6.6	0.0	0.2	-2.9

Source: IMF Direction of Trade Statistics

Table 3: Effects of Commodity Prices on Exchange Rate and Manufacturing

	Exchange Rate	Manufacturing Share of GDP	Exports by Technological Classification (% of Manufacturing Exports)			
			Resource-based	Low-technology	Medium-technology	High-technology
	(1)	(2)	(3)	(4)	(5)	(6)
All Commodity Index	-1.42**	-0.008	0.102**	-0.0375**	-0.0276	-0.0422**
	(0.71)	(0.007)	(-0.0294)	(-0.0115)	(-0.0226)	(-0.00761)
N	126	140	143	143	141	141
R^2	0.972	0.432	0.917	0.894	0.865	0.966

Notes: All regressions control for country efects and include a yearly trend variable. Countries included: Argentina, Brazil, Chile, Colombia, Mexico, Peru and Mexico; year period: 1990-2009. Peru dropped in equation 1 due to collineality. The exchange rate used is the real exchange rate for 2005 for each country. Technological classification of exports is based on Lall, S. *The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-1998*, Working Paper Number 44, Queen Elizabeth House, University of Oxford. Robust standard errors are reported in parenthesis. Significant coefficients at 1% level are indicated by two asterisks (**), at 5% by one asterisk (*) and at 10% by a cross (+).

Source: World Bank WDI, IFS and COMTRADE

Table 4: Changes in Shares of Total Output and Employment, 2005 vs. 1990
(Percentage Points)

	Mining		Manufacturing		Services		Other[a]	
	Output	Employment	Output	Employment	Output	Employment	Output	Employment
Argentina	0.2	-0.1	-1.8	-6.3	-0.9	10.3	2.5	-3.9
Brazil	0.6	-0.1	-0.2	-2.4	-4.3	10.6	3.9	-8.1
Chile	0.8	-1.7	-3.4	-6.0	3.0	13.7	-0.4	-6.1
Colombia	0.5	-0.1	-1.5	-2.4	5.0	8.6	-4.0	-6.1
Mexico	-0.2	-0.5	0.1	-2.6	1.5	9.1	-1.5	-6.1
Peru	2.4	-0.1	-0.4	-2.5	-3.8	0.6	1.7	2.0
Venezuela	1.4	0.1	-2.8	-5.4	1.7	8.3	-0.3	-3.0

Source: Timmer and Vries (2009)
[a]Agriculture, public utilities, construction

Table 5: Average Annual Growth of Output per Worker, 1990-2005
(Percent)

	Mining	Manufacturing	Services	Other[a]	**Overall**
Argentina	5.9	4.4	1.0	4.7	**2.1**
Brazil	4.1	1.2	-1.4	2.2	**0.2**
Chile	8.6	4.3	1.5	5.1	**2.8**
Colombia	1.2	0.1	-0.7	0.7	**-0.2**
Mexico	5.0	2.1	0.1	2.1	**1.1**
Peru	6.8	4.7	2.4	3.4	**2.9**
Venezuela	0.2	2.4	-0.7	1.5	**-0.1**

Source: Timmer and Vries (2009)
[a]Agriculture, public utilities, construction

Table 6: Relative Output per Worker

(Multiples)

	Mining to Services		Manufacturing to Services	
	1990	2005	1990	2005
Argentina	5.0	9.7	1.3	2.2
Brazil	3.2	6.9	1.2	1.9
Chile	2.9	8.4	1.3	2.0
Colombia	3.4	4.4	1.4	1.7
Mexico	1.4	2.9	0.8	1.1
Peru	3.2	5.7	1.2	1.6
Venezuela	19.6	22.0	2.2	3.3

Source: Timmer and Vries (2009)

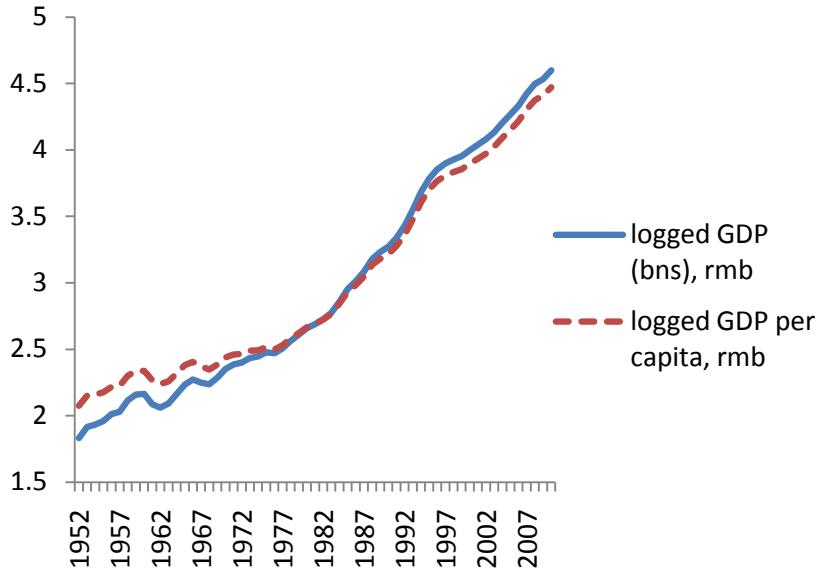
Table 7: Effect of Commodity Prices on Public Spending

	Public Spending	Public Spending in Investment		Public Spending in Education	
		% of Total Spending	% of GDP	% of Total Spending	% of GDP
	(1)	(2)	(3)	(4)	(5)
All Commodity Index	2956	0.0242	0.0207**	0.0715**	-0.00318
	(16889.000)	(0.017)	(0.01)	(0.0172)	(0.00)
N	116	63	107	107	71
R^2	0.671	0.793	0.91	0.685	0.748

Notes: All regressions control for country effects and include a yearly trend variable. Countries included: Argentina, Brazil, Chile, Colombia, Mexico, Peru and Mexico; year period: 1990-2009. Brazil dropped in equation 5 due to collineality. Public spending (column 1) is expressed in billions of dollars of 2000. Robust standard errors are reported in parenthesis. Significant coefficients at 1% level are indicated by two asterisks (**), at 5% by one asterisk (*) and at 10% by a cross (+).

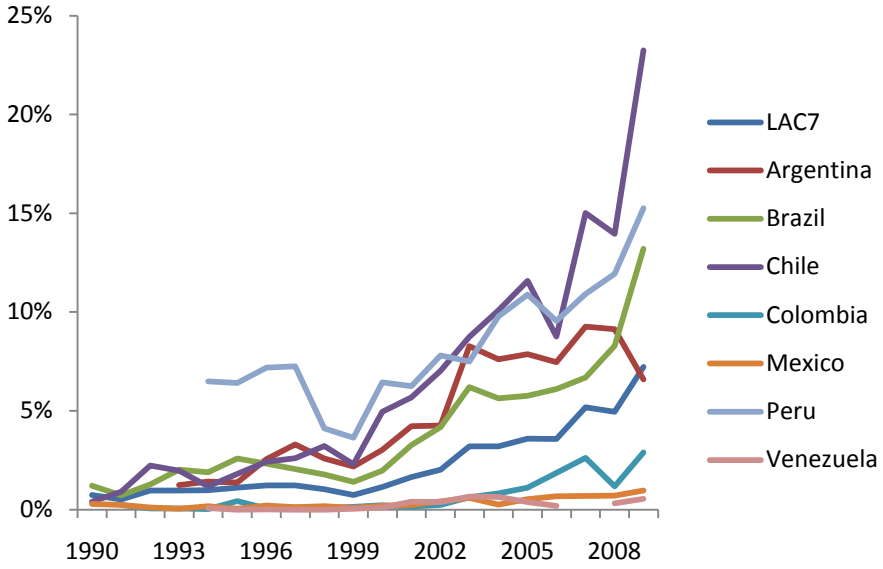
Source: World Bank WDI, countries' Ministries of Finance, COMTRADE and own calculations

Figure 1: Chinese Growth
(Logarithmic Scale)



Source: National Bureau of Statistics; CEIC

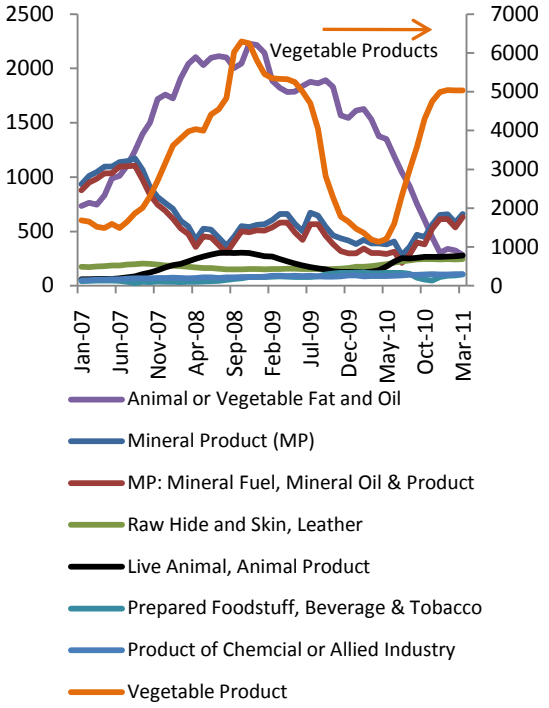
Figure 2: Share of Exports to China
(in Percent of Total Exports by Country)



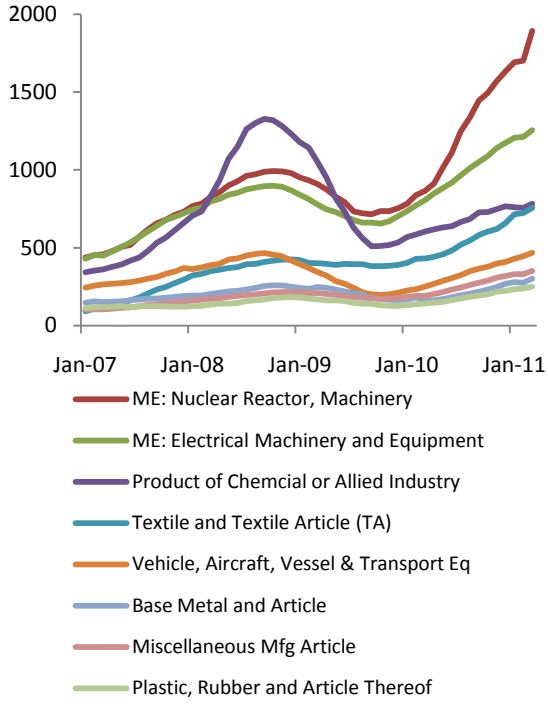
Source: UN COMTRADE
Note: LAC7 series is average the seven individual economies

Figure 3: Chinese Trade with Argentina, Brazil, and Chile

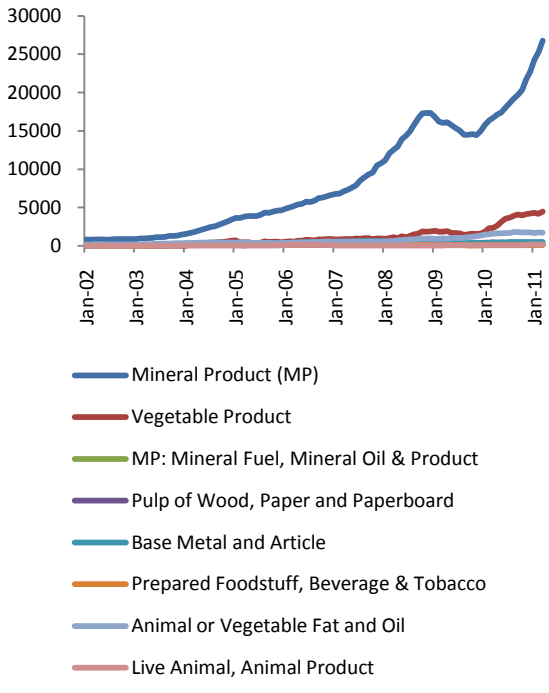
Imports from Argentina
(USD Millions)



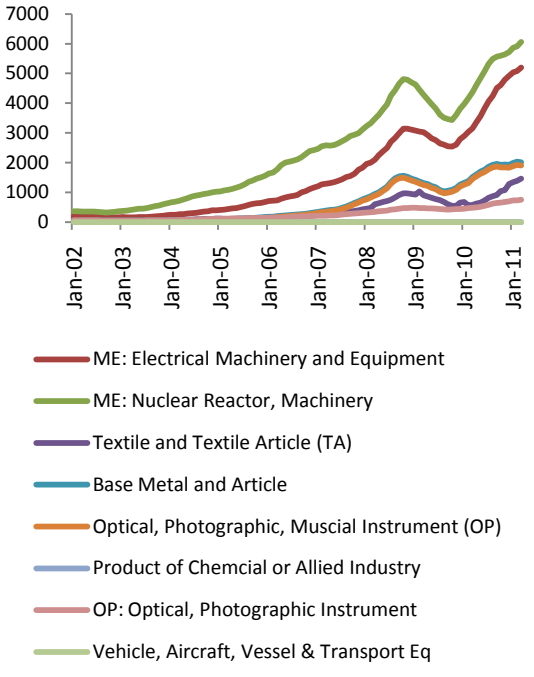
Exports to Argentina
(USD Millions)



Imports from Brazil
(USD Millions)

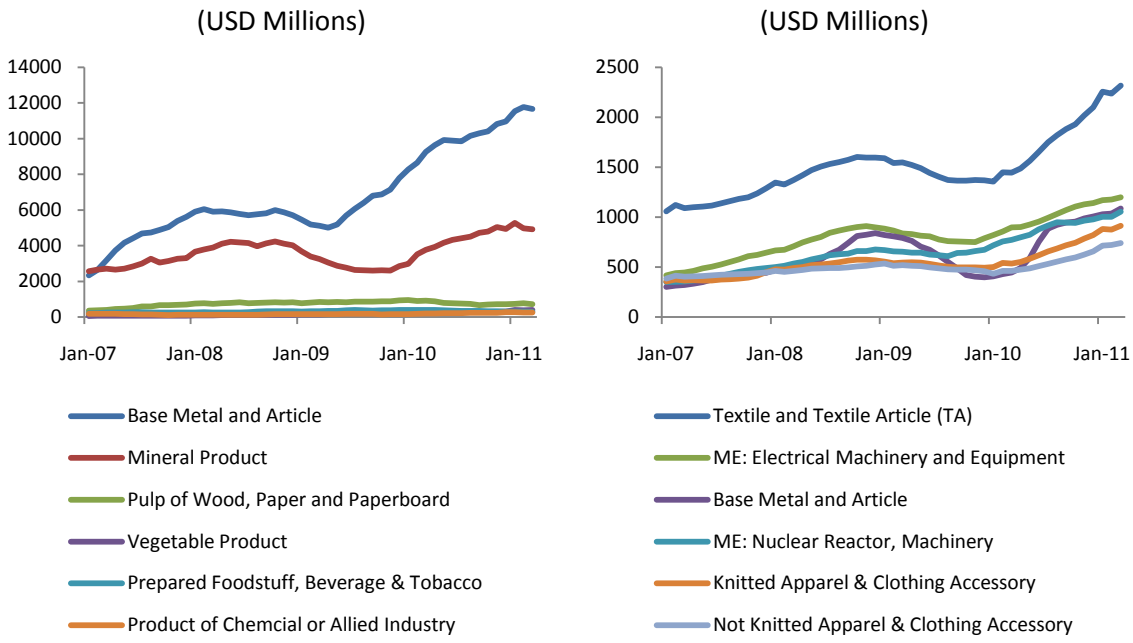


Exports to Brazil
(USD Millions)



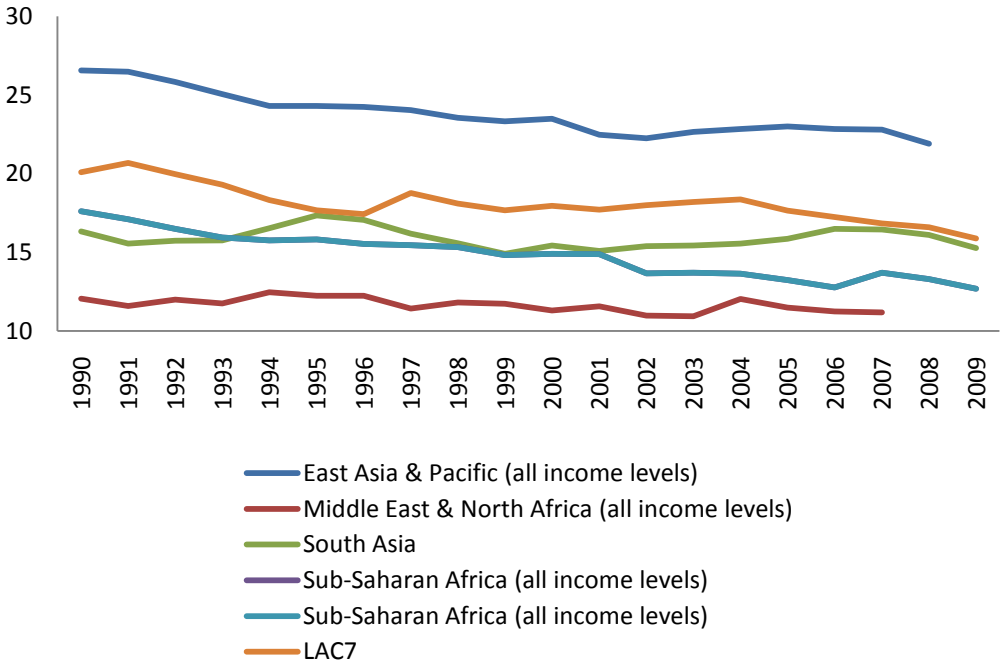
Imports from Chile

Exports to Chile



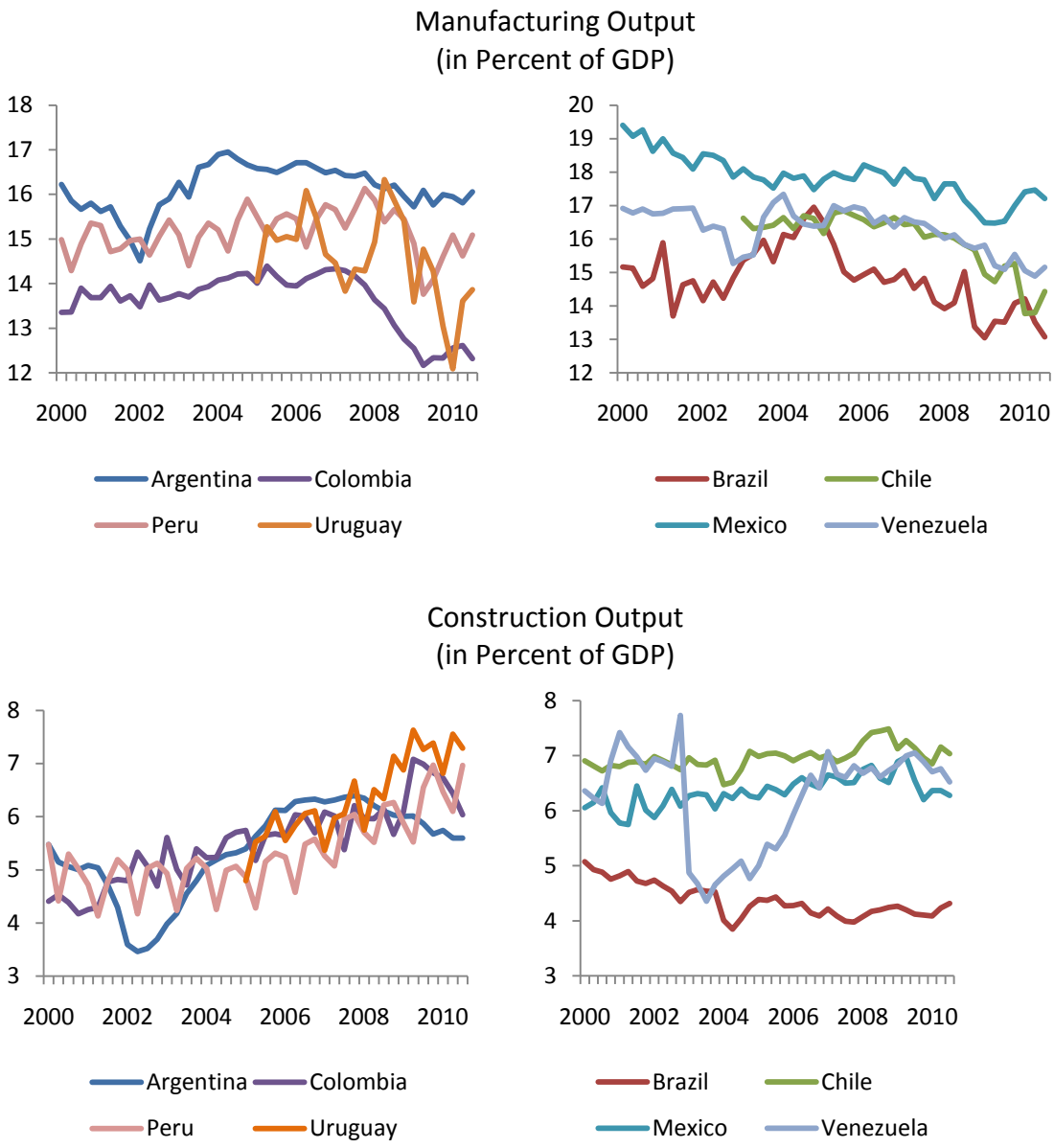
Source: General Administration of Customs; CEIC
Note: 12-month rolling sums

Figure 4: Manufacture as % of GDP



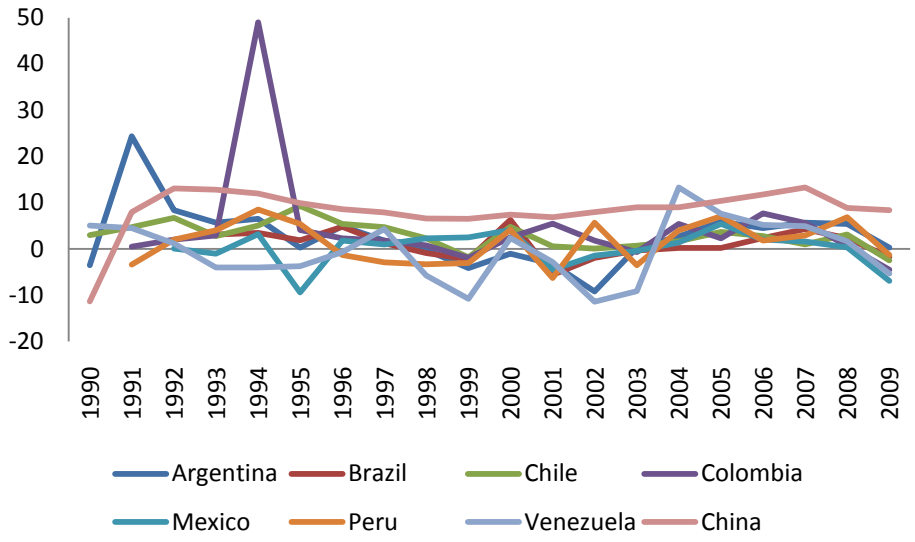
Source: WDI World Bank.

Figure 5: Manufacturing and Construction Output to GDP, Q1 2000 – Q1 2010



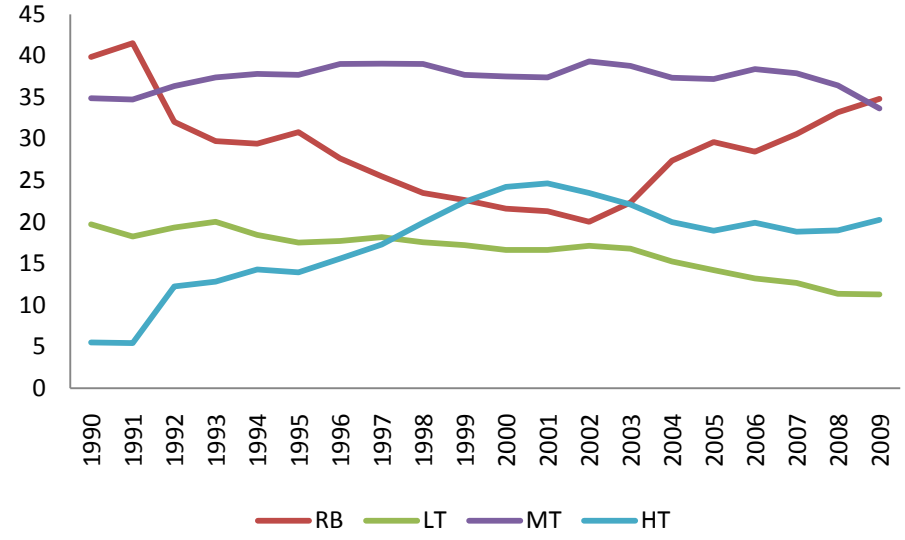
Source: Haver; National Official Statistics
Note: Mexico, Peru, Uruguay not seasonally adjusted. Brazil based on nominal data.

Figure 6: Labor Productivity Growth in LAC7 and China



Source: The Economist Intelligence Unit.
Note: Efficiency of labor measured in terms of output per worker (real GDP per person employed).

Figure 7: Exports by Technological Classification in Latin America (as % of Total Manufacturing Exports)



Source: Comtrade and own calculation.
Note: The technological classification in Resource Based (RB), Low Technology (LT), Medium Technology (MT) and High Technology (HT) comes from Lall (2000).