

The Effect of China's Exports on Latin American Trade with the World

Caroline Freund

Caglar Ozden

August, 2006

Abstract: We examine the effect of China's rapid export growth on Latin American and Caribbean (LAC) exports to third markets since the mid 1980s. We find that Mexican exporters of industrial goods to the U.S. market have been negatively impacted in recent years. In particular, Chinese export growth in industrial products has led to 2 percentage point slower growth in Mexican exports. There are also negative effects on a few countries in Central America and the Caribbean, but these effects appear to be dissipating. We find evidence that on aggregate LAC prices have been depressed as a result of competition from China, reflecting the significant negative terms of trade effect of increased competition from China. In some products, however, such as textiles, competition from China has led to quality upgrading. Finally, we find that Chinese exports are primarily competing with high-wage Latin American products, potentially limiting the extent to which Latin America can move up the quality ladder.

We are grateful to Cristina Neagu for excellent research assistance.

I. Introduction

Latin American merchandise exports have increased nearly fivefold since 1985.¹ Chinese exports have increased by more than twenty times in this period, and now exceed exports from Latin America by about 15 percent. The aim of this study is to assess the impact of China's rapid export expansion on Latin American and Caribbean trade with the rest of the world. We determine which Latin American and Caribbean (LAC) countries have been most negatively impacted by Chinese export growth and the industries that have been hardest hit. We explore whether competition from China pushes LAC to upgrade quality or depresses the LAC export prices. Finally, we evaluate how LAC trade is evolving—whether it is expanding into high- or low-wage industries.

Using bilateral trade data at the 4-digit SITC level from 1985-2004, we find that China's export expansion has had a significant negative effect on Latin American exports. The effect is concentrated primarily in industrial exports from Mexico to North America since 1995. We find some evidence of quality upgrading in response to China's emergence, but there is significant evidence that China has put downward pressure on LAC export prices. In addition, China is displacing LAC in relatively high-wage export sectors. Thus, China's export surge has limited LAC's ability to move up the export ladder.

In response to concerns raised by several LAC countries about China's export surge, a number of recent studies have examined these issues. Lall and Weiss (2004) is the most closely related. They use trade data at the 3-digit level and focus on overlapping industrial structure and correlations in the change in market share from 1990 to 2002 for LAC and China to the world and to the United States. They find that in 1990, thirty percent of trade was in industries where China is gaining and LAC is losing market share, which they refer to as industries under "direct threat" from China. In contrast, in 2002,

¹ Measured using BOP data in current \$U.S, Latin American exports increased by 470 percent.

the share of LAC trade under direct threat is only eleven percent. They conclude that LAC's trade structure is now relatively complementary to China's.

IDB (2005) examines the export similarity between China and Latin America and discusses textiles and apparel in detail. Using export data to the United States at the 10-digit level of disaggregation, they find that export similarity has increased significantly since 1972, and is greatest for Mexico and the Dominican Republic. They also argue that China has displaced LAC exports of textiles in products in which preferences are small or non-existent—though they do not provide an empirical analysis.

A number of studies focus on the specific effect of China on Mexico in the U.S. market. Quintin (2004) looks at the period from 1999 to 2003 and finds that displacement by China was segregated to only a handful of industries and argues that Mexico's stagnating exports in this period were mainly a result of slow growth in the United States. Hanson and Robertson (2006) find that Mexico's sluggish performance in the late 1990s was due to a slowdown in the United States and the surge in China's exports. A U.S. GAO report (2003) looks at the period from 1995 to 2002 and finds that Mexico lost market share in 47 of its 152 main export industries. Of these 47, China gained market share in 35, or about three quarters. In addition, over one half of maquiladoras surveyed mentioned China as playing an important role in their decline (U.S. GAO 2003 p. 26). Dussel Peters (2005) also finds that Mexico has lost substantial ground to China in the United States market, especially in recent years, and that both countries are increasingly specialized in electronics and auto parts.

Our work builds on the previous work in several ways. First, using bilateral trade data at the 4-digit SITC level over 20 years, we can more carefully assess China's threat. Across countries, we evaluate whether LAC exports to a given market declined or grew more slowly in the 4-digit products where Chinese exports increased, controlling for country demand. If China and LAC countries are competing in different markets or different 4-digit products then the threat may be smaller than previously indicated. Second, rather than relying on changes in market shares alone, we use empirical analysis, controlling for

exporter supply and importer demand effects, to more carefully gage the magnitude of the threat. Third, we examine price effects from China; specifically, whether increased exports from China or falling prices of Chinese goods drove LAC prices down. Finally, we evaluate the type of products—high wage or low wage—in which China is displacing LAC exports.

The paper proceeds as follows: the next section evaluates whether Chinese exports are substitutes for LAC exports in third country markets; Section III analyzes price effects; Section IV examines whether LAC exporters are moving to high wage or low wage industries in response to the entry of China into global markets; and Section V concludes. Finally, we provide a brief appendix that discusses potential positive effects of imported intermediates from China on LAC exports.

II. Chinese Exports as Substitutes

The aim of this section is to determine which Latin American countries and industries have been affected by the competition from Chinese exports. This issue has received much attention, as Chinese exports have rapidly increased their share in the global market over the last decade. Most other studies use changes in market shares in relatively aggregate export categories, which introduces separate two problems. First, it is possible that China is increasing its market share at the expense of domestic producers but *not* displacing other exporters. As a result, the export market shares of other exporters will decline, by definition, but there will not be necessarily an economic loss imposed on them. Second, using a relatively aggregate export category may overstate displacement if exports are actually in very different sub-categories. For example, assume China sells primarily overcoats and LAC sells mainly suits. At the three-digit level these products will appear to be competing, but it is unlikely that an increase in overcoat exports from China displaces suit exports from LAC. In the results section below, we briefly discuss changes in market shares, but rely on different measures of export performance to more accurately assess the China effect.

In our empirical analysis, we essentially test whether Chinese exports to a particular country in a given category are affecting LAC exports to a greater extent than exports from other countries, controlling for overall exporter supply growth. Thus, if Chinese export growth is primarily displacing domestic producers, or is not competing with LAC for some other reason, we will not pick it up. While, even in our case, Chinese exports might not be pushing out LAC exports—it could be that China is entering because LAC is exiting—this is less likely since we are controlling for export supply growth. Moreover, given China’s meteoric rise in exports and the ensuing rhetoric in LAC countries, this seems unlikely.

To motivate our empirical work, we start with two export equations by industry, one general and one for China, which are written as follows:

$$(1) \quad \text{exports}_{ijt} = \gamma_{ij} \gamma_{it} \gamma_{jt}$$

$$(2) \quad \text{china}_{jt} = \gamma_{chj} \gamma_{cht} \gamma_{jt}$$

where, exports_{ijt} is the natural log of exports from country i to country j at time t ; γ_{ij} is a country-pair fixed effect that will pick up fixed country-pair characteristics (or characteristics that change slowly), such as distance, size, comparative advantage, and multilateral resistance; γ_{it} is an exporter-year idiosyncratic effect that will pick up positive or negative shocks to the sector; γ_{jt} is the importer-year variable that reflects time varying importer characteristics such demand conditions in the industry in year t . γ_{cht} is a special shock to China.

This implies we can write total imports to country j , from all countries besides China, as:

$$(3) \quad \text{Imports}_{jt} = \gamma_{jt} \left(\sum_i \gamma_{it} \gamma_{ij} \right).$$

Assume the exporter-specific variables grow at rate g with a multiplicative error that is iid, $\gamma_{it} = (1 + g)^t (1 + \varepsilon_{it})$, then we can rewrite the total import equation as

$$(4) \quad E(\text{Imports}_{jt}) = \gamma_{jt}(1+g)^t \bar{\gamma}_{ij}.$$

This says that the expected value of imports in country j in year t are equal to the average bilateral import multiplied by average exporter growth and importer demand.

Writing equation (1) and (4) in log first differences, we have:

$$(5) \quad d \text{exports}_{ijt} = \alpha_{it} + \alpha_{jt}$$

$$(6) \quad \dim \text{ports}_{jt} = \alpha_{jt} + \ln(1+g)$$

Substituting equation 6 into equation 5, we can write export growth as

$$(5) \quad d \text{exports}_{ijt} = \alpha_{it} + \dim \text{ports}_{jt} - k,$$

Where k is a constant representing average import growth. Assuming this is the correct specification, then the coefficient on imports should be close to one; i.e. on average, a one percent increase in total imports is correlated with a one percent increase in a given countries exports, after controlling for overall export supply growth.

Now assume that in some products that there is a negative effect on county i 's exports to j , as a result of increased exports from China to country j . We rewrite equation (1) as:

$$(6) \quad \text{exports}_{ijt} = \gamma_{ij}\gamma_{it}\gamma_{jt} / K_{jt} \text{China}_{jt}.$$

This implies that an increase in Chinese exports reduces the countries exports by a factor $1/K$. Now export growth is

$$(7) \quad d \text{exports}_{ijt} = \alpha_{it} + \dim \text{ports}_{jt} - d \text{china}_{jt} + \varepsilon_{ijt}.$$

We want to estimate whether Chinese exports have displaced Latin American exports. To the extent that China's export growth does not impact LAC exporters specifically, the coefficient on China should be zero. If Chinese imports are driving LAC imports out of the market to a greater extent than other imports, the coefficient should be negative. If Chinese imports complement LAC imports the coefficient on China should be positive. Note that this is essentially a test of whether China is affecting LAC countries more than other exporting countries. If China has the roughly same effect on all exporting countries then the coefficient on imports will be close to one and the coefficient on China will be zero.

We run the regression with both China's export growth and China's export growth weighted by the lagged share of Chinese exports in countries j 's imports. We report results below using weighted Chinese export growth, as the fit was much better—though results are qualitatively similar for both specifications. The intuition for weighting export growth by lagged trade share is that China's export growth will only matter if China is a significant supplier—that is, equation (6) is only relevant when China is an important exporter. For example, export growth of 100 percent by china if china's exports are .00001 percent of the market is probably meaningless. In terms of the framework above, the intuition is that K is dependent on Chinese market share. Thus, the final equation we estimate is

$$(8) \quad d \text{ exports}_{ijt} = \alpha_{it} + \beta_0 \text{ dim ports}_{jt} + \beta_1 d \text{ china}_{jt} + \varepsilon_{ijt},$$

where $d \text{ china}_{jt}$ is growth of china in country j and sector k multiplied by the China's lagged market share in that sector and market. A negative coefficient on China (β_1) indicates that Chinese export growth is correlated with a decline in Latin American export growth in a given industry.

We estimate this equation using data from 1985 to 2004. The advantage of this specification is that we are exploiting both cross-section and time-series variation in order

to estimate how LA exports are affected by China. There is variation across markets in a given product in Chinese import penetration and in growth of Chinese imports over time. In addition, the data are readily available and the coefficient is easy to understand.

Results

We use bilateral trade data at the 4-digit SITC level. The data were collected as import data, which are reported more accurately, and then converted to export data. As an initial pass at the data, we present a scatter plot of the change in world market share from 1995 to 2004 for LAC exports and Chinese exports, weighted by LAC exports at the beginning of the period (Figure 1). Points in the lower right quadrant reflect products where LAC market share has fallen and China's market share has risen. Figure 1 shows the change in LAC market share, market share of Central America, the Caribbean, and Mexico (CACM) and South American market share, respectively. Figure 2 is similar, except for North American imports.

The scatter plots indicate that there are some significant industries where LAC has lost and China has gained. This is especially true for CACM exports to North America (middle panel, Figure 2).

Table 1 reports the results of estimating equation (8) on all industries, and on non-industrial and industrial products separately. Industrial products are defined as those with SITC codes above 6000, these include manufactured products, such as steel, electronics, and textiles and apparel. Non-industrial products are those with SITC codes below 6000. These include agricultural products, minerals, and raw materials.

Columns 1, 2, and 3 report the results on all exports with exporter-year fixed effects, exporter-2-digit-product fixed effects, and exporter-4-digit-product fixed effects, respectively. Thus, the third column estimates rely entirely on cross-country variation. The coefficient on $\ln\text{imports}$ is greater than one, implying that LAC export growth has been above non-China import growth, but that on average export growth is low when Chinese exports are large and growing. Looking at non-industrial (columns 4-6) versus

industrial products (columns 7-9), the effect on industrials is more robust. For the remaining tables, we report results using exporter-2-digit-product fixed effects in all regressions.

The coefficient of about -0.3 implies that in a product with the average Chinese market share of 10 percent and Chinese export growth of 20 percent, LAC export growth would be reduced by .6 percentage points ($.3 \times .1 \times 20$). Note that while the coefficient on Chinese export growth is large, the magnitude of the effect depends on the market share of Chinese products. Thus, the overall effect is much smaller.

Table 2 disaggregates the China effect by the income level or region of the importer. In the first column, both variables are interacted with a dummy that is one if the importer is a developing country. The negative coefficient on `dlnCHN_dev` implies that the negative impact of China has been at least as strong in developing countries. The second column interacts the variables with a dummies for North America (NA), LAC, and other developing countries (`devnoLAC`). The region left out is OECD countries aside from North America. The negative impact of China is strongest in North America and other developing countries aside from LAC. The impact in North America is especially strong in industrial goods. The coefficient of 0.95 (column 6) implies that in a product with 10 percent Chinese market share and growth of 20 percent, LAC exports would be reduced by nearly two percent.²

Table 3 looks at the effect over time, disaggregating it into four periods, 86-89, 90-94, 95-99, and 00-04. The negative effect of China on LAC exports is only evident since 1995. It is especially, strong and robust on CACM exporters and in Industrial products. This is not too surprising given that rhetoric has been greatest in Mexico and other studies have also found some effects on Mexico.³

² The sum of the coefficients on `dchina` and `dlnCHN_NA` is significantly different from zero. Since the coefficient on `dlnChN` is close to zero, the effect in North America is roughly 0.95.

³ See GAO (2003) and Dussel Peters (2005).

Table 4 combines the above to examine different importers in different periods. We see robust negative effects are on CACM exporters to North America and to other LAC countries from 1995-2004, as well as, for South American exporters to non-LAC developing countries for all types of products in 1995-2004. The sign and magnitude of the coefficient for CACM exporters, implies that they are also hurt in exports of industrial products to other developing countries in this period, but their trade is not large enough for the results to be significant.

Table 5 further disaggregates the effect by source of exports in the Caribbean, Central America, and Mexico, where results are the strongest. In Mexico, there are strong effects in industrial products in the most recent period. In Central America, there were strong effects in 90-99, but they have died out in the most recent period. In each country individually, there are significant negative effects in Costa Rica and El Salvador in 90-94 and in Panama in 95-99. In the Caribbean, there are also strong effects in the recent period. The Caribbean effect is driven primarily by the Bahamas. When the Bahamas are excluded, the effect is no longer robust. Aside from the Bahamas, only Cuba shows a robust negative effect in the recent period in industrials.

The coefficient of -0.759 and an average market share of 13 percent in industrial products implies that 20 percent Chinese export growth has limited Mexican export growth by about 2 percentage points.

Table 6 and 7 report the results for each 2-digit category separately for all years and for the first period and the second period separately. Fifteen out of 70 categories show significant negative impacts of Chinese exports in the second period (three show positive and significant impacts: dyeing, tanning and coloring materials; arms, of war and ammunition; and road vehicles (incl. air cushion vehicles)). The 14 categories with negative impacts are reported in Table 8. Many of these products are electronics, consistent with earlier work by Dussel Peters (2005) and GAO (2003) for Mexico.

Of interest, while the coefficient on textiles is negative in both periods, and significant in the second period, the coefficient on apparel is negative and significant only in the first period. It is positive and not significant in the second period, implying that China did not have a significant role in displacing LAC apparel exports. The coefficient on overall imports (excluding China) of apparel is 0.85 implying that LAC exports were not growing as fast as exports from other countries (excluding China) in the latter period. Thus, LAC exporters were losing market share in apparel from 1995-2004, but mainly to other exporters. This supports the argument that, for the most part China and LAC do not compete in the same categories of apparel.

In sum, we examine how LAC exports are affected by Chinese export growth and find that Mexican producers are the main victims, with some negative effects on countries in Central America and the Caribbean. We also find that effects are largely confined to the western hemisphere and the last 10 years, and that industrial products, especially electronics, have been affected most. (The appendix provides some evidence of potential positive effects on LAC exports of imported intermediates from China.)

III. Price Effects

Most empirical research in international trade focuses on trade value, even though theoretical literature emphasizes that prices are the more appropriate instruments to examine terms of trade effects such as China's entry into the world market. One issue is that quantity and price data are either not widely collected or made available by most countries. An additional challenge is posed by the aggregation of different products that are recorded in the same 4-digit industry (for example, umbrellas and canes are in the same category, 8994).

The data we use have information on quantities so we are able to examine price effects. While aggregation is still problematic, our hope is that estimation in changes overcomes much of the problem. That is, we do not focus on differences in unit values between LAC and China, but on changes in unit values. In particular, we examine how changes in

importer conditions, and changes in China's prices and quantities, affect movements in import prices from LAC. We have already seen that China's export growth has affected the value of Latin American exports in certain categories. The effect of China on LAC's export values could be a result of price effects, quantity effects, or both. Enhanced competition from China could push Latin American prices down, reducing the value of their exports. Alternatively, greater exports from China could push LAC exports up the quality ladder, leading to relatively higher prices of LAC exports, but at a relatively low volume. In this section, we aim to distinguish overall price from quantity effects, using data on unit values.

First, we look at prices from LAC countries relative to China and to the rest of the world. Figure 3 shows average relative prices in the U.S. market from 1990 to 2004 in industries for which both the LAC and China market shares are above 1 percent on average in the period, weighted by the average LAC share of trade over the whole period. For this exercise, we focus on the U.S. market because unit values are not comparable across countries, and because pricing to market also makes comparisons in world trade difficult.⁴ There are three interesting facts: (i) While prices of LAC exporters are roughly in line with other exporters of similar goods, they are on average more than 1½ times prices of Chinese exports; (ii) Relative prices of LAC exporters were rising relative to both Chinese exporters and other exporters from 1995 to 2000, and then begin falling in 2001; and (iii) the decline in relative prices with respect to China is much greater than with respect to the rest of the world and offsets any gain in the 1990s.

If we interpret prices as representing quality, this implies that the average LAC quality in products that are important to LAC is above Chinese quality, and was improving relative to Chinese quality throughout the 1990s, but since 2000, China has had a dramatic relative increase in quality.

⁴ If prices in some markets are higher and the composition of trade changes across partners then the relative prices would reflect composition. In addition, unit values across markets are not always comparable, leading to a large error. Indeed, when we examine this index on world trade it is very volatile, and appears as though the error is dominating.

Figure 5 shows the aggregate price chart for Mexico in the U.S. market. Overall there is evidence that Mexican relative prices have fallen in recent years, especially with respect to China. Figure 6 shows several of the 2-digit charts for products where China is displacing Mexico and price effects are evident. There is a lot of heterogeneity. There is evidence of upgrading in textile fibers (SITC 26) and textile yarn and fabrics (SITC 65) and a few other soft manufactures. In contrast, in manufactures of metal and telecom and sound apparatus there is more evidence of terms of trade effects.

An alternative explanation for the downturn in LACs relative prices after 2000 is that as Chinese exports soared in the mid- to late-1990s, the increased competition put downward pressure on prices of LAC exports. Thus, to try and examine whether it is quality adjustment versus terms of trade effects, we estimate a price equation.

To estimate the impact of China on LAC prices, the basic regression equation that we estimate is

(9)

$$d \ln price_{it} = d \ln price_{jt} + d \ln imports_{jt} + d \ln price_{cht} + d \ln import_{cht} + d \ln wprice_{jt} + d \ln wimport_{cht}$$

where $d \ln price_{it}$ is the percentage change in the price of LAC (country i) exports in a given industry at time t . $d \ln price_{jt}$ is the average percentage change in price in the industry excluding china, $d \ln imports_{jt}$ is the percentage change in imports excluding china, $d \ln price_{cht}$ is the percentage change in price from china, $d \ln import_{cht}$ is the percentage change in imports from china, $d \ln wprice_{jt}$ is the percentage change in price from china weighted by china's share of country j 's imports, $d \ln wimport_{cht}$ is china's import growth weighted by china's share of country j 's imports. If the relative price changes reflect relative quality than we should not see an effect of Chinese price movements or imports on LAC prices. We include price and imports from other exporters to control for general conditions in the market for the industry. We are essentially testing whether Chinese movements in prices and trade volumes affected prices from Latin American countries to a greater extent than other exporters. If China

did have an effect, but it was spread across all other exporters, then the change in prices of other exporters should entirely capture the effect on LAC.

The results are reported in Table 9. The first three columns indicate that there are no robust effects of Chinese exports or prices on the prices of LAC countries, when the regression is estimated on all goods, using alternative fixed effects. Columns 4-6 report the results on non-industrial goods, again there are no robust effects of Chinese trade on LAC prices. The final three columns report the results on industrial goods. We find that export prices from China are significantly correlated with export prices from LAC. In particular, a ten percent export price decline from China leads to a .4 percent price decline from LAC. There is some evidence that greater imports from China also lead to lower prices from LAC. Because there are so many variables, to distinguish effects for different exporters, importers, and time periods, we run separate regressions as opposed to using interactions, as above.

Table 10 reports the results for developing country and OECD markets separately. Again, in this Table and the remaining tables we report results using only exporter-2-digit-product-year fixed effects. Price effects are uncovered in both regions, but are strongest in industrial goods in OECD markets. In OECD markets, a decrease in Chinese price in products with a high Chinese share is correlated with a decrease in LAC prices. In addition, an increase in Chinese imports in a product with a large LAC share is associated with to a decrease in LAC prices.

Table 11 reports the results for South American and Central American, Caribbean, and Mexico exporters separately. The effects on South America are quite different than CACM. For SA, there is no significant effect of Chinese trade or prices. For CACM countries, price decreases on Chinese goods are associated with significant price decreases of CACM exports, especially on goods for which China has a large export share. Moreover, increased imports from China are correlated with lower CACM prices, especially in categories with a large share of Chinese imports.

Table 12 reports the results for Caribbean exporter of industrial goods in 4 periods. The results indicate that this is a relatively new phenomena. The only significant correlations are in the final period (2000-2004). In this period, Chinese price reductions are correlated with CACM price reductions, and Chinese import growth is correlated with CACM price reductions. Given this is precisely the period where we see relative prices falling, this suggests that the relative price reduction in LAC since 2000 is mainly a function of enhanced competition from China as opposed to Chinese quality upgrading at a faster pace.

In sum, we find price effects mainly on the CACM , in industrial goods, since 2000. The results offer little evidence of quality upgrading. In contrast, they suggest that increased competition from China has put downward pressure on CACM prices.

IV. Is LAC Moving into High or Low Wage Industries

In this section, we evaluate how LAC has faired in terms of the types of industries where trade growth has been above/below world averages and which industries China has affected. We evaluate industries according to the average real per capita income of countries that export in a given industry, i.e. have revealed comparative advantage. We interpret the average income level associated with each product as representative of the productivity or average real wage associated with the product. We then examine whether LAC is moving into/out of industries associated with a relatively high/low average wage. We also examine the industries where China is negatively affecting LAC, according to these criteria.

To determine which exports are growing at above average rates we run the regression without a special China effect and look for categories where the coefficient on overall import growth (including China) is significantly greater than one.⁵ These are categories where export growth from LAC significantly exceeds import demand from the rest of the world on average. Thus, these are categories where LAC exports are growing the fastest relative to the rest of the world. There are 19 growth products at the 2-digit level,

⁵ Import growth in this specifications is import growth from the world.

reported in Table 13. Of these, three are products where Chinese growth is significantly associated with a slowdown in LAC growth. These are electrical machinery; iron and steel; and leather and leather manufactures.

We also look at categories where the coefficient on import growth is significantly less than one. This occurs in only five categories. These are categories where LAC is not keeping pace with other exporters; they are reported in Table 14. Of these five, two are products where Chinese growth is significantly associated with slower LAC export growth. These are cereals and cereal preparation and manufactures of metal.

To characterize the industries, we follow Hausman, Hwang, Rodrik (2005) and create an index of the average real wage (as measured by per capita GDP at PPP) associated with exporters in a given industry. The index is created at the world level and is defined as follows:

$$(10) \quad PRODY_k = \sum_j \frac{(exp\,orts_{jk} / EXPORTS_j)}{\sum_j (exp\,orts_{jk} / EXPORTS_j)} GDPPC_j,$$

where k denotes the industry and j denotes the country GDPPC is per capita GDP at purchasing power parity. $Exports_{jk}$ is exports of country j in industry k and $EXPORTS_j$ is total exports of country j . Thus, the weight on GDPPC is a country's share of its export basket in a product over the sum of the export shares of all countries. The reason for using revealed comparative advantage as a weight is that using export weights alone would place too much weight on large exporters of k for whom k might still be a small portion of overall exports. We calculate $PRODY$ for each 4-digit SITC industry using average bilateral trade and average GDPPC at PPP data from 2000-2004.

The idea behind $PRODY$ is that some traded goods are associated with higher productivity levels than others. The $PRODY$ index is a quantitative index that ranks traded goods in terms of their implied productivity. The country level $PRODY$ is "the income level of a country's exports". It is meant to capture the notion that countries that export higher productivity goods will perform better. That is, if the $PRODY$ level of the

export basket is above a country's per capita income it will likely grow relatively fast. This has certainly been the case for China.

Some potential problems are that even a four-digit disaggregation may not capture correctly type of good being produced. In addition, it should really be a measure value added of exports as opposed to total exports.

Using this measure, the top two panels of Table 15 report the five products associated with the highest and lowest income at the 4-digit level. Sisal and similar fibres is the lowest with an average GDPPC of \$886 and sheet piling of iron and steel is the highest with an income of \$35,599. Both of these are among the categories Hausman et. al. (2005) also find using HS 6-digit data. The lower two panels report the two digit categories that are associated with the highest and lowest level of exporter income, where each 4-digit PRODY is weighted by LACs share of trade in that category. Thus, these are the 2-digit categories where LAC is mostly competing with low-income or high-income exporters.

We characterize overall LAC exports in 2000-2004 using this index. We create a trade-weighted average of the index by LAC exports. In 2000-2004, LAC exports have an average PRODY of \$9,128. That implies that their exports on average are representative of exporters with a per capita real income of \$9,128. The average per capita income in LAC, weighted by exports, is \$8,143, indicating that their exports are somewhat above their income level.⁶ We can also look at how the level of their exports has changed over time. Holding values of PRODY constant and weighing them by LAC trade shares in 1990-1994, the average PRODY is \$8,143—about 14 percent lower—indicating that LAC has moved toward relatively high-wage products in the last 10 years (Table 15).⁷

⁶ Using the same data, this is calculated as the sum over the LAC countries in the sample of (share of LAC total exports)*(GDPPC at PPP).

⁷ We hold PRODY constant because otherwise it would not be clear if changes in a region's export structure over time are actually due to changes in their export structure or to changes in the classification of the industries. While the rank of the industries is largely constant over time, the wage associated with most industries has fallen as a result of more trade by China and other low income countries.

Table 16 also reports the real wage level of China exports. It is slightly above that of LAC, and growing somewhat faster—it increased by nearly 20 percent over the last 10 years. Most interesting is that the level of China’s exports is more than double China’s real income level in 2000-2004. Rodrik (2006) argues that the structure of China’s exports, heavily geared to relatively high-wage/productivity products, helps to explain China’s success, and is at least partly a result of industrial policy.

Examining the LAC regions in more detail, we see a much higher value of PRODY for Mexico, in part explaining the more intense competition with China. They are producing the same types of goods. Of interest, the Caribbean shows a slight decline in PRODY implying that they are not moving up the value chain. This could also reflect relatively faster trade growth among the low income countries in the Caribbean. In any case, there is no evidence that the Caribbean is moving into high productivity goods.

(Using world export shares, the average value of PRODY over this period increased from \$10,679 to \$11,108, only a 4 percent rise. In part this is because of the large increase in exports by poor countries that compete primarily in low PRODY products.)

Next, we look at the LAC trade-weighted average PRODY of the three groups of products defined above: (i) the products where China is displacing LA; (ii) the products in which LAC is expanding; and (iii) the products where LAC is contracting. The results for the products where China is displacing LAC are reported in the last column of Table 8. These products tend to be products that are high wage. Eleven of the 15 are products with PRODY above LAC average PRODY. Specifically, the trade-weighted average PRODY of this group of products is \$11,208, well above LAC’s average PRODY of \$9128. *This implies that competition from China is mainly in the relatively high-wage products that LAC exports.*⁸

Table 13 reports the values of the PRODY index for the group (ii) products, where LAC exports are expanding more rapidly than the rest of the world. In 10 of the 19 products,

⁸ Lall and Weiss (2005) make a related point—that China’s expansion into high tech products may have limited the scope for Latin American expansion in these types of products.

the average PRODY is above the average for LAC. The trade-weighted average is nearly \$10,000, slightly above the overall average for LAC, though not as high as the products threatened by China.

Table 14 reports the values of PRODY for group (iii), the low growth LAC products. All but one—manufactures of metal (also a China threat product)—are products that are below LAC's average. Weighted by LAC's trade, the average value of PRODY is \$6,600, well below LAC's average PRODY.

Overall, the results indicate that LAC is moving to high-wage products, though at a rather slow rate, especially when compared with China. There is some evidence that China is depressing LAC's upward movement, as China is displacing LAC in relatively high-wage industries.

V. Conclusions (preliminary and incomplete)

China's tremendous trade growth in recent years has had a large effect on the global economy. In this paper we have explored the effect of China on the exports of LAC countries. Our main findings are (i) Chinese export growth is primarily affecting Mexican export growth in industrial goods in Western Hemisphere markets. (ii) Competition from China has put downward pressure on prices of industrial goods in recent years, roughly offsetting any gains from relative quality upgrading that LAC may have achieved in the 1990s. (iii) China's export growth is negatively affecting LAC exports of relatively high-wage goods.

As is already well known to exporters in Mexico, the threat from China is real. This begs the question of what to do?

Of obvious importance is continuing macro reforms—reducing large budget deficits and avoiding the pitfalls of an overvalued exchange rate are key. Low interest rates and high

investment and savings are a prerequisite to growth. Overvalued exchange rates effectively tax the export sector.

On the micro side, there is somewhat more controversy as to what are the optimal policies. The following three potential policies are often highlighted:

Preferences—Pursue regional agreements, urging the U.S. and other Latin American countries to maintain barriers on other exporters. The advantage of this strategy is that it limits China's exports growth. The disadvantage is that it may encourage growth of the wrong sectors, and to the extent that overall liberalization eventually ensues, it postpones the inevitable.

Industrial Policy—Steer investment to special industries and hope for success. The advantage is that if you hit the right sector you succeed. The disadvantage is that it is a roulette-style strategy—the chances of picking a loser are extreme.

Pursue Micro Reforms—Get serious about the business reform agenda, including easing business and labor regulations, improving trade facilitation, strengthening contract enforcement, and fighting corruption. The advantage is that it creates an environment for a competitive flexible economy in the future. The disadvantage is that the costs of reform are high to some groups in the short run.

Can China serve as a guide? China is an economy riddled with distortions but with enviable income and export growth. China has had three important macro advantages: (i) low interest rates, (ii) high historical savings and investment, and (iii) an undervalued exchange rate. In terms of business reforms as measured by the Doing Business report there are four areas where China is significantly better than LAC: (i) hiring and firing, (ii) registering property, (iii) trading across borders, and (iv) enforcing contracts. China has also followed a strategy of taxing agriculture and promoting manufacturing.

References

Dussel Peters, E. (2005) "The Implications of China's Entry into the WTO for Mexico," Heinrich Boll Stiftung Global Issue Papers, No 24.

Hanson, G. and R. Robertson (2006) "The Recent Evolution of Mexico's Manufacturing Exports" Mimeo.

Hausmann, R., J. Hwang and D. Rodrik (2005) "What You Export Matters" NBER Working Paper #11905.

IDB (2005) *The Emergence of China: Opportunities and Challenges for Latin America and the Caribbean.*

Lall, S. and Weiss (2005) "China's Competitive Threat to Latin America: An Analysis for 1990-2002." QEH Working Paper Number 120.

Quintin, E. (2004) "Mexico's Export Woes Not All China-Induced." *Southwest Economy* Issue 6, November/December, Federal Reserve Bank of Dallas

Rodrik, D. (2006) "What's So Special About China's Exports?" NBER Working Paper 11947.

United State General Accounting Office (2003) "Mexico's Maquiladora Decline Affects U.S. Mexico Border Communities and Trade; Recovery Depends in Part on Mexico's Actions" Report to Congressional Requestors 03-891, July.

Table 1: Determinants of LAC Export Growth

	all products			All exporters non-industrial			industrial		
	dlntrade expyrdum	dlntrade expprod2yrdum	dlntrade expprodyrdum	dlntrade expyrdum	dlntrade expprod2yrdum	dlntrade expprodyrdum	dlntrade expyrdum	dlntrade expprod2yrdum	dlntrade expprodyrdum
dlnimp	1.178*** [14.01]	1.225*** [13.74]	1.318*** [9.74]	1.062*** [31.07]	1.079*** [36.44]	1.127*** [31.83]	1.252*** [10.06]	1.278*** [10.69]	1.390*** [7.60]
dlnchina	-0.243* [1.75]	-0.326*** [3.96]	-0.302*** [2.88]	-0.3 [1.23]	-0.395*** [2.77]	-0.456** [2.33]	-0.359*** [2.73]	-0.358*** [3.47]	-0.315*** [2.82]
Observations	786110	786110	786110	223901	223901	223901	562209	562209	562209
R-squared	0.21	0.39	0.58	0.23	0.4	0.58	0.24	0.39	0.58
Number of dummies	757	29936	148731	746	13217	49020	757	16719	99711

Robust t statistics in brackets

significant at 10%; ** significant at 5%; *** significant at 1%

weighted least squares, weights = trade value.

Table 2: Determinants of LAC export Growth: Isolating Markets

	all products		All exporters non-industrial		industrial	
	dlntrade	dlntrade	dlntrade	dlntrade	dlntrade	dlntrade
dlnimports	1.273*** [8.20]	1.589*** [6.23]	1.045*** [28.83]	1.101*** [23.81]	1.382*** [6.33]	1.958*** [4.93]
dlnchina	-0.241** [2.43]	0.164 [1.14]	-0.08 [0.51]	-0.138 [0.76]	-0.446*** [2.99]	0.027 [0.10]
dlnimp_dev	-0.1 [0.69]		0.077 [1.36]		-0.202 [0.98]	
difCHN_dev	-0.212 [1.35]		-0.574** [2.33]		0.169 [0.77]	
dlnimp_NA		-0.575*** [2.62]		-0.150** [2.25]		-0.947*** [2.59]
dlnimp_LAC		-0.491** [1.99]		-0.046 [0.72]		-0.850** [2.19]
dlnimp_devnoLAC		-0.182 [0.75]		0.121 [1.13]		-0.454 [1.20]
dlnCHN_NA		-0.971*** [4.62]		0.569* [1.84]		-0.957*** [2.81]
dlnCHN_LAC		-0.271 [1.57]		0.263 [1.02]		-0.186 [0.65]
dlnCHN_devnoLAC		-0.701*** [3.13]		-0.576** [2.06]		-0.512 [1.15]
Observations	786110	786110	223901	223901	562209	562209
R-squared	0.39	0.4	0.4	0.41	0.39	0.4
Number of dummies	29936	29936	13217	13217	16719	16719

Robust t statistics in brackets. Exporter-2-digit product-year fixed effects included in all regressions. significant at 10%; ** significant at 5%; *** significant at 1%
weighted least squares, weights = trade value.

Table 3: Determinants of LAC Export Growth: Isolating Periods and Exporters

	All exporters			South American exporters			CACM exporters		
	all products dlntrade	non-industrial dlntrade	industrial dlntrade	all products dlntrade	non-industrial dlntrade	industrial dlntrade	all products dlntrade	non-industrial dlntrade	industrial dlntrade
dlnimports_8689	1.078*** [15.12]	1.023*** [11.59]	1.105*** [11.50]	1.247*** [18.30]	1.186*** [10.32]	1.284*** [15.46]	0.891*** [6.51]	0.747*** [6.14]	0.948*** [5.36]
dlnimports_9094	1.178*** [22.48]	1.255*** [15.80]	1.146*** [17.65]	1.247*** [20.13]	1.355*** [14.14]	1.199*** [15.27]	1.018*** [12.34]	0.958*** [8.65]	1.035*** [10.27]
dlnimports_9599	1.101*** [22.27]	1.161*** [22.59]	1.078*** [16.14]	1.104*** [27.87]	1.187*** [23.31]	1.053*** [19.14]	1.097*** [9.35]	1.057*** [6.75]	1.106*** [8.15]
dlnimports_0004	1.337*** [7.62]	0.978*** [22.01]	1.455*** [6.47]	1.073*** [26.17]	0.992*** [19.07]	1.100*** [19.69]	1.684*** [4.69]	0.948*** [12.16]	1.796*** [4.54]
dlnCHN_8689	-0.252 [1.36]	-0.272 [1.21]	-0.242 [0.75]	-0.157 [0.71]	-0.279 [1.19]	0.062 [0.16]	-0.448 [1.25]	-0.188 [0.35]	-0.785* [1.75]
dlnCHN_9094	-0.228 [0.86]	-0.742 [1.19]	0.087 [0.58]	-0.304 [0.95]	-0.779 [1.16]	0.081 [0.62]	0.056 [0.15]	0.043 [0.12]	0.063 [0.15]
dlnCHN_9599	-0.405*** [2.87]	-0.303 [1.60]	-0.445** [2.29]	-0.250** [2.12]	-0.312 [1.51]	-0.155 [1.13]	-0.769** [2.15]	-0.18 [0.56]	-0.863** [2.19]
dlnCHN_0004	-0.274** [2.18]	-0.453** [2.08]	-0.454*** [2.87]	-0.172 [1.19]	-0.407* [1.79]	0.01 [0.09]	-0.829*** [3.48]	-0.885 [1.35]	-0.855*** [3.30]
Observations	786110	223901	562209	468336	138194	330142	317573	85596	231977
Number of dummies	29936	13217	16719	11693	5611	6082	18241	7604	10637
R-squared	0.39	0.4	0.39	0.35	0.39	0.32	0.44	0.43	0.45

Robust t statistics in brackets. Exporter-2-digit product-year fixed effects included in all regressions. weighted least squares, weights = trade value.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Determinants of LAC Exports: Isolating Year, Market, and Exporter Effects

	All exporters			South American exporters			CACM exporters		
	all	non- industrial	industrial	all	non- industrial	industrial	all	non- industrial	industrial
	dlntrade	dlntrade	dlntrade	dlntrade	dlntrade	dlntrade	dlntrade	dlntrade	dlntrade
iimp_8694NA	1.013*** [14.34]	1.036*** [11.55]	1.002*** [10.58]	1.114*** [12.80]	1.171*** [8.59]	1.075*** [9.52]	0.928*** [8.86]	0.796*** [8.99]	0.969*** [7.30]
iimp_9504NA	1.007*** [14.70]	0.896*** [14.13]	1.018*** [13.97]	1.043*** [17.44]	1.041*** [12.63]	1.059*** [12.27]	0.960*** [12.36]	0.637*** [6.26]	0.955*** [12.88]
iimp_8694OECD	1.130*** [17.31]	1.077*** [13.42]	1.195*** [12.13]	1.284*** [20.12]	1.217*** [17.19]	1.356*** [12.88]	0.796*** [6.27]	0.726*** [4.40]	0.826*** [4.62]
iimp_9504OECD	1.779*** [5.26]	1.117*** [20.47]	2.234*** [4.58]	1.174*** [21.26]	1.116*** [21.22]	1.251*** [11.16]	2.599*** [4.54]	1.155*** [6.70]	2.887*** [4.86]
iimp_8694LAC	1.057*** [30.93]	1.293*** [10.73]	1.008*** [31.17]	1.028*** [27.41]	1.292*** [9.36]	0.977*** [27.49]	1.204*** [15.24]	1.313*** [5.60]	1.176*** [15.35]
iimp_9504LAC	1.109*** [26.34]	1.013*** [19.62]	1.131*** [23.01]	1.023*** [24.04]	0.968*** [14.68]	1.036*** [20.84]	1.309*** [16.00]	1.125*** [17.18]	1.347*** [13.80]
iimp_8694DEV	1.591*** [16.64]	1.650*** [7.09]	1.555*** [15.28]	1.619*** [16.55]	1.758*** [6.73]	1.570*** [15.17]	1.450*** [6.38]	1.123*** [5.21]	1.618*** [4.80]
iimp_9504DEV	1.308*** [14.06]	1.126*** [10.48]	1.453*** [9.64]	1.196*** [13.26]	1.118*** [9.46]	1.267*** [8.32]	1.546*** [6.37]	1.147*** [7.97]	1.651*** [5.64]
iCHN_8694NA	-0.219 [0.72]	0.579 [1.51]	-0.435 [1.16]	0.27 [0.78]	0.634 [1.22]	0.104 [0.23]	-0.523 [1.18]	0.308 [0.61]	-0.689 [1.34]
iCHN_9504NA	-0.884*** [5.06]	0.405 [1.26]	-0.988*** [5.17]	-0.307 [1.05]	0.518 [1.25]	-0.781* [1.94]	-0.962*** [4.73]	0 [0.00]	-0.949*** [4.51]
iCHN_8694OEC	-0.028 [0.17]	-0.233 [1.29]	0.259 [1.26]	-0.087 [0.50]	-0.203 [1.07]	0.091 [0.37]	0.354 [0.91]	-0.162 [0.32]	0.717 [1.53]
iCHN_9504OEC	0.22 [1.04]	-0.057 [0.23]	-0.293 [0.72]	0.073 [0.45]	0.021 [0.09]	0.018 [0.09]	0.113 [0.17]	-1.334 [1.25]	0.319 [0.38]
iCHN_8694LAC	-0.152 [0.94]	0.247 [0.39]	-0.197 [1.21]	0.038 [0.28]	0.216 [0.24]	0.026 [0.25]	-0.907 [1.57]	0.469 [1.16]	-1.247* [1.75]
iCHN_9504LAC	-0.095 [0.91]	0.108 [0.56]	-0.147 [1.21]	0.09 [1.03]	0.227 [1.00]	0.039 [0.41]	-0.701** [2.22]	-0.419 [1.35]	-0.758** [2.04]
iCHN_8694DEV	-0.704 [1.16]	-1.497 [1.46]	0.165 [0.71]	-0.768 [1.23]	-1.431 [1.39]	0.04 [0.17]	0.854 [1.14]	-1.194* [1.65]	1.913*** [2.71]
iCHN_9504DEV	-0.565*** [3.10]	-0.648*** [3.10]	-0.709 [1.50]	-0.565*** [3.47]	-0.671*** [3.05]	-0.488** [2.34]	-0.906 [1.10]	-0.149 [0.31]	-1.161 [1.28]
Number of firmies	29936	13217	16719	11693	5611	6082	18241	7604	10637
Observations	786110	223901	562209	468336	138194	330142	317573	85596	231977
Standard squared	0.4	0.41	0.41	0.36	0.4	0.32	0.46	0.43	0.48

Robust t statistics in brackets. Exporter-2-digit product-year fixed effects included in all regressions.

Weighted least squares, weights = trade value. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: Mexico, Central America and the Caribbean

	Mexico			Central American exporters			Caribbean exporters			Caribbean exporters, no Bahamas		
	all products diflIntrade	non-industrial diflIntrade	industrial diflIntrade	all products diflIntrade	non-industrial diflIntrade	industrial diflIntrade	all products diflIntrade	non-industrial diflIntrade	industrial diflIntrade	all products diflIntrade	non-industrial diflIntrade	industrial diflIntrade
difgen_8689	0.922*** [5.57]	0.707*** [4.35]	0.985*** [4.86]	0.884*** [8.71]	1.104*** [6.31]	0.719*** [6.90]	0.620*** [6.11]	0.370** [2.09]	0.774*** [5.89]	0.643*** [6.08]	0.421** [2.14]	0.763*** [5.83]
difgen_9094	1.104*** [10.52]	0.769*** [5.64]	1.207*** [9.29]	0.812*** [6.43]	0.774*** [5.85]	0.821*** [5.75]	1.156*** [4.30]	1.711*** [5.85]	0.790** [2.04]	1.240*** [6.17]	1.399*** [5.09]	1.115*** [3.83]
difgen_9599	1.019*** [12.09]	1.141*** [5.12]	1.000*** [11.01]	1.289*** [2.73]	0.961*** [9.25]	1.341** [2.47]	1.160*** [6.33]	0.847*** [3.93]	1.341*** [5.75]	0.971*** [6.14]	0.846*** [3.82]	1.068*** [5.06]
difgen_0004	1.166*** [14.33]	0.963*** [10.06]	1.193*** [13.18]	2.800*** [4.16]	1.133*** [13.57]	3.069*** [4.66]	0.924*** [4.01]	0.185 [0.40]	1.236*** [4.96]	0.848*** [5.05]	0.698*** [2.63]	0.924*** [4.41]
difCHN_8689	-0.346 [0.72]	-0.237 [0.41]	-0.618 [0.78]	-0.569 [1.22]	0.828 [1.50]	-1.103* [1.70]	-0.591 [1.03]	-1.262 [0.34]	-0.718 [1.37]	-0.611 [1.07]	-1.19 [0.29]	-0.709 [1.35]
difCHN_9094	0.576 [1.38]	0.219 [0.57]	0.704 [1.47]	-1.287** [2.02]	-0.106 [0.16]	-1.497** [1.98]	0.051 [0.07]	-1.597 [0.98]	0.806 [1.03]	-0.13 [0.20]	-1.919 [1.32]	0.335 [0.49]
difCHN_9599	-0.355* [1.69]	-0.145 [0.40]	-0.383 [1.63]	-2.067*** [3.17]	-0.647 [1.28]	-2.156*** [3.32]	0.837 [1.52]	0.599 [0.54]	0.838 [1.33]	0.726 [1.32]	0.652 [0.58]	0.72 [1.14]
difCHN_0004	-0.699*** [2.63]	-0.105 [0.36]	-0.759*** [2.65]	-0.392 [1.09]	0.034 [0.11]	-0.464 [1.09]	-2.954** [2.08]	-10.106 [1.34]	-1.935* [1.73]	-0.811 [1.12]	0.402 [0.58]	-1.013 [1.23]
Constant	0.078*** [14.52]	0.052*** [5.56]	0.086*** [13.92]	0.163*** [8.03]	0.116*** [17.82]	0.196*** [7.80]	0.170*** [9.56]	0.205*** [4.83]	0.166*** [10.75]	0.151*** [13.07]	0.151*** [6.74]	0.155*** [11.04]
Observations	123324	31103	92221	115452	29255	86197	78856	25271	53585	75273	23612	51661
R-squared	0.26	0.34	0.24	0.61	0.43	0.64	0.63	0.54	0.7	0.67	0.6	0.71

Robust t statistics in brackets. weighted least squares, weights = trade value.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6: Determinants of LAC Exports: 2-digit Industry Effects

		dlnimports	t-stat	dlnCHN	t-stat	Observations	R-squared
code01	Meat and meat preparations	0.838***	[3.79]	-0.654	[1.30]	2124	0.32
code02	Dairy products and birds'eggs	0.211	[1.48]	-9.775	[1.47]	178	0.75
code03	Fish, crustaceans, mollusc, preparations thereof	1.291***	[16.16]	0.095	[0.31]	14348	0.25
code04	Cereals and cereal preparations	0.876***	[5.95]	-0.897***	[3.22]	4519	0.57
code05	Vegetables and fruit	1.068***	[15.22]	0.155	[0.93]	29922	0.25
code06	Sugar, sugar preparations and honey	1.061***	[12.43]	0.338	[0.91]	5352	0.41
code07	Coffee, tea, cocoa, spices, manufactures thereof	1.032***	[14.27]	0.232	[0.55]	10426	0.55
code08	Feeding stuff for animals, not incl. unmil. Cereals	1.303***	[6.98]	-0.383	[0.93]	2666	0.3
code09	Miscel. Edible prodcuts and preparations	1.016***	[8.32]	-2.263	[1.13]	5194	0.42
code11	Beverages	1.339***	[6.42]	-94.670***	[2.99]	7332	0.59
code12	Tobacco and tobacco manufactures	0.989***	[13.85]	-0.343	[0.97]	2631	0.4
code21	Hides, skins and furskins, raw	0.781***	[4.41]	-0.209	[0.34]	1122	0.5
code22	Oil seeds and oleaginous fruit	1.369***	[6.88]	-1.185	[0.94]	2999	0.35
code23	Crude rubber (including synthetic and reclaimed)	1.993***	[4.94]	-0.754	[0.35]	844	0.39
code24	Cork and wood	1.338***	[4.91]	-0.883	[0.76]	4408	0.36
code25	Pulp and waste paper	1.044***	[4.47]	-1.64	[0.56]	349	0.71
code26	Textile fibres (except wool tops) and their wastes	0.971***	[7.03]	-0.605**	[2.14]	5088	0.46
code27	Crude fertilizers and crude materials (excl. coal)	1.275***	[9.42]	0.164	[0.85]	5467	0.3
code28	Metalliferous ores and metal scrap	0.817***	[6.21]	0.245	[0.55]	4307	0.36
code29	Crude animal and vegetable materials, n.e.s.	0.783***	[12.83]	0.454	[1.41]	15957	0.2
code32	Coal, coke and briquettes	1.374***	[6.30]	0.129	[0.14]	348	0.43
code33	Petroleum, petroleum products and related materials	0.877***	[4.09]	0.278	[0.35]	2178	0.71
code34	Gas, natural and manufactured	2.626	[0.76]	-1,975.76	[0.25]	51	0.94
code41	Animal oils and fats	1.282***	[4.00]	-3.944	[1.14]	238	0.77
code42	Fixed vegetable oils and fats	1.041***	[10.14]	0.237	[1.53]	1370	0.6
code43	Animal-vegetable oils-fats, processed, and waxes	0.983***	[6.02]	0.192	[0.54]	781	0.4
code51	Organic chemicals	1.136***	[7.86]	0.282	[0.34]	20621	0.19
code52	Inorganic chemicals	0.764***	[5.46]	0.23	[0.70]	12181	0.2
code53	Dyeing, tanning and colouring materials	1.355***	[5.76]	0.556**	[2.42]	9069	0.25
code54	Medicinal and pharmaceutical products	1.074***	[24.04]	0.59	[1.19]	12326	0.48
code55	Essential oils & perfume mat.; toilet-cleansing mat	0.984***	[8.16]	0.2	[0.60]	11875	0.25
code56	Fertilizers, manufactured	0.617	[0.96]	-0.713	[0.69]	692	0.31
code57	Explosives and pyrothechnic products	0.935***	[3.28]	0.321	[1.28]	359	0.47
code58	Artif. resins, plastic mat., cellulose esters/ethers	1.130***	[14.90]	0.175	[0.40]	14626	0.21
code59	Chemical materials and products, n.e.s.	1.080***	[11.75]	0.058	[0.21]	11947	0.2
code61	Leather, leather manuf., n.e.s. and dressed furskisg	1.626***	[7.05]	-0.678*	[1.93]	9711	0.35
code62	Rubber manufactures, n.e.s.	1.109***	[16.28]	-0.931**	[2.07]	13565	0.23
code63	Cork and wood manufactures (excl. furniture)	1.118***	[11.16]	-0.038	[0.08]	11230	0.31
code64	Paper, paperboard, artic. Of paper, paper-pulp/board	1.319***	[8.04]	-0.896*	[1.69]	14675	0.28
code65	Textile yarn, fabrics, made-upart., related products	1.072***	[26.33]	-0.474***	[3.10]	44382	0.25
code66	Non-metallic mineral manufactures, n.e.s.	1.125***	[16.17]	0.547*	[1.86]	33826	0.26
code67	Iron and steel	1.253***	[11.86]	-0.1	[0.61]	12457	0.25
code68	Non-ferrous metals	1.088***	[13.84]	-0.046	[0.22]	6863	0.35
code69	Manufactures of metal, n.e.s.	0.969***	[15.05]	-0.400***	[2.60]	45687	0.18

code71	Power generating machinery and equipment	0.681***	[8.02]	-1.1	[1.59]	11553	0.45
code72	Machinery specialized for particular industries	1.057***	[10.41]	-0.022	[0.10]	19186	0.26
code73	Metalworking machinery	1.544***	[4.52]	-1.431	[1.17]	5592	0.19
code74	General industrial machinery & equipment, and parts	1.087***	[14.92]	-1.085**	[2.55]	39228	0.24
code75	Office machines & automatic data processing equip.	1.371***	[6.48]	-0.718	[0.87]	16580	0.51
code76	Telecommunications & sound recording apparatus	1.077***	[9.10]	-1.052**	[2.22]	16360	0.35
code77	Electrical machinery, apparatus & appliances n.e.s	2.346***	[3.53]	-0.874*	[1.69]	44119	0.52
code78	Road vehicles (incl. air cushion vehicles)	1.167***	[14.49]	0.762*	[1.77]	11360	0.34
code79	Other transport equipment	1.159***	[3.24]	-2.372***	[3.30]	2456	0.45
code81	Sanitary, plumbing, heating and lighting fixtures	0.885***	[7.34]	0.214	[0.73]	4106	0.34
code82	Furniture and parts thereof	1.479***	[3.17]	-2.066**	[2.32]	10504	0.37
code83	Travel goods, handbags and similar containers	1.088***	[8.08]	0.543	[0.95]	5462	0.47
code84	Articles of apparel and clothing accessories	0.994***	[24.82]	0.027	[0.25]	67619	0.3
code85	Footwear	1.190***	[21.47]	0.055	[0.24]	5373	0.51
code87	Professional, scientific & controlling instruments	1.087***	[7.27]	-1.63	[1.25]	20883	0.29
code88	Photographic apparatus, optical goods, watches	1.227***	[7.15]	0.283	[0.81]	10608	0.22
code89	Miscellaneous manufactured articles, n.e.s.	0.928***	[10.51]	-0.286	[0.97]	69587	0.33
code91	UN Special Code	1.418	[1.57]	-120.444	[0.90]	355	0.86
code93	UN Special Code	1.318***	[6.64]	-3.303	[0.96]	6066	0.75
code94	Animals, live, zoo animals, dogs, cats etc.	0.733***	[2.88]	-0.374	[0.38]	1778	0.57
code95	Arms, of war and ammunition thereof	0.821***	[3.26]	0.563	[1.49]	497	0.63
code96	Coin (other than gold), not being legal tender	-0.153	[0.08]	-5.5	[0.16]	147	0.97
code97	Do you see gold???	-0.547	[0.47]	36.267	[0.35]	394	0.85

Exporter-2-digit product-year fixed effects included in all regressions. weighted least squares, weights = trade value.

Table 7: Determinants of LAC Exports: 2-Digit and Period effects

	dlnimp_8694	t-stat	dlnimp_9504	t-stat	dlnCHN_8694	t-stat	dlnCHN_9504	t-stat	Observations	R-squared
code01 Meat and meat preparations	0.905***	[8.52]	0.822***	[3.01]	0.2	[0.72]	-0.877	[1.45]	2124	0.32
code02 Dairy products and birds'eggs	3.147	[0.79]	0.187	[1.34]	12.138	[0.23]	-10.646	[1.59]	178	0.77
code03 Fish, crustaceans, mollusc, preparations thereof	1.506***	[9.20]	1.152***	[17.23]	0.519	[0.75]	0.14	[0.41]	14348	0.26
code04 Cereals and cereal preparations	1.062***	[4.51]	0.852***	[5.05]	-1.227	[1.25]	-0.929***	[3.09]	4519	0.57
code05 Vegetables and fruit	1.283***	[7.50]	0.939***	[21.35]	0.332	[0.59]	0.084	[0.50]	29922	0.25
code06 Sugar, sugar preparations and honey	1.093***	[8.12]	1.070***	[10.54]	-0.406	[0.68]	0.587	[1.27]	5352	0.41
code07 Coffee, tea, cocoa, spices, manufactures thereof	1.017***	[8.21]	1.048***	[12.72]	1.311	[0.99]	0.03	[0.07]	10426	0.55
code08 Feeding stuff for animals, not incl. unmil. Cereals	1.638***	[4.62]	1.103***	[5.69]	-0.82	[1.55]	0.037	[0.08]	2666	0.31
code09 Miscel. Edible prodcuts and preparations	0.950***	[6.31]	1.036***	[7.44]	-0.136	[0.07]	-6.954	[1.42]	5194	0.42
code11 Beverages	1.346***	[5.26]	1.271***	[5.11]	19.658**	[2.12]	-97.164***	[3.08]	7332	0.59
code12 Tobacco and tobacco manufactures	0.827***	[6.31]	1.023***	[12.31]	-0.097	[0.09]	-0.336	[0.91]	2631	0.4
code21 Hides, skins and furskins, raw	0.721**	[2.09]	0.771***	[3.96]	-0.577	[0.81]	2.406	[1.22]	1122	0.5
code22 Oil seeds and oleaginous fruit	2.333***	[5.61]	1.040***	[5.69]	-1.355	[0.79]	0.017	[0.04]	2999	0.37
code23 Crude rubber (including synthetic and reclaimed)	1.949***	[2.85]	1.999***	[4.54]	63.532**	[2.43]	-1.39	[0.57]	844	0.4
code24 Cork and wood	0.621*	[1.90]	1.450***	[4.63]	14.965	[1.47]	-1.186	[0.95]	4408	0.37
code25 Pulp and waste paper	1.450**	[2.00]	0.977***	[4.05]	-4.199	[1.43]	-0.8	[0.18]	349	0.71
code26 Textile fibres (except wool tops) and their wastes	0.817***	[4.78]	1.229***	[6.11]	-0.345*	[1.75]	-1.098	[1.36]	5088	0.46
code27 Crude fertilizers and crude materials (excl. coal)	0.869***	[4.91]	1.452***	[8.64]	0.427**	[2.21]	-0.139	[0.43]	5467	0.31
code28 Metalliferous ores and metal scrap	0.833***	[4.92]	0.806***	[4.67]	-0.943	[0.88]	0.388	[0.81]	4307	0.36
code29 Crude animal and vegetable materials, n.e.s.	0.809***	[9.33]	0.770***	[9.42]	1.058	[1.20]	0.274	[0.84]	15957	0.2
code32 Coal, coke and briquettes	1.954***	[3.41]	1.333***	[5.93]	5.865**	[2.11]	0.028	[0.03]	348	0.44
code33 Petroleum, petroleum products and related materials	0.570*	[1.93]	1.177***	[3.95]	-0.578	[0.21]	0.475	[1.03]	2178	0.71
code34 Gas, natural and manufactured	0	[.]	2.626	[0.76]	0	[.]	-1,975.76	[0.25]	51	0.94
code41 Animal oils and fats	0	[.]	1.282***	[4.00]	0	[.]	-3.944	[1.14]	238	0.77
code42 Fixed vegetable oils and fats	0.903***	[5.81]	1.142***	[9.08]	0.303**	[2.15]	-0.229	[0.72]	1370	0.6
code43 Animal-vegetable oils-fats, processed, and waxes	1.241***	[6.29]	0.871***	[4.04]	0.244	[0.39]	0.136	[0.31]	781	0.4
code51 Organic chemicals	1.271***	[9.14]	1.066***	[5.08]	-1.422	[0.90]	0.418	[0.46]	20621	0.19
code52 Inorganic chemicals	1.068***	[6.48]	0.663***	[4.01]	0.237	[0.39]	0.206	[0.55]	12181	0.2
code53 Dyeing, tanning and colouring materials	0.671***	[4.27]	1.721***	[5.14]	4.737**	[1.96]	0.594***	[2.77]	9069	0.26
code54 Medicinal and pharmaceutical products	1.151***	[7.49]	1.055***	[22.17]	0.031	[0.08]	1.615	[1.37]	12326	0.48
code55 Essential oils & perfume mat.; toilet-cleansing mat	1.306***	[8.85]	0.930***	[7.02]	0.312	[0.71]	-0.045	[0.10]	11875	0.26
code56 Fertilizers, manufactured	-0.128	[0.28]	0.659	[0.99]	98.505***	[2.76]	-0.725	[0.70]	692	0.31
code57 Explosives and pyrothechnic products	-0.188	[0.55]	1.036***	[3.27]	1.556	[1.53]	0.317	[1.24]	359	0.48
code58 Artif. resins, plastic mat., cellulose esters/ethers	1.201***	[6.67]	1.111***	[13.47]	-1.206	[0.71]	0.392	[0.83]	14626	0.21
code59 Chemical materials and products, n.e.s.	0.975***	[4.85]	1.099***	[11.05]	1.160**	[2.02]	-0.24	[0.80]	11947	0.2
code61 Leather, leather manuf., n.e.s. and dressed furskisg	1.328***	[10.37]	1.776***	[5.52]	0.024	[0.06]	-1.004**	[2.19]	9711	0.35
code62 Rubber manufactures, n.e.s.	1.230***	[8.94]	1.069***	[14.68]	-0.223	[0.17]	-0.874*	[1.84]	13565	0.23
code63 Cork and wood manufactures (excl. furniture)	1.055***	[7.60]	1.157***	[8.31]	2.523**	[2.55]	-0.218	[0.44]	11230	0.31
code64 Paper, paperboard, artic. Of paper, paper-pulp/board	1.629***	[3.78]	1.161***	[9.34]	0.63	[0.49]	-1.061*	[1.90]	14675	0.28
code65 Textile yarn, fabrics, made-upart., related products	1.264***	[15.62]	0.953***	[25.48]	-0.218	[0.72]	-0.579***	[3.42]	44382	0.25
code66 Non-metallic mineral manufactures, n.e.s.	1.134***	[6.46]	1.123***	[16.52]	0.818**	[2.49]	0.504	[1.50]	33826	0.26
code67 Iron and steel	1.245***	[8.14]	1.268***	[9.65]	0.323*	[1.67]	-0.315*	[1.67]	12457	0.25
code68 Non-ferrous metals	1.286***	[10.73]	1.012***	[10.40]	0.074	[0.16]	-0.046	[0.21]	6863	0.35
code69 Manufactures of metal, n.e.s.	1.236***	[9.94]	0.875***	[12.44]	-0.234	[0.42]	-0.391**	[2.41]	45687	0.19

code71	Power generating machinery and equipment	0.605***	[5.00]	0.712***	[6.46]	5.249*	[1.82]	-1.384*	[1.71]	11553	0.45
code72	Machinery specialized for particular industries	1.149***	[8.63]	1.021***	[7.91]	0.079	[0.95]	-0.052	[0.20]	19186	0.26
code73	Metalworking machinery	1.820***	[2.93]	1.402***	[3.67]	-1.811	[0.38]	-1.404	[1.12]	5592	0.2
code74	General industrial machinery & equipment, and parts	1.350***	[8.15]	0.952***	[13.52]	-2.362**	[2.52]	-0.929**	[2.06]	39228	0.24
code75	Office machines & automatic data processing equip.	0.385	[1.25]	1.527***	[6.42]	-3.943*	[1.68]	-0.695	[0.80]	16580	0.51
code76	Telecommunications & sound recording apparatus	1.285***	[3.43]	1.032***	[8.78]	0.572	[0.31]	-1.233***	[2.64]	16360	0.35
code77	Electrical machinery, apparatus & appliances n.e.s	0.830***	[6.52]	2.543***	[3.70]	-0.191	[0.36]	-1.115*	[1.85]	44119	0.54
code78	Road vehicles (incl. air cushion vehicles)	1.049***	[9.96]	1.189***	[12.62]	0.312	[0.53]	0.770*	[1.71]	11360	0.34
code79	Other transport equipment	0.408*	[1.95]	1.480***	[3.14]	-0.608	[0.35]	-2.383***	[3.65]	2456	0.47
code81	Sanitary, plumbing, heating and lighting fixtures	1.153***	[3.52]	0.854***	[7.30]	1.248**	[2.24]	0.145	[0.46]	4106	0.34
code82	Furniture and parts thereof	1.050***	[5.90]	1.628***	[2.80]	-1.871*	[1.66]	-2.063**	[2.28]	10504	0.37
code83	Travel goods, handbags and similar containers	1.435***	[5.90]	0.974***	[5.96]	-1.868	[1.08]	0.982*	[1.70]	5462	0.48
code84	Articles of apparel and clothing accessories	1.219***	[14.67]	0.854***	[25.60]	-0.551*	[1.88]	0.175	[1.62]	67619	0.31
code85	Footwear	1.259***	[9.17]	1.167***	[21.14]	0.283	[0.58]	-0.012	[0.05]	5373	0.51
code87	Professional, scientific & controlling instruments	1.034***	[4.97]	1.066***	[5.58]	-6.165**	[2.17]	-0.77	[0.61]	20883	0.3
code88	Photographic apparatus, optical goods, watches	2.322***	[3.78]	0.991***	[7.03]	0.228	[0.99]	0.666	[1.03]	10608	0.23
code89	Miscellaneous manufactured articles, n.e.s.	0.710***	[4.36]	1.079***	[12.57]	-0.952**	[2.14]	-0.006	[0.01]	69587	0.34
code91	UN Special Code	1.418	[1.57]	0	[.]	-120.444	[0.90]	0	[.]	355	0.86
code93	UN Special Code	1.634***	[9.95]	0.978***	[5.18]	2.273	[0.46]	-2.348	[0.59]	6066	0.75
code94	Animals, live, zoo animals, dogs, cats etc.	0.828***	[2.84]	0.782**	[1.96]	-2.946	[1.43]	0.071	[0.07]	1778	0.57
code95	Arms, of war and ammunition thereof	0.311	[0.97]	1.066***	[3.52]	0.603	[0.13]	0.642*	[1.91]	497	0.63
code96	Coin (other than gold), not being legal tender	1.231	[0.33]	-0.049	[0.03]	-49.217	[1.25]	12.295	[0.41]	147	0.98
code97	Do you see gold???	-14.216	[0.83]	-0.118	[0.12]	57.985	[0.24]	104.934	[0.73]	394	0.88

Exporter-2-digit product-year fixed effects included in all regressions.
Weighted least squares, weights = trade value.

Table 8: Industries where China's Export Growth is Significantly Correlated with Lower LAC growth

2-digit code	Industry Name	PRODY
04	Cereals and cereal preparations	7,683.49
11	Beverages	10,442.64
61	Leather, leather manuf., n.e.s. and dressed furskisg	6,264.35
62	Rubber manufactures, n.e.s.	11,775.08
64	Paper, paperboard, artic. Of paper, paper-pulp/board	13,564.14
65	Textile yarn, fabrics, made-upart., related products	8,477.01
67	Iron and steel	10,121.38
69	Manufactures of metal, n.e.s.	11,907.47
71	Power generating machinery and equipment	14,324.22
74	General industrial machinery & equipment, and parts	12,952.04
76	Telecommunications & sound recording apparatus	12,936.01
77	Electrical machinery, apparatus & appliances n.e.s	11,225.14
79	Other transport equipment	5,028.68
82	Furniture and parts thereof	9,478.66
	Total	11208.12

Table 9: Determinants of LAC Price Changes

		All exporters								
		all products			non-industrial			industrial		
		diflnP_IJ	diflnP_IJ	diflnP_IJ e	diflnP_IJ	diflnP_IJ	diflnP_IJ	diflnP_IJ	diflnP_IJ	diflnP_IJ
diflnP_Jnch	growth in world price excluding China	0.856***	0.797***	0.795***	1.011***	0.990***	1.022***	0.757***	0.703***	0.654***
		[19.86]	[19.72]	[13.11]	[9.75]	[9.76]	[7.85]	[22.45]	[24.47]	[18.24]
diflnimpnch	growth in world trade excluding China	0.01	-0.01	-0.055***	-0.007	-0.034	-0.080**	0.007	0.001	-0.045*
		[0.52]	[0.61]	[3.04]	[0.14]	[1.08]	[2.45]	[0.30]	[0.05]	[1.92]
diflnP_CHNJ	growth in China price	0.012	0.008	0.007	-0.024	-0.02	-0.032	0.045***	0.030**	0.040***
		[0.93]	[0.76]	[0.55]	[1.44]	[1.29]	[1.53]	[3.02]	[2.48]	[2.78]
diflnP_CHNJnew	growth in China price * lag share on China in world trade	0.61	0.809	0.408	0.159	0.162	0.147	0.812	1.098	0.6
		[1.25]	[1.56]	[1.24]	[0.83]	[0.78]	[0.53]	[1.17]	[1.53]	[1.09]
diflnimpCHN	growth in China trade * lag share on China in world trade	-0.106	-0.147	-0.076	0.014	-0.01	-0.053	-0.319**	-0.294	-0.131
		[1.31]	[1.45]	[1.52]	[0.21]	[0.16]	[0.67]	[1.99]	[1.63]	[1.57]
diflnimpCHNold	growth in China trade	0.005*	-0.002	0	0.002	-0.002	-0.002	0	-0.006	-0.002
		[1.87]	[0.84]	[0.17]	[0.53]	[0.72]	[0.50]	[0.00]	[1.40]	[0.43]
Number of dummies		755	28386	692923	746	13063	47954	754	15323	89729
Observations		692923	692923	692923	213268	213268	213268	479655	479655	479655
R-squared		0.47	0.56	0.7	0.53	0.62	0.71	0.45	0.54	0.7

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

The first 3 columns include exporter year effects, the second three include exporter year 2-digit effects, and the third includes exporter, year, 4-digit effects.

Weighted least squares: weights= trade value.

Table 10: Determinants of Price Changes: Market Effects

	Developing countries			OECD countries		
	all products diflnP_IJ	non-industrial diflnP_IJ	industrial diflnP_IJ	all products diflnP_IJ	non-industrial diflnP_IJ	industrial diflnP_IJ
diflnP_Jnch	0.635*** [22.34]	0.689*** [12.87]	0.619*** [17.82]	0.929*** [12.84]	1.179*** [7.13]	0.789*** [20.78]
diflnimpnch	-0.02 [0.94]	0.025 [0.84]	-0.032 [1.26]	-0.035 [1.17]	-0.08 [1.64]	0.007 [0.20]
diflnP_CHNJ	0.046** [2.34]	0.046*** [3.02]	0.053* [1.72]	-0.021* [1.72]	-0.067*** [2.63]	0.01 [1.10]
diflnP_CHNJnew	0.074 [0.36]	0.375*** [3.20]	-0.268 [0.95]	2.059** [2.34]	0.273 [0.97]	2.319** [2.44]
diflnimpCHN	-0.03 [0.41]	0.206* [1.73]	-0.118 [1.29]	-0.147 [1.41]	-0.021 [0.33]	-0.247 [1.52]
diflnimpCHNold	0.005 [1.11]	0.004 [1.10]	0.006 [0.89]	-0.005** [1.99]	-0.007* [1.78]	-0.010** [2.27]
Number of dummies	19025	8291	10734	25519	11719	13740
Observations	328140	78344	249796	364783	134924	229859
R-squared	0.52	0.66	0.44	0.65	0.67	0.64

Robust t statistics in brackets. weighted least squares, weights = trade value.

Table 11: Determinants of Price Changes: SA Versus CACM Exporters

	South America			CACM		
	all	non-industrial	industrial	all	non-industrial	industrial
	diflnP_IJ	diflnP_IJ	diflnP_IJ	diflnP_IJ	diflnP_IJ	diflnP_IJ
diflnP_Jnch	0.832*** [14.07]	1.033*** [8.22]	0.693*** [18.76]	0.735*** [19.75]	0.834*** [19.31]	0.711*** [16.06]
diflnimpnch	-0.034** [2.12]	-0.048 [1.33]	-0.043** [2.20]	0.052 [1.40]	0.031 [0.91]	0.06 [1.28]
diflnP_CHNJ	-0.004 [0.22]	-0.025 [1.24]	0.036 [1.60]	0.020** [2.00]	0.005 [0.45]	0.027** [2.08]
diflnP_CHNJnew	0.129 [1.02]	0.09 [0.39]	-0.191 [0.99]	1.518* [1.70]	0.672* [1.94]	1.588* [1.73]
diflnimpCHN	0.017 [0.44]	-0.012 [0.18]	0.055 [1.35]	-0.713* [1.78]	-0.038 [0.49]	-0.845* [1.80]
diflnimpCHNold	-0.001 [0.21]	-0.003 [0.83]	0 [0.05]	-0.005 [1.12]	0.003 [0.74]	-0.013* [1.80]
Number dummies	11345	5566	5779	17039	7495	9544
Observations	413876	131402	282474	278871	81772	197099
R-squared	0.54	0.63	0.45	0.59	0.58	0.6

Robust t statistics in brackets. Weighted least squares, weights = trade value.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12: CACM Exports of Industrial Goods

		1986- 1989 diflnP_IJ	1990- 1994 diflnP_IJ	1995- 1999 diflnP_IJ	2000- 2004 diflnP_IJ
diflnP_Jnch	growth in world price excluding China	0.918*** [20.55]	0.516*** [6.61]	0.793*** [8.32]	0.575*** [7.91]
diflnimpnch	growth in world trade excluding China	-0.049 [0.49]	0.116* [1.78]	-0.017 [0.23]	0.119* [1.93]
diflnP_CHNJ	growth in China price	-0.019 [0.52]	0.029** [2.18]	0.014 [0.78]	0.026 [1.22]
diflnP_CHNJnew	growth in China price * lag share on China in world trade	-1.313 [0.75]	0.371 [0.76]	-2.044 [1.52]	2.487** [2.52]
diflnimpCHN	growth in China trade * lag share on China in world trade	0.552 [1.33]	-0.214 [1.41]	-0.85 [1.13]	-0.674** [2.15]
diflnimpCHNold	growth in China trade	-0.003 [0.15]	-0.003 [0.23]	-0.007 [0.56]	-0.019* [1.67]
Number of dummies		1656	2321	2709	2858
Observations		13032	30810	64007	89250
R-squared		0.95	0.36	0.32	0.44

Robust t statistics in brackets. weighted least squares, weights = trade value.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13: Relatively High Growth LAC Industries

2-digit Code	Industry Name	PRODY
02	Dairy products and birds'eggs	16041
03	Fish, crustaceans, mollusc, preparations thereof	4060
23	Crude rubber (including synthetic and reclaimed)	10564
24	Cork and wood	8763
26	Textile fibres (except wool tops) and their wastes	5103
27	Crude fertilizers and crude materials (excl. coal)	7267
33	Petroleum, petroleum products and related materials	5180
42	Fixed vegetable oils and fats	5227
53	Dyeing, tanning and colouring materials	11418
61	Leather, leather manuf., n.e.s. and dressed furskiskg	6264
66	Non-metallic mineral manufactures, n.e.s.	11588
67	Iron and steel	10121
72	Machinery specialized for particular industries	12573
75	Office machines & automatic data processing equip.	14739
77	Electrical machinery, apparatus & appliances n.e.s	11225
78	Road vehicles (incl. air cushion vehicles)	15639
85	Footwear	7713
89	Miscellaneous manufactured articles, n.e.s.	11880
93	UN Special Code	7464
	Total	9977

Table 14: Relatively Low Growth LAC Industries

2-digit code	Industry Name	PRODY
04	Cereals and cereal preparations	7683
21	Hides, skins and furskins, raw	4353
52	Inorganic chemicals	7813
69	Manufactures of metal, n.e.s.	11907
84	Articles of apparel and clothing accessories	4962
	Total	6609

Table 15: Low_Income and High Income Industries

Product Code	Product Name	PRODY
Low-Income 4-digit Products		
2654	Sisal, agave fibres, raw or processed but not spun, and waste	886
2713	Natural calcium phosphates, natural aluminium, etc	1018
6642	Optical glass and elements of optical glass (unworked)	1131
12	Sheep and goats, live	1137
2922	Natural gums, resins, lacs and balsams	1145
High Income 4-digit Products		
7913	Mechanically propelled railway, tramway, trolleys, etc	24738
113	Pig meat fresh, chilled or frozen	25223
6647	Safety glass consisting of toughened or laminated glass, cut or not	25300
6572	Bonded fibre fabrics, etc, whether or not impregnated or coated	29638
6733	Angles, shapes, sections and sheet piling, of iron or steel	35599
Low Income and High Income 2-digit Products (4-digit weighted by LAC share of trade)		
Low Income 2-digit Products		
7	Coffee, tea, cocoa, spices, manufactures thereof	2,732
12	Tobacco and tobacco manufactures	3,445
94	Animals, live, zoo animals, dogs, cats etc.	2,252
95	Arms, of war and ammunition thereof	2,196
96	Coin (other than gold), not being legal tender	3,364
High-Income 2-digit Products		
2	Dairy products and birds'eggs	16,041
54	Medicinal and pharmaceutical products	19,654
71	Power generating machinery and equipment	14,324
75	Office machines & automatic data processing equip.	14,739
78	Road vehicles (incl. air cushion vehicles)	15,639

Table 16: The Average Wage of Exports (\$U.S.)

	1990-1994	2000-2004
LAC	8,143	9,128
South America	7,312	7,764
Central America	6,169	7,302
Caribbean	6,661	6,574
Mexico	10,451	11,389
China	8,308	9,963
World	10,679	11,108

Calculated using the PRODY index in 2000-2004 weighted by the region's average industrial trade share over the period.

Figure 1: Change in LAC Market Share of World Versus Change in China Market Share, 1995-2004

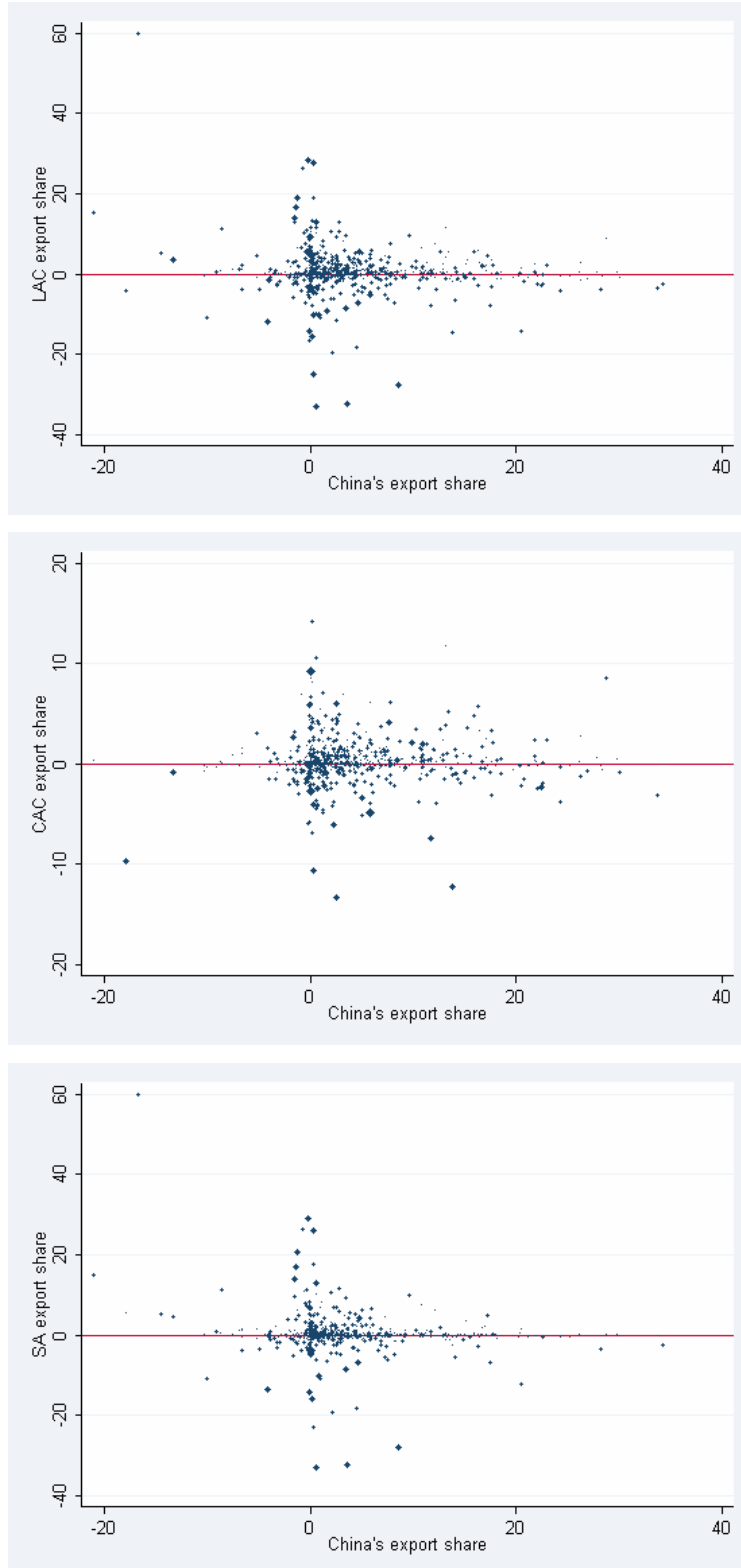


Figure 2: Change in LAC Market Share of North America Versus Change in China's Market Share, 1995-2004

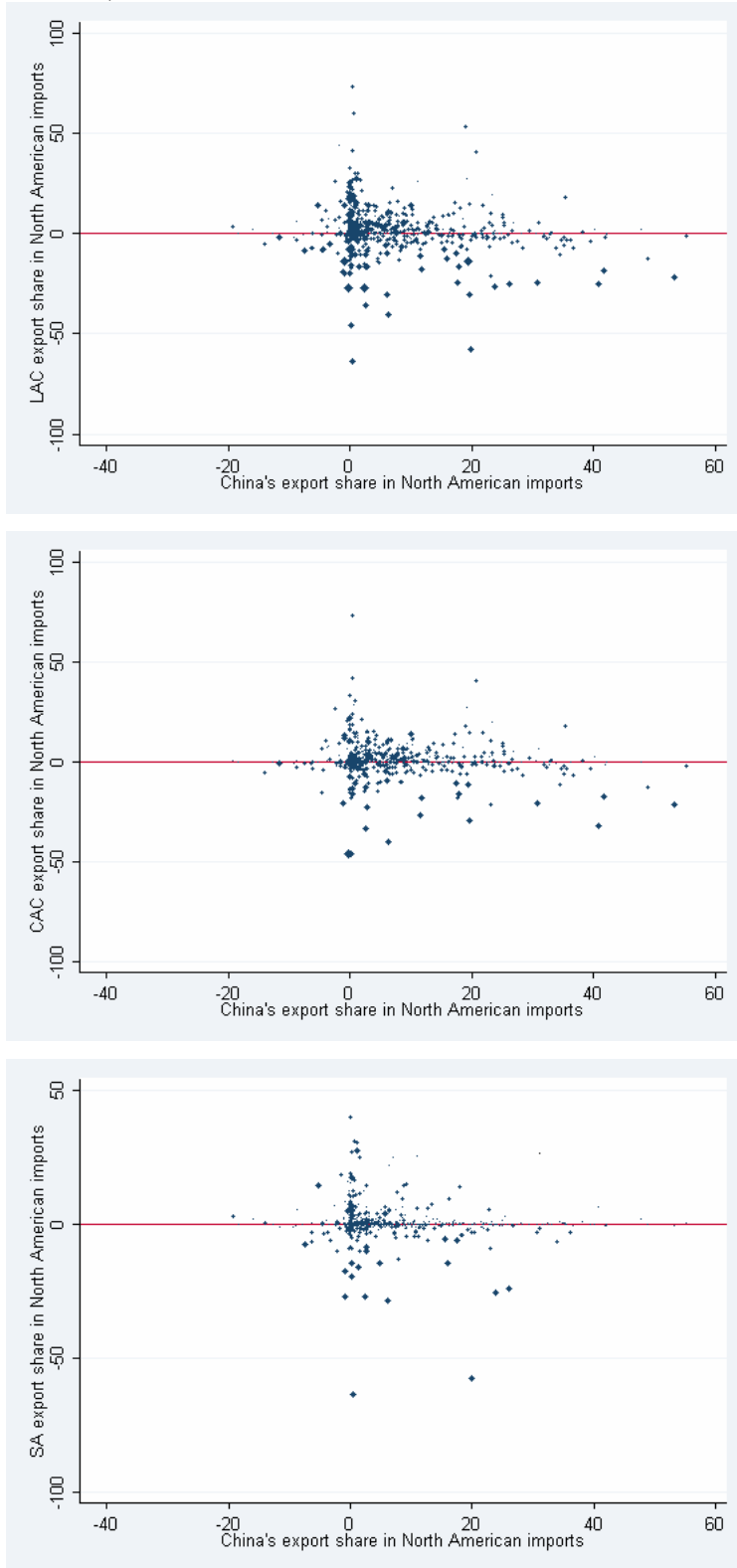


Figure 3: Average Relative Price of LAC Products in the U.S. Market

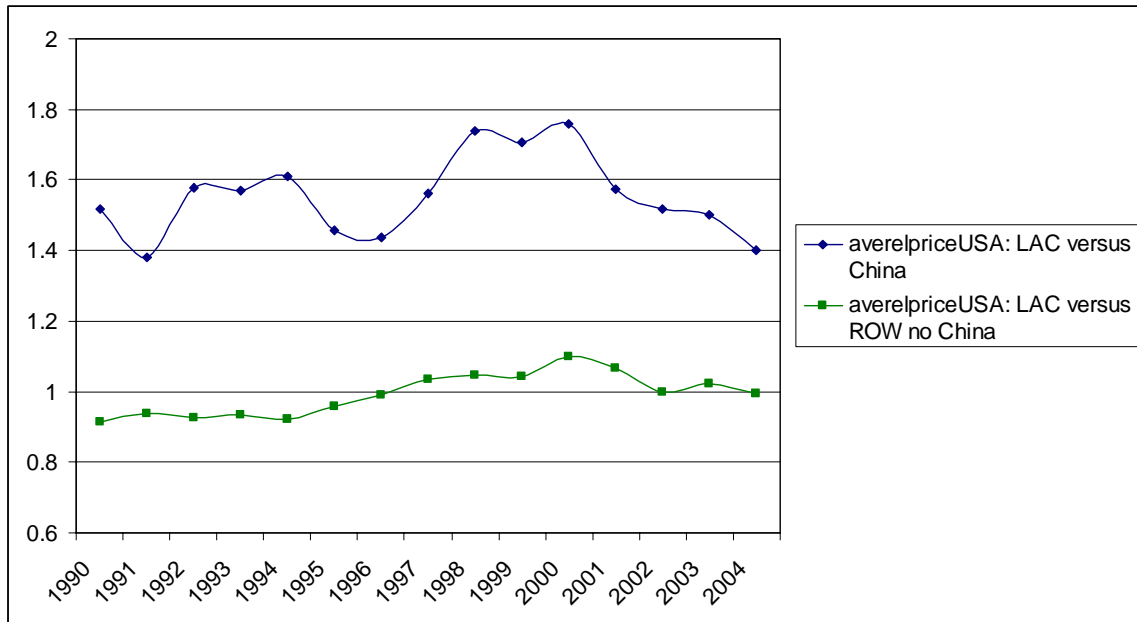


Figure 4: Average Relative Price of Mexican Products in the U.S. Market

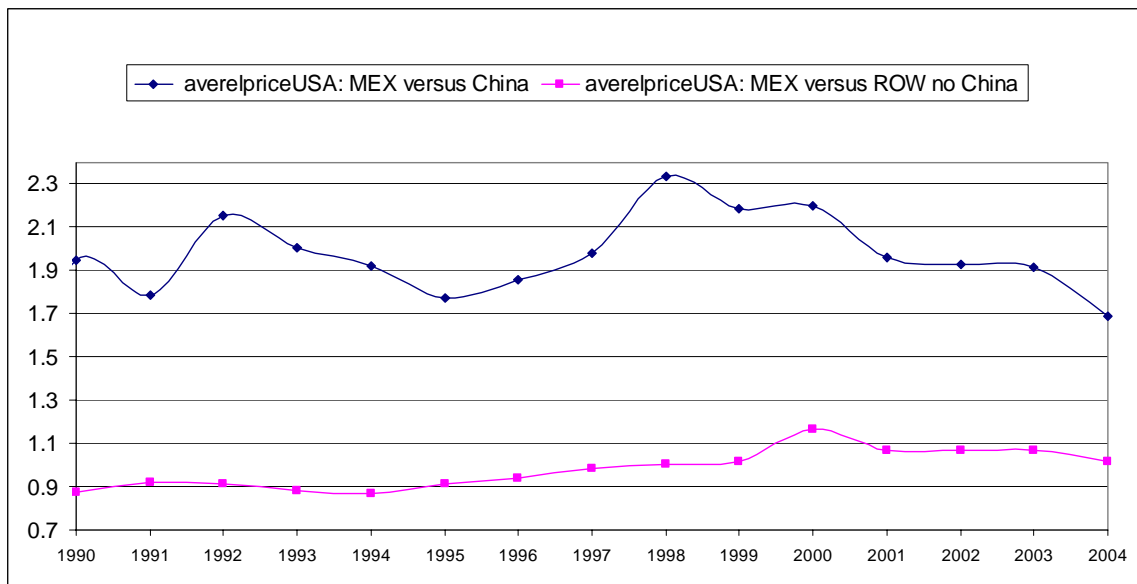
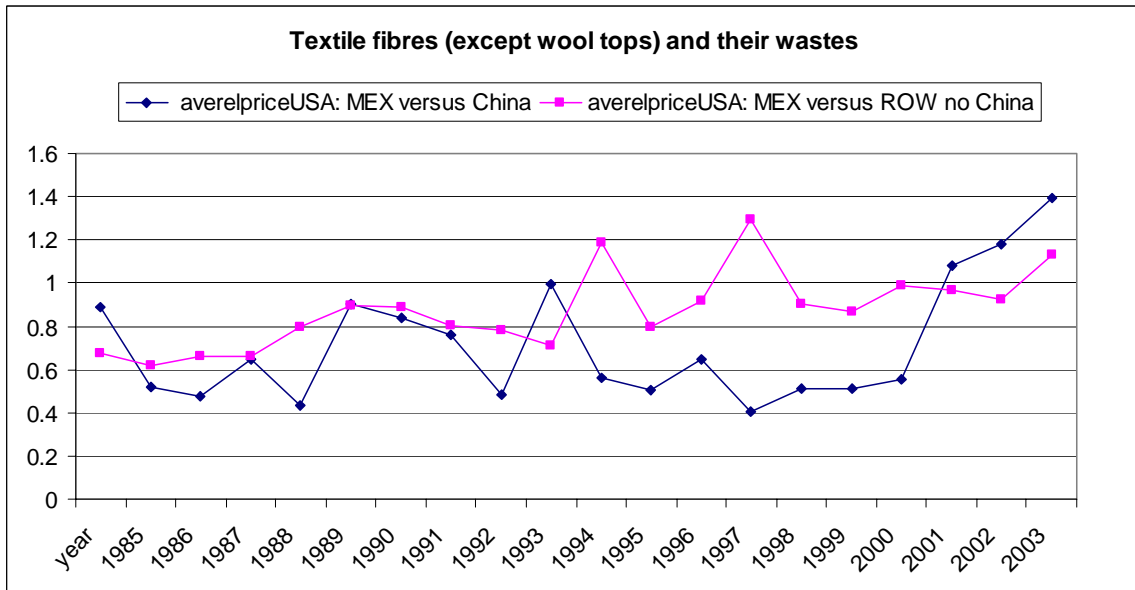
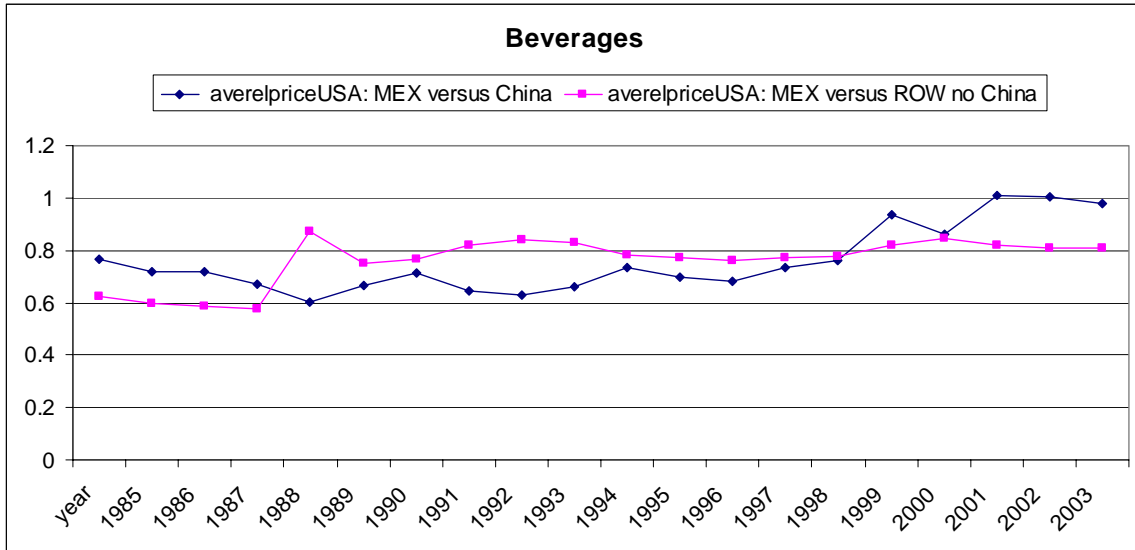
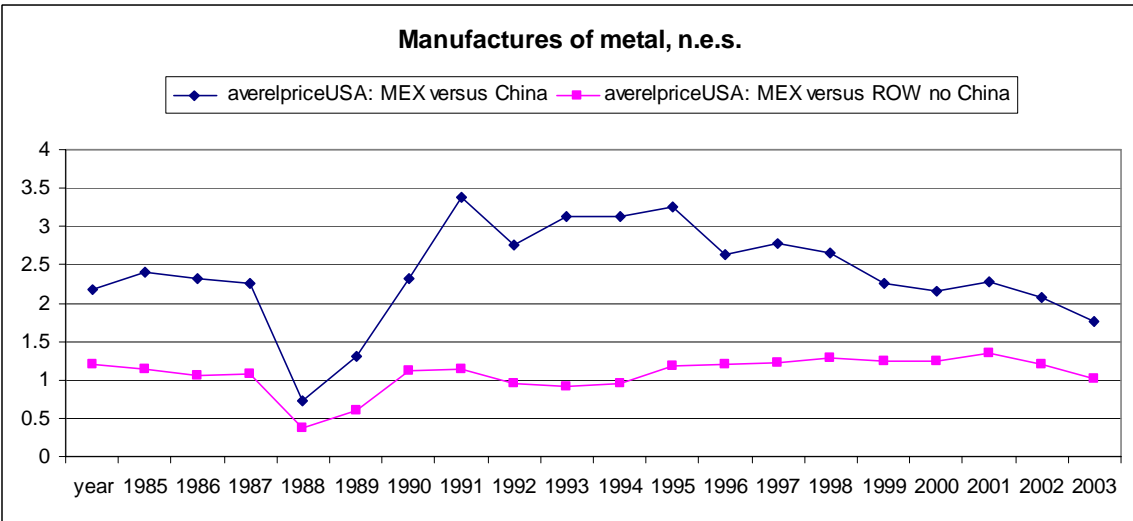
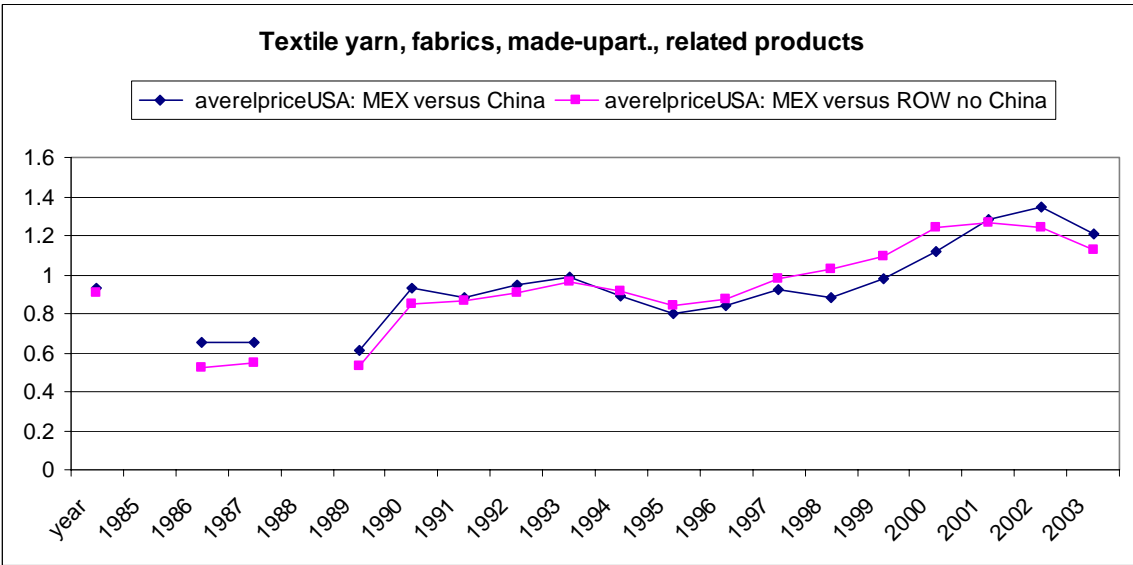
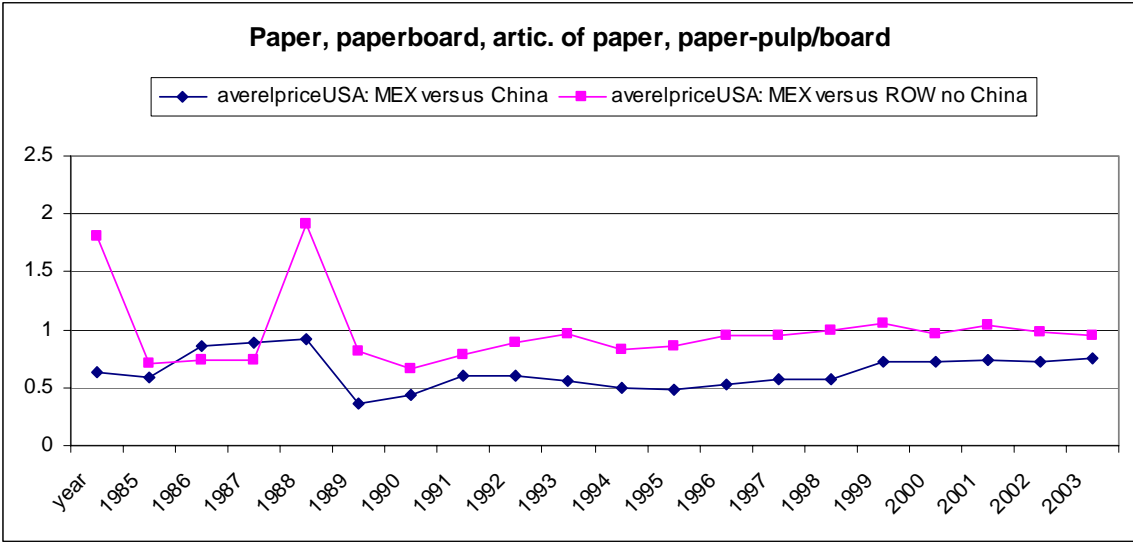
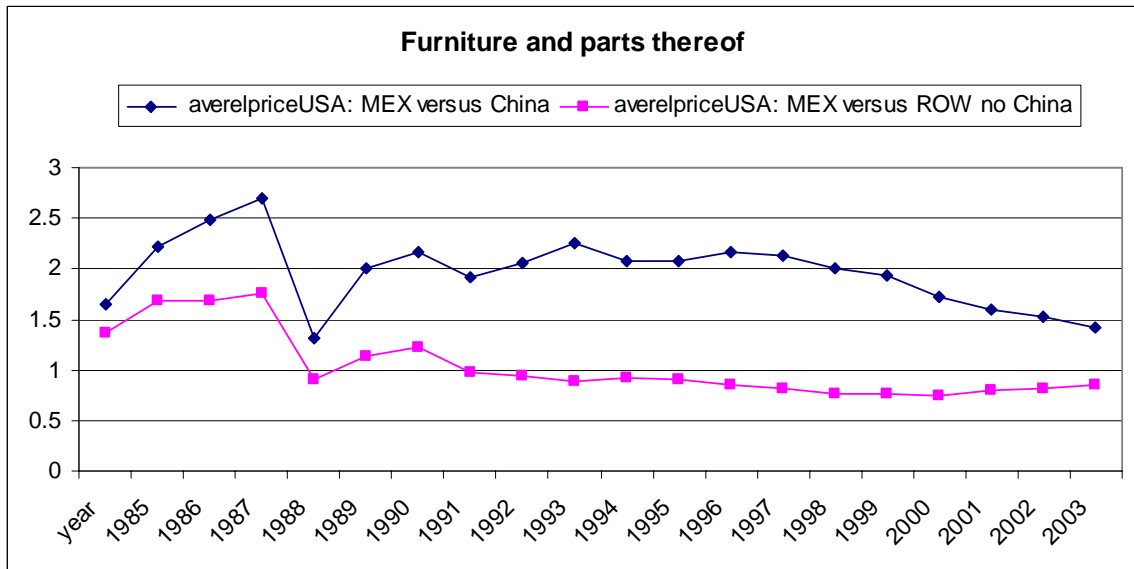
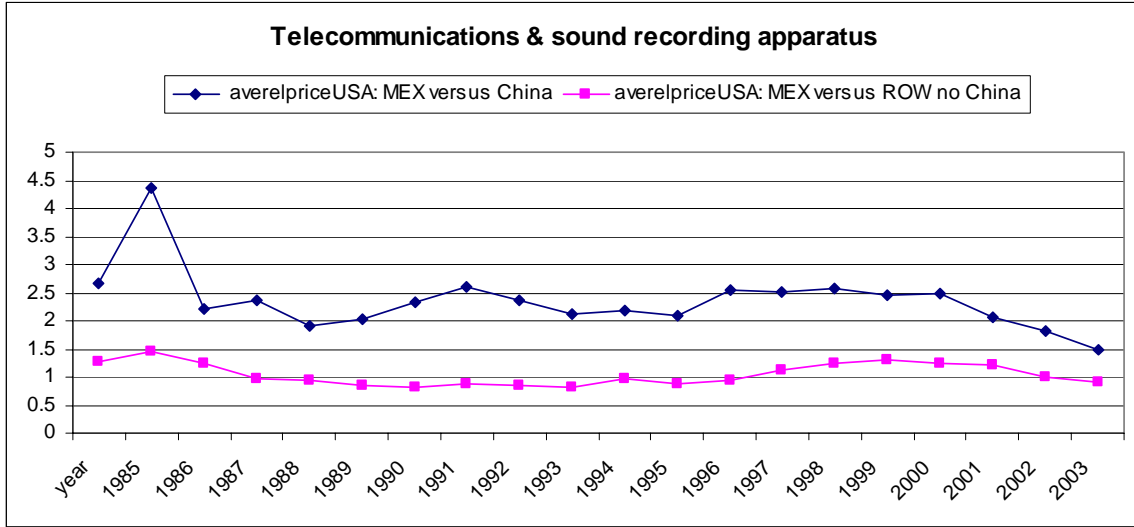


Figure 5: Average Relative Price of Mexico versus China: Selected Displacement Products (2-digit)







Appendix on Imported Inputs (Preliminary)

Latin American exports may benefit from cheaper imported inputs from China. By taking advantage of economies of scale and other sources of comparative advantage in manufacturing, Chinese firms could supply cheaper and higher quality inputs to final goods producers in Latin American countries. This type of vertical specialization has received much attention in the recent literature and there are some successful examples in Latin America where certain inputs are sourced in China and other East Asian countries, and later stages of production take place in Latin America before the final good is exported, mostly to North American markets.

Latin American countries have unique characteristics that enable them to take advantage of fragmentation of production. First is the geographic proximity to American and Canadian markets. For bulky products, it may economic sense to complete the later stages of manufacturing in Latin America using imported inputs from other countries. The standard example is the television manufacturing where the tubes are imported from Asian countries and the final assembly takes place, mostly, in Mexico before export to the US. The second advantage is the trade preferences enjoyed by Mexico and many other countries in the Caribbean, South and Central America. Many countries have FTAs – through NAFTA and CAFTA - and many others have access to unilateral preferences. The trade barriers imposed by the US on third countries creates an additional source of comparative advantage for producers in preference eligible countries. Suppose Mexico has zero tariffs on imported inputs while the US has positive tariffs on final and/or intermediate goods. Then for some products it will make economic sense to import the inputs to Mexico, perform certain portions of the manufacturing process there to satisfy the U.S. Rules of Origin requirements and export the final good to the US with zero tariffs. It is important to note that advantages resulting from preferences can be transitory and may disappear with policy shifts in the United States. For example, many apparel manufacturers in Central American countries are finding to difficult to compete against Chinese exporters since the removal of MFA Apparel quotas.

The data reveal that Latin American countries, especially Mexico, are importing cheaper inputs from China. There is some evidence that this is allowing them to increase their exports of final goods to the United States. In this appendix, we provide preliminary data that confirm these patterns, without performing detailed empirical analysis, which would require extensive input-output information for each country, not available at the required level of disaggregation.

Figure 1A presents import growth for three main sub-regions in Latin America – Mexico, Central America (except Mexico) and South America – for total manufactured imports and several main product categories (**how are these defined?**). We take the 1986 levels to be equal to 100 and see the dramatic increase in the import levels for each sub-region. Mexican imports increased 15-fold whereas for the rest of Latin America the increase is around 5-fold. Import levels for most manufacturing sectors – with the notable exception of industrial machinery – have increased at an even faster rate. For example, office machinery and vehicles imports increased 25-fold for Mexico in two decades.

In Figure 2A, we present the importance of China as an import supplier to the three regions. By 2004, Chinese firms captured around 5% of the manufactured imports markets in Mexico and South American countries and around 2.5% of the markets in Central America. Even though these levels are below the ones for the US (around 10%) the rate of growth is remarkable. Once we consider that the overall imports of the Latin American countries have also been growing very rapidly, the growth rate of the value of Chinese exports becomes more impressive. Among the sub-categories, the fastest growing Chinese export sectors are Telecom apparatus and office machines for which the Chinese share is between 10-15% for Mexico and South America.

At this level of aggregation, it is hard to identify which product categories are inputs are which ones are final goods. Before we move to 4-digit product categories, we need to present data on the export history of the Latin American region by category. We pick only the United States as the export market since the main benefits of imported inputs

trade are likely to occur for this market (**Why?**). Figure 3A reveals the progress of each region as an exporter of manufactured goods. Mexican exports have grown rapidly, especially after implementation of NAFTA, where exports to the United States grew by 12-fold over the decade. Office machines, vehicles and industrial machinery exports from Mexico grew at a much faster rate due to migration of many manufacturing activities of final goods to the south. The performance of South American exporters has been rather “bumpy” over the last two decades – we see significant fluctuations over time. Export growth from Central America was very rapid, especially in electrical machinery.

The importance of Chinese inputs is best revealed in disaggregated data. We start with Mexico, as this is where the effect is likely to be strongest. Table 1A shows the largest industrial goods categories (**definition?**) in terms of imports from China. Total industrial imports from China were \$12 bn in 2004, up from \$1.1 bn in 1998 and only \$300mn in 1992. The largest sectors by value are almost all intermediate input categories, such as control and adapting units for data processing machines (i.e. computers), accessories for different types of machines, microcircuits, machinery parts, various equipment, transistors, transformers, valves and other parts. Furthermore, the share of Chinese firms in these categories has expanded very rapidly since 1998 and is very high - above 40% in many categories.

The key question is whether there is a link with the export sectors of the Mexican economy. Table 2A presents the largest industrial product categories of Mexican exporters to the United States. The largest categories are almost all final goods, led by motor vehicles and related items such as engines. The list also includes various electrical equipment and machinery – such as televisions, refrigerators, tools etc. There are few categories that can be classified as intermediate goods, such as control panels and machinery parts. Nevertheless, the production arrangement between Mexico and China in terms of the US market is clear – Mexico imports many industrial and intermediate goods and exports largely final goods to the US. These sectors have been the largest growth sectors both, respectively, as imports and exports of Mexico over the last decade.

Tables 3A and 4A present the parallel data for South American countries starting with imports from China. We note that the list of the largest categories are rather similar with many intermediate goods and other industrial inputs such as accessories for machinery, control panels, circuits and other parts. The Chinese market share has grown fast and is already high in many sectors. The final table for this section presents the South American exports to the US. We again see mostly final goods, led by small aircraft, motor vehicles and related parts. There are several machinery categories, which include final as well as intermediate goods.

The numbers, levels and growth rates in the tables for South America are lower than the parallel ones for Mexico. This is partly due to tighter economic integration NAFTA created between the United States and Mexico and the subsequent increased demand from Mexico for Chinese inputs. The data in this section present broad trends and are by no means conclusive. There is evidence of increased intermediate goods imports from China and of an increase in exports of final goods to the nearest market. The next step is to establish the links econometrically, show the existence of production networks and, specifically, demonstrate how the emergence of China impacts firms in Latin America, whether they produce for the local or the export market.

Figure 1A: Latin American Import Growth

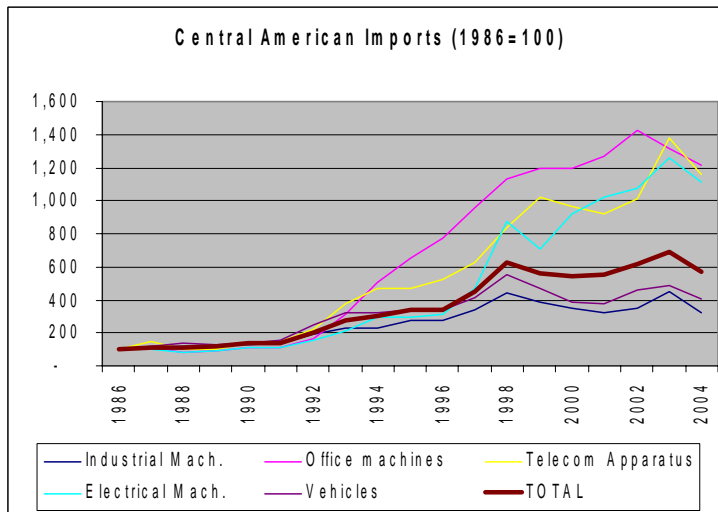
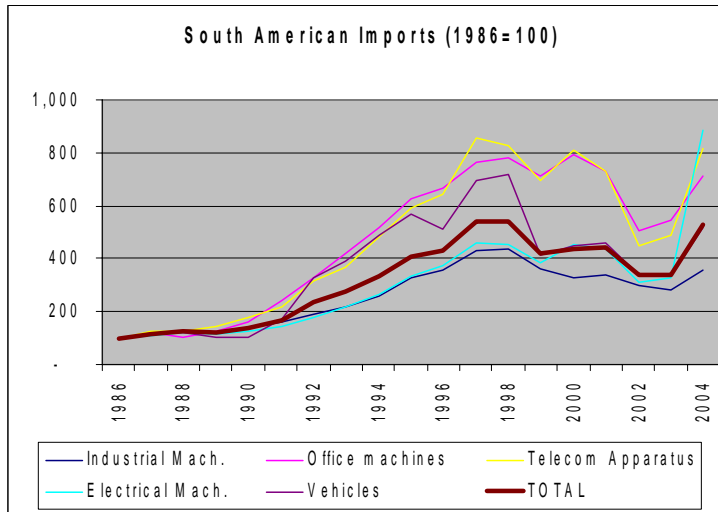
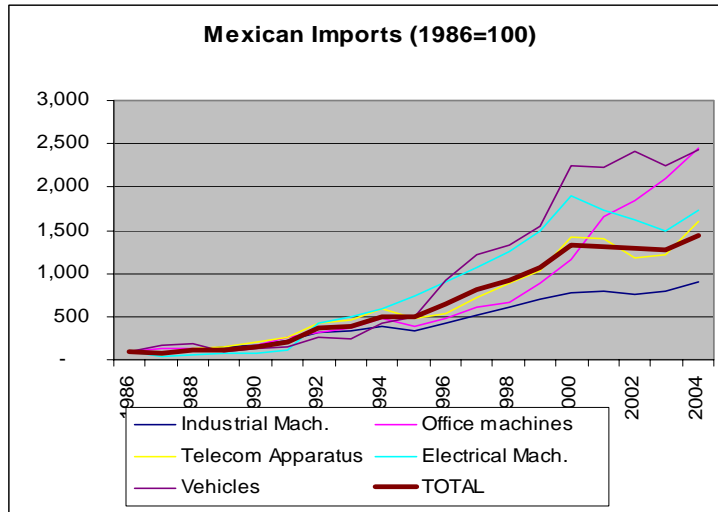


Figure 2A: China's Share of LAC Imports

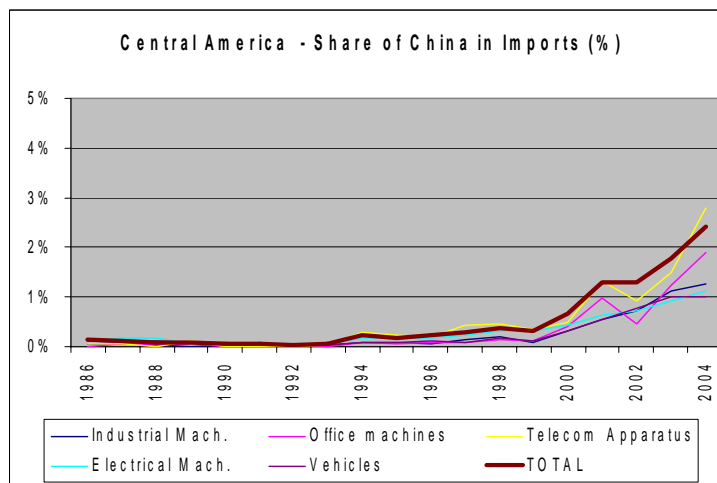
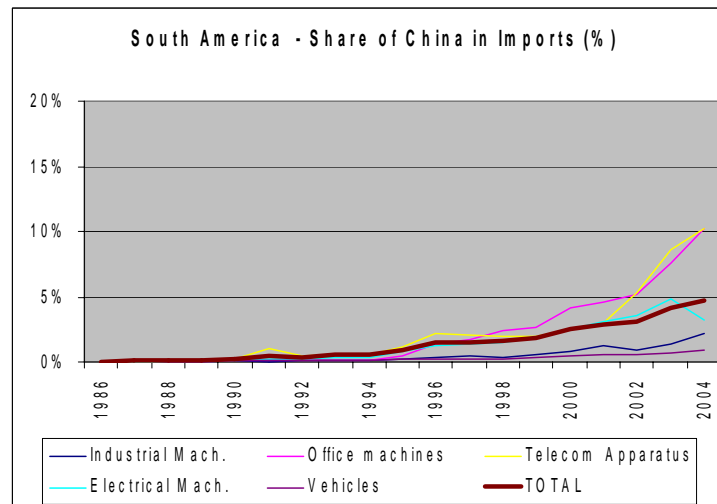
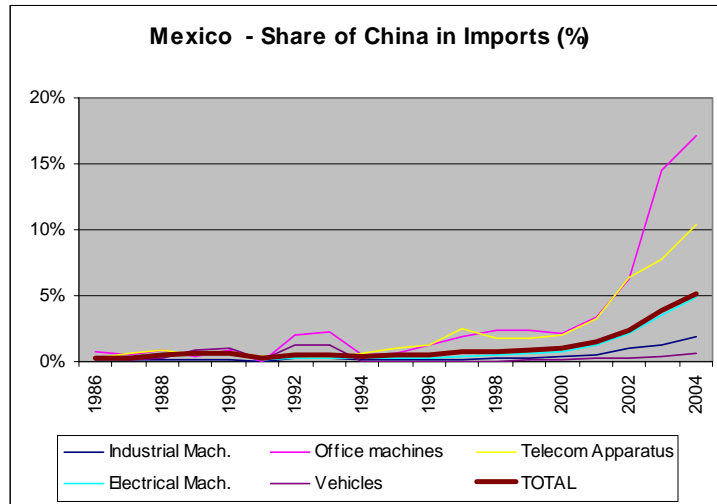


Figure 3A: Export Growth to the United States

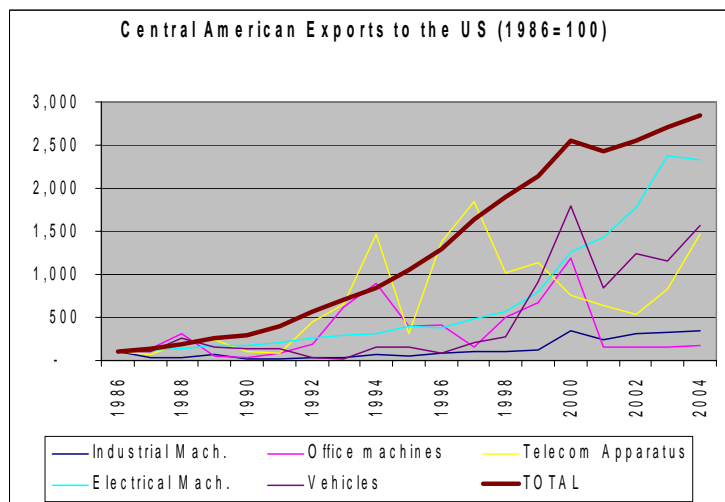
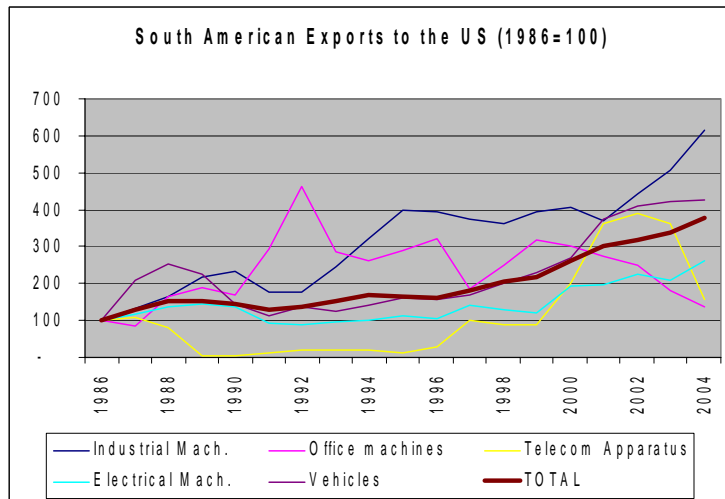
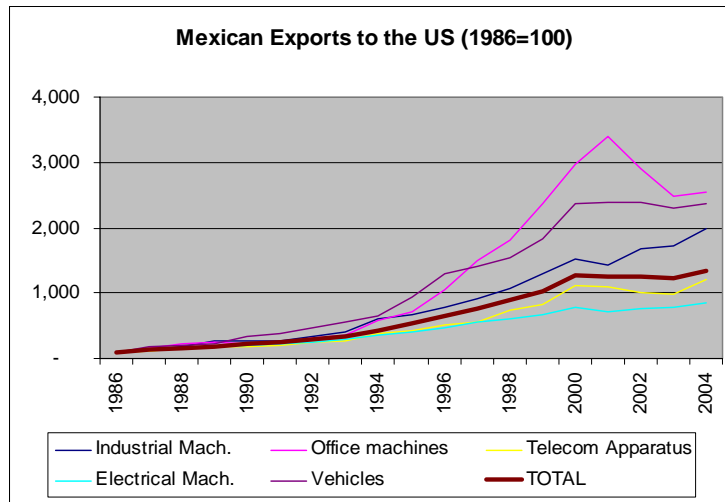


Table 1A: Main Mexican Imports from China

Description	Code	Imports From China in 2004 (\$'000)	Share of imports from China		
			1992	1998	2004
Control & adapting units for data processing machines	7525	1,818,975	3.3%	1.8%	45.2%
accessories for machines in 7512 & 752	7599	1,612,683	1.8%	1.2%	29.7%
Accessories for machines in 76	7649	1,035,831	0.5%	0.6%	20.5%
Electronic microcircuits	7764	716,741	0.1%	0.1%	8.3%
Sound recording machinery	7638	421,297	0.1%	0.7%	43.7%
electric power machinery parts	7712	407,390	0.5%	2.7%	29.0%
Printed circuits and parts	7722	307,275	1.5%	0.6%	17.4%
Electrical machinery & equipment parts	7788	301,217	0.6%	0.4%	11.4%
off-line data processing units	7528	287,934	0.0%	0.7%	34.9%
switches, fuses control panels	7721	264,844	0.6%	0.3%	4.5%
digital data processing machines	7522	248,002	2.6%	0.3%	40.8%
telephone equipment	7641	231,957	0.1%	4.9%	28.8%
electric wire & cable	7731	229,042	0.1%	0.5%	8.4%
television transmitters	7643	155,627	0.0%	0.5%	7.0%
batteries & accumulators	7781	152,142	0.2%	0.6%	19.0%
microphones & amplifiers	7642	148,602	2.8%	5.6%	34.1%
diodes & transistors	7763	146,139	0.2%	0.3%	11.9%
transformers	7711	140,022	0.3%	2.7%	26.4%
valves	7492	94,586	2.4%	0.6%	7.2%
Electro-thermal parts	7758	81,472	0.9%	2.5%	24.1%

Table 2A: Main Mexican Exports to the US

Description	Code	Exports From Mexico 2004(\$'000)	growth Rate of Exports	
			1992-1998	1998-2204
motor vehicles	7810	11,200,000	253%	20%
television receivers	7611	7,434,508	267%	58%
transport motor vehicles	7821	7,100,559	678%	101%
vehicle parts	7849	6,676,746	70%	106%
insulated cable & wire	7731	5,583,344	135%	17%
digital central processing units	7523	4,323,167	200%	1191%
switches, fuses control panels	7721	4,079,760	130%	76%
televisions	7643	3,114,491	732%	79%
Accessories for machines in 76	7649	2,390,371	37%	105%
electro medical equipment	7641	2,153,342	875%	225%
motor vehicle engines	7132	1,842,002	140%	12%
piston engines	7139	1,488,086	247%	158%
radios for vehicles	7621	1,394,797	120%	4%
electric motors	7162	1,379,246	190%	37%
Control & adapting units	7525	1,368,113	747%	-27%
other electrical machinery	7788	1,362,636	156%	52%
automotive electrical equipment	7783	1,317,172	144%	117%
accessories for machines in 7512 & 752	7599	1,189,542	293%	-27%
valves	7492	1,112,543	283%	22%
air conditioning machines	7415	917,078	217%	78%
road tractors	7832	827,493	1160%	405%
transformers	7711	805,268	162%	2%
refrigerators	7752	743,997	123%	218%
electric power machinery	7712	739,197	319%	-24%
electrothermic parts	7758	630,906	124%	40%
electromechanical tools	7784	622,634	476%	328%

Table 3A: Main South American Imports from China

Description	Code	Imports From China in 2004 (\$'000)	Share of imports from China		
			1992	1998	2004
Accessories for machinery in 76	7649	487,849	0.2%	1.0%	11.2%
Control & adapting units for data processing machines	7525	383,064	0.0%	3.8%	14.1%
Sound recording machinery	7638	331,789	0.1%	6.1%	26.8%
parts for machinery in 752	7599	278,834	0.0%	3.1%	9.4%
television transmitters	7643	214,156	0.0%	0.2%	3.2%
Electronic microcircuits	7764	177,549	0.1%	0.5%	3.8%
radio receivers	7628	165,965	2.5%	9.5%	32.1%
telephone equipment	7641	163,161	0.1%	1.2%	9.9%
data processing machines	7522	141,787	0.0%	0.3%	17.7%
Electro-thermic parts	7758	134,452	0.8%	10.7%	23.8%
electric lamps	7782	119,849	0.6%	4.1%	18.2%
batteries	7781	119,037	0.2%	1.1%	12.1%
portable radio receivers	7622	114,711	1.3%	27.2%	41.1%
television receivers	7611	106,296	0.9%	1.5%	8.0%
microphones & amplifiers	7642	105,508	0.2%	7.7%	25.7%
Electrical machinery & equipment parts	7788	104,061	0.1%	1.0%	5.9%

Table 4A: Main South American Exports to the US

Description	Code	Exports From Mexico 2004(\$'000)	growth Rate of Exports	
			1992-1998	1998-2204
aircraft	7923	1,766,501	441%	126%
vehicle parts	7849	1,001,006	85%	56%
engines	7139	464,627	138%	23%
televisions	7643	330,970	38241%	1368%
air and vacuum pumps	7431	312,317	141%	42%
construction machinery	7234	297,811	141%	132%
motor vehicles	7810	232,724	-98%	11848%
shaft & crank	7493	202,205	202%	57%
piston engines	7132	193,027	-57%	416%
machinery parts of 72	7239	139,709	94%	87%
valves	7492	90,115	34%	164%