

**The growth of China and India in world markets:
opportunity or threat for Latin American exporters?***

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Abstract

This paper explores whether the rapid growth of China and India in world markets is a threat or an opportunity to Latin America and Caribbean (LAC) exporters. We proceed in two steps. First, we focus on the opportunity that the rapid growth of China and India's markets offer to LAC exporters. Using a gravity model, we measure the impact that China and India's demand growth had on LAC exports. We then focus on the threat or hidden opportunity that the growth of China and India had on Latin American exports to third markets. Using a gravity model, we allow for four different channels through which the growing presence of China and India in world markets may be affecting LAC exports to the rest of the world: 1) their growing presence as an exporter to third markets; 2) their growing presence as an importer from third markets; 3) their growing presence as an exporter to LAC; and 4) their growing presence as an importer from LAC. Results suggest that the growth of the two Asian economies domestic market is a large opportunity that has not been fully exploited, in particular for exporters from the Southern Cone and the Andean regions to China. We also found that the growing presence of China in world markets tended to complement LAC exports to third markets. In the case of India the evidence is mixed, probably signaling a closer specialization pattern to the one observed in LAC. In sum, China and to a large extent India's growing presence in world markets is good news for Latin America, even though some of the potential benefits remain unexploited.

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1. Introduction

Two decades ago China and India represented 3 percent of world GDP. Today they account for almost 7 percent of world GDP. China is the 6th largest economy in the world when measured in terms of GDP and India the 10th largest economy. The fast economic growth of China and India was also accompanied by their rapid integration to world markets. China is the 3rd largest trading economy in the world (just behind the United States and Germany), while India ranks 25th in terms of trade value.

The rapid growth of the two Asian economies in world markets is seen as an opportunity for Latin America and the Caribbean (LAC) by some analysts and as a threat by others. It is an opportunity because China and India became the third trading partner of the region, and with a growth rate of their demand close to 9 percent over the last two decades the future potential is large. Over the past decade, the importance of China and India as a destination for Latin American exports increased four-fold since 1990 when they represented less than 1 percent of LAC exports. This signals a significant increase in opportunities, even though the levels remain quite low –generally representing less than 10 percent of total exports (see Figure 1). Similarly, the share of China and India in total LAC imports also increased significantly over the period, signaling their growing presence in LAC markets (see Figure 2).

Moreover, their appetite for commodities has contributed significantly to the recent commodity boom that has directly benefited many LAC exporters (e.g., Argentina and Brazil for soy, and Chile on copper). Today China is the largest world consumer of aluminum, copper, petroleum, soy, tin and zinc (Hale, 2005). Even when LAC exporters are not directly selling to China and India these commodities, or when the two Asian economies only represent a small share of exports (e.g., Bolivia, Colombia and Ecuador), they benefit from increases in demand and higher prices associated with the growing Chinese and Indian economies (Calderón, 2006, Lederman et al., 2006).

The threat that China and India's growth may represent for LAC firms is associated with their growing presence in world markets that may be displacing Latin American firms

and reducing employment. China and India's manufacturing exports increased at around 15 percent per annum over the last decade. China, for example, displaced Mexico as the second source of United States imports. Estimates suggest that the Mexican maquiladoras lost around 250 thousand employees since the early 2000s due to their relocation in Asia. Even some Mexican textiles firms have relocated in China (Hale, 2005). Similarly, Lall, Weiss and Oikawa (2004) estimate that in 2002 around 40 percent of LAC exports to the world are under direct or partial threat from Chinese exports.¹

Along the same lines Hanson and Robertson (2006) explored the impact of the increased supply capacity of China in LAC exports of selected manufacturing industries (metals, machinery, electronics, transport and industrial equipment), representing 35 percent exports of Argentina, Brazil, Chile and Mexico. They found that without the increase in the Chinese supply capacity for these products, export growth could have been 1 percentage point higher in Argentina and Brazil, 2 percentage points higher in Chile and 3 percentage points higher in Mexico. Freund and Ozden (2006) undertook a similar exercise, but that encompasses all goods, and without disentangling between supply and demand shocks. They found that increased exports from China are hurting LAC exports to third markets but only in some industries, namely textiles, electronics and electrical appliances, and telecommunications equipment (where Hanson and Robertson, 2006 also focused).

But both studies focused on intra-industry effects, ignoring the potential for inter-industry externalities, whereas by increasing Chinese supply of some products, we may observe an increase demand for LAC products as new market opportunities appear, sometimes associated with multinational presence and production networks. Thus, the empirical methodology in those papers was designed to capture the potential threat that China and India represent, without exploring the potential opportunities that the growth of China and India in third markets may represent for LAC exporters. This paper addresses these issues, by examining the potential for complementarities and substitutability between

¹ The defined direct threat as products on which LAC is losing market share while China is gaining market share, and partial threat as products on which China is gaining market share more rapidly than LAC.

LAC and Chinese exports to third markets at the aggregate level, allowing therefore for both intra-industry, but also inter-industry effects.

The objective of this paper is twofold. First, we focus on the opportunity, and try to assess the direct impact on LAC exports to China and India associated with the rapid growth of these two Asian economies internal markets. Second, we examine whether the growing presence of China and India in world markets should be seen as a threat or an opportunity for LAC exporters.

We address both questions using a gravity model of trade whereby bilateral imports and exports of LAC countries are explained using the GDP of the importer and the exporter (their economic size), their bilateral distance (as a proxy for transport cost) and country and year fixed effects to control for unobservables. We allow impacts to vary by four broad LAC sub-regions to account for differences in economic structure and factor endowments: Andean Countries (Bolivia, Colombia, Ecuador, Peru and Venezuela), Caribbean countries (Dominican Republic, Haiti, Jamaica, and Trinidad and Tobago), Central America (Belize, Costa Rica, Guatemala, Honduras, Nicaragua, and Panama) together with Mexico, and the Southern Cone (Argentina, Brazil, Chile, Paraguay, and Uruguay).

To capture the impact of growing Chinese and Indian demand we simply estimate the impact that China and India's growing GDP has on LAC exports to China and India. In terms of the substitutability or complementary of LAC exports to third markets with China and India's trade flows, we decompose the effects through four different channels.

The first channel captures the impact of Chinese exports to third markets on LAC exports to these markets. As suggested earlier the expected coefficient is ambiguous. On one hand, the growing Chinese presence may be crowding out LAC exporters of the same products, but on the other the growing supply of Chinese goods increases production and consumption possibilities in third markets of other goods through for example (although not necessarily) production networks.

The second channel is through the impact that growing Chinese imports from third markets may have on LAC exports to these third markets. We would expect a positive sign here, again associated with the indirect expansion of production and consumption possibilities.

The third channel captures the impact of Chinese growing exports to LAC on LAC exports to third markets. The expected sign of this effect is ambiguous. Growing imports from China may be negatively affecting the competitiveness of LAC exports to third markets, at least in the short run, as firms may be adjusting to the growing Chinese or Indian competition. On the other hand, the availability of a larger variety of cheaper intermediate inputs may increase the competitiveness of LAC exporters to third markets.

The fourth channel is through the impact that growing Chinese and Indian imports from LAC may have on LAC exports to third markets. The expected sign is also ambiguous. On one hand, LAC may be re-directing exports to third markets to satisfy the growing Chinese appetite. On the other hand, exports to China and India may open other markets to LAC exporters in Asia or elsewhere.

Results indicate that over the period 2000-2004, the increase in China's GDP led to an average increase in their demand for LAC goods equivalent to 7 percent of LAC total exports. According to our results, actual LAC exports to China were below the potential demand derived from China's growth: the estimated growth in China's demand for LAC exports was 28% higher than that actually observed. That is the average estimated increase in Chinese demand during this period was larger than the average increase in the observed increase in LAC exports to China, signaling some missed opportunities. The growth in Chinese demand for commodities² was even larger, representing 10 percent of LAC exports in 2004, and accounting for 74 percent of the actual growth in LAC exports of commodities to China.

² Commodities are defined as goods falling in the HS 01 to HS 24 classification of the Harmonized System.

The estimated growth in Chinese demand for LAC goods was quite uneven across LAC sub-regions. The largest estimated increases in Chinese demand were for Southern Cone and Andean goods (with an increase equivalent to 14 and 9 percent of their total exports, respectively). The estimated growth in Chinese demand for Central American and Caribbean products represented only 2 and 1 percent, respectively, of their total exports in 2004.

The estimated potential change in Indian demand for LAC products was also impressive. It represented 112 percent of LAC exports to India over the period, again signaling some missed opportunities. However, given that the size of the bilateral trade with India is quite small, this estimated growth in Indian demand for LAC products only accounted for 1 percent of LAC exports in 2004 (driven by Andean countries and the Southern Cone). The increase in Indian demand for LAC commodities was negligible.

In terms of the impact of Chinese trade flows with LAC and third countries on LAC exports to third markets we found no evidence of substitutability through any of the channels at the aggregate level. The growth in Chinese exports to third markets led to an estimated increase in LAC exports to these markets equivalent to 32 percent of LAC exports in 2004. Imports of China from third markets had no impact on estimated LAC exports to the world. The growth in exports of China to LAC and imports of China from LAC led to a 7 percent increase in exports of LAC to third markets. In the case of commodities the same pattern is observed, but the positive association between Chinese trade flows and LAC exports to third markets is driven by the third channel (the growth of Chinese exports to LAC) signaling most probably the importance of intra-industry trade in the bilateral relationship of LAC countries with China and India.

In the case of India, however, there is some mild evidence of substitutability between Indian trade flows and LAC exports to third markets through the second (Indian imports from third markets) and third channel (Indian exports to LAC). But the first (Indian exports to third markets) and fourth channels (Indian imports from LAC) signal some mild complementarities between Indian trade flows and LAC exports to third markets. In

the case of commodity exports to third markets, they tend to show some small complementarities with Indian trade flows (excepted through the second channel where the impact is negative, but very small).

Overall the results suggest that the growth of China and India in world markets are an opportunity for LAC exporters. The growth of China and India's potential demand over the period 2000-2004 accounts for 8 percent of LAC exports in 2004 (mainly driven by China). However, this remains an untapped opportunity that has not been fully exploited, especially by exporters in the Southern Cone and among Andean countries whose exports are well below potential. Moreover, we found no economically significant evidence of substitution between China and India's trade flows and LAC exports to third markets. On the contrary, LAC exporters seem to have been benefiting by the growing presence of the two Asian economies in world markets, in particular China.

The remainder of the paper is organized as follows. Section 2 describes the empirical methodology, whereas Section 3 presents the results. Section 4 concludes.

2. The empirical methodology

Our methodology relies on the well known gravity model of trade that explains bilateral imports with the GDP of the importer and the exporter, bilateral distance and different fixed effects to control for unobservable variables. Because we are interested in the impact of the growth of China and India's demand on LAC exports to these two markets, as well as the impact of China and India's trade flows with LAC and the rest of the world on LAC exports to third markets we would need to address these two questions in two different samples. We will therefore first discuss how we estimate the impact of the growth of China and India on LAC exports to these markets, and then turn to the impact on LAC exports to third markets.

2.1 Impact of China and India's growth on LAC exports to these two markets

The basic gravity framework we used follows the literature and is given by:

$$M_{ijt} = \alpha Y_{it}^\alpha Y_{jt}^\beta D_{ij}^\delta B_{ij}^\phi \ell_{ij}^\varphi Lindert_{ijt}^\sigma e^{\theta_i d_i + \theta_j d_j + \theta_t d_t} \quad (1)$$

where M_{ijt} are imports of country i from country j at time t , Y_{it} is the GDP of the importer at time t , Y_{jt} is the GDP of the exporter at time t , D_{ij} is the bilateral distance, B_{ij} is a dummy that takes the value 1 if the exporter and the importer share a border, ℓ_{ij} is a dummy that takes the value 1 if the exporter and the importer share a common language, $Lindert_{ijt}$ is the absolute value of the difference of GDP per capita between the importer and the exporter at time t ,³ d_i are importing country dummies, d_j are exporting country dummies and d_t are time dummies.

Thus, the average impact of an importers' growing GDP on exports is captured by the parameter α . In order to capture the impact associated with growing demand in China (or India) we will add an additional variable to equation 1, which is the interaction of a dummy variable that takes the value 1 when China (or India) is the importer with the GDP of the importer, Y_{it} . Also, because economic and factor endowment differences can be important within LAC, we will also interact this variable with four dummy that take the value 1 when the exporter belongs to one of the four sub-groups we considered (Andean countries, Caribbean countries, Central America and the Southern Cone).

We will proceed in a similar way with the GDP of the exporter to measure the differential impact of the growth of different LAC sub-regions on exports to China (or India), as well as with the Lindert effect.⁴ The final specification that captures the impact on bilateral exports to China is given by:

³ The Lindert variable is often used in gravity specifications to capture how similarities in the level of development between importer and exporters can lead to larger trade. However, this captures intra-industry trade motives, whereas most of the trade between LAC and China and India is of an inter-industry trade nature. We nevertheless follow the traditional specification and include it as a control variable.

⁴ We also look at the differential impacts on LAC imports from China (or India), but we omit them from the presentation here for ease of exposition. The results on imports of LAC from China and other third markets are discussed in the Appendix.

$$M_{ijt} = \alpha Y_{it}^\alpha \prod_R (d_{i=China} d_{j \in R} Y_{it})^{\alpha_R} Y_{jt}^\beta \prod_R (d_{i=China} d_{j \in R} Y_{jt})^{\beta_R} D_{ij}^\delta B_{ij}^\phi C_{ij}^\varphi \text{Lindert}_{ijt}^\sigma \prod_R (d_{i=China} d_{j \in R} \text{Lindert}_{ijt})^{\sigma_R} e^{\theta_i d_i + \theta_j d_j + \theta_t d_t} \quad (2)$$

where $\alpha + \alpha_R$ capture the impact of the growth of China on exports of region R to China, and $\beta + \beta_R$ capture the impact of growth of region R on exports to China.. Multiplying each of these by either the change in China's GDP or LAC's GDP will provide us with an estimate of the change in import demand associated with either the growth of China (demand effect) or the growth of LAC (supply effect) on bilateral exports.

We proceed in a similar way with India. That is to capture the differences of impact that the growth of India's GDP may have had across LAC sub-regions we interact the GDP of India with dummies that takes the value 1 when each of the LAC sub-regions is an exporter and India is an importer (again we also explore the differential impact on imports of LAC from India, and these are discussed in the appendix). The exercises for China and India are undertaken separately.

One concern with the existing literature on the estimation of the gravity model is the application of OLS or other linear estimators to (2). It is now known that linear estimators can yield inconsistent coefficients due to the correlation between the expected value of bilateral trade flows among country pairs and the variance of their regression errors (Santos Silva and Tenreyro 2006).⁵ This systematic heteroskedasticity produces log-linear estimates that are driven by the disproportionate influence of observations with high expected bilateral trade flows, which leads to biased and inconsistent estimates. Indeed, Monte Carlo simulations suggest that the application of log-linear estimators to this type of data-generation process tends to produce substantial biases and inconsistency (and inconsistency?) in the coefficients compared to the Poisson estimator, which controls for a constant correlation between the conditional mean of each observation and its regression-error variance.

⁵ For smaller values of trade the expected variance is smaller.

Furthermore, if the data-generation process is characterized by over-dispersion (a rising ratio of variance over conditional mean) then the Negative Binomial estimator is preferable as it down weights even more the observations with large conditional mean. Santos Silva and Tenreyro (2006) argue that the Negative Binomial estimator might not be desirable if the smaller observations are more prone to measurement errors than the larger observations. They further argue that this may be the case in a sample of both developed and developing countries, as data from larger countries (measured in terms of GDP per capita) is less likely to be subject to measurement error. However, in our sample composed of LAC exporters and importers, there is no reason a priori to believe that trade flows by small countries like Uruguay are more likely to be subject to measurement error than trade flows by large countries like Venezuela with trade flows almost 10 times larger than Uruguay's trade flows. We will therefore use a Negative Binomial estimator and correct for over-dispersion when estimating equation 2. Because the estimator does not fully account for the heteroscedasticity in the model we will use an Eicker-White correction by reporter to obtain a robust covariance matrix.

2.2 Impact of China and India's trade flows on LAC exports to third markets

We consider the impact of China (or India) trade flows with LAC and with the rest of the world on LAC exports to third markets. We identify four potential channels that could affect LAC exports to third countries: China (or India) exports to the rest of the world, China (or India) imports from the rest of the world, China (or India) exports to LAC, and China (or India) imports from LAC. Thus, in a sample of Latin American importers and exporters to all countries except China (or India) we add these four variables (exports of China to the third market, imports of China from the third market, exports of China to LAC and imports of China from LAC) to the specification in (1).

Because we also want to account for differences within LAC sub-regions we also interact these four variables with dummies that take a value of 1 when region R is an exporter.⁶ The final specification for China is given by:

$$M_{ijt} = \alpha Y_{it}^{\alpha} Y_{jt}^{\beta} D_{ij}^{\delta} B_{ij}^{\phi} \ell_{ij}^{\varphi} \text{Lindert}_{ijt}^{\sigma} e^{\theta_i d_i + \theta_j d_j + \theta_t d_t} X_{China,z,t}^{\pi} M_{China,z,t}^{\psi} X_{China,j,t}^{\xi} M_{China,j,t}^{\eta} \prod_R d_{j \in R} X_{China,z,t}^{\pi_R} \prod_R d_{j \in R} M_{China,z,t}^{\psi_R} \prod_R d_{j \in R} X_{China,j,t}^{\xi_R} \prod_R d_{j \in R} M_{China,j,t}^{\eta_R} \quad (3)$$

The same specification is run using Indian trade flows with LAC and the rest of the world as the four additional explanatory variables. Again, we use a Negative Binomial estimator for the reasons discussed above.

3. Results

First to capture the impact that the growth in China and India's internal demand (as well as LAC's GDP growth) may have had on exports of LAC to the markets of the two Asian economies, report results of the estimation of equation (2) for China and India using both aggregate exports and commodity exports. We then turn to the impact of China and India's trade flows on LAC exports to third markets through the four channels indicated in equation (3).⁷

3.1 China and India's market as an opportunity for LAC exporters

Results for the estimation of (2) using non-fuel bilateral trade flows for our sample of LAC exporters and importers are reported in Table 1 for China and Table 3 for India. Results using a sample of bilateral trade flows of commodities (HS 01 to HS 24) are reported in Table 2 for China and Table 4 for India. For each LAC sub-region we decompose the effect of the growth in LAC export supply associated with LAC's GDP growth and the effect of the growth of either China or India's import demand associated with their own GDP growth.

⁶ As in the estimation in section 2.1 we also allow for heterogeneity across regions on the import side, but we do not include them in equation (3) for ease of notation.

⁷ In the appendix we present the results of the impact of China, India and LAC's GDP growth on imports of Latin America from these two Asian economies.

The first column of each table reports the estimated coefficient on the impact that either, China, India or LAC's GDP has on bilateral exports of each LAC sub-region to either China or India. The second column reports the p-value for the statistical significance of the estimated coefficient. For any p-value below 10 percent, we set the estimated coefficient equal to zero in all other columns. The third column contains the within sample change in the explanatory variable (the log of the GDP of China, India or LAC). The fourth column gives the product of the estimated coefficient with the change in the relevant explanatory variable. The fifth column calculates the percentage change in bilateral exports to either China or India associated with the values calculated in the fourth column. This calculation gives us the predicted change in imports from China (India). The sixth column provides this predicted change on bilateral exports as a percentage of each sub-region total exports in 2004. The last column gives the contribution to bilateral export growth estimated over the period that can be attributed to either the growth in China and India's demand or LAC's sub-region supply associated with their respective increases in GDP

Estimates in Table 1 suggest that had LAC exports to China been at their full estimated potential given the growth of China's demand over the 2000-2004 period, they would have accounted for 7 percent of LAC exports in 2004, whereas the increase in LAC's GDP had no significant impact on LAC exports.

This is due to two factors. First, the growth of China's GDP was 2.5 times larger than LAC's average GDP growth over the period (13 versus 5 percent). Second, the estimated coefficient on the impact of LAC-sub regions GDP on bilateral exports to China is much smaller than the estimated coefficient on the impact of China's GDP growth on LAC's bilateral exports to China. Moreover its impact is statistically different from zero only in the case of Central America's GDP growth.

The average increase in LAC's bilateral exports to China attributed to China's GDP growth is driven by China's demand for Andean countries and Southern Cone products.

The impact on bilateral exports from the Caribbean and Central America is much smaller, at 2 and 1 percent respectively.

More interestingly the predicted increase in bilateral exports associated with the increase in China's GDP over the period accounts for 128 percent of the growth in LAC bilateral exports to China. This indicates that LAC exporters are not able to satisfy the rapidly growing demand for their products in China. This is particularly so for Andean and Southern Cone countries where the increase in China's demand is double the increase in exports to China over the period.

The same pattern is observed when using a sample of bilateral commodity trade (Table 2). The average increase in LAC exports to China is higher than in the case of non-fuel exports (10 percent for total commodity exports, versus 7 percent for non fuel exports). This again is driven by Andean and Southern Cone countries. Nevertheless, it seems like these countries are more able to meet the growing Chinese demand for commodities, as the growth in China's GDP "only" accounts for 75 percent of the growth in LAC commodity exports to China (versus 128 percent for non fuel exports).

In the case of non fuel exports to India (Table 3), the impact on exports when measured as a share of total LAC exports in 2004 is positive, but economically very small, and again this is driven by Andean and Southern Cone countries, which both experienced an increase in their bilateral exports to India equivalent to 1 percent of their total exports in 2004.

The reason for India's growth in demand small impact on LAC exports is twofold. First, the estimated coefficients reported in Table 3 are smaller than those reported in Table 1, but more importantly LAC exports to India are on average ten times smaller than LAC exports to China. Thus, the small impact captures today's relatively small size of the Indian market. However, in terms of potential, India's GDP growth has been having a large impact on LAC's exports to that market, and it accounted for 112 percent of the

growth in LAC bilateral exports to India over the period 2000-2004, again signaling some missed opportunities for LAC exporters in the Indian market.

Thus, the growth of the two Asian economies, in particular the growth of China, represents a large opportunity for LAC exporters among Andean and Southern Cone countries. There is also evidence of missed opportunities for all LAC regions in those two markets, as the growth in demand for their exports is often larger than the growth in bilateral exports.

3.2 Impact of China and India's trade flows on LAC exports to third markets

Results for the estimation of (3) using non-fuel bilateral trade flows for our sample of LAC exporters and importers are reported in Table 5 for China and Table 7 for India. Results using a sample of bilateral trade flows of commodities (HS 01 to HS 24) are reported in Table 6 for China and Table 8 for India. The impact on LAC exports to third markets is decomposed into the four channels discussed earlier: exports of either China or India to third markets, their imports from third markets, their exports to LAC and their imports from LAC.

The first column of each table reports the estimated coefficient on one of the four channels. The second column reports the p-value for the statistical significance of the estimated coefficient. For any p-value below 10 percent, we set the estimated coefficient equal to zero in all other columns. The third column contains the in sample change in the explanatory variable (one of the four trade flows of either China or India). The fourth column gives the product of the estimated coefficient with the change in the relevant explanatory variable. The fifth column calculates the percentage change in exports to third markets associated with the values calculated in the fourth column. The sixth column provides the change on exports to third markets as a percentage of each sub-region total exports in 2004. The last column gives the contribution to total export growth over the period that can be attributed to each of the four channels.

Estimates for the impact of China's trade flows on LAC exports to third markets show no evidence of substitutability between China's growing presence in world markets and LAC exports. On average, exports of China to third markets are positively associated with exports of LAC to these markets. The same is true for exports of China to LAC and imports of China from LAC. Imports of China to third markets has on average no impact on LAC exports to third markets.

One has to be careful as not to imply causality, as some missing variables may be affecting these correlations. However, at first sight, there does not seem to be any negative impact of China's growing exports to third markets on LAC exports. On the contrary LAC exports seem to be benefiting from the growth of Chinese exports to the world. This is at odds with some of the industry level studies, but can be easily explained by cross-industry externalities at the aggregate level, due to increasing production-sharing around the world. Exports of China to LAC also positively affect LAC exports to third markets, probably capturing the impact that a larger variety of cheaper Chinese products has on the efficiency of LAC exporters, which are users of imported intermediate inputs. LAC exports to China are also positively correlated with LAC exports to third markets capturing the potential cross markets externalities.

The same pattern is observed for the case of LAC exports of commodities to third markets (Table 6). There is no evidence of substitutability, but rather evidence of complementarities between China's trade flows and LAC exports of commodities to third markets. For LAC as a whole, and in the case of commodities, the largest positive externality is found for exports of China to LAC. This probably captures the importance of imported intermediate inputs from China for LAC exporters of commodities.

In the case of India, however, there is some evidence of substitution between Indian trade flows and LAC exports to third markets through some channels, but with the exception of the Caribbean these tend to be compensated by complementarities through other channels (Table 7). For the LAC aggregate the evidence on complementarities or substitutability is

not very conclusive. In the case of exports of commodities, the impact of India's trade flows is even smaller (Table 8).

4. Concluding remarks

China and India's rapid economic growth over the last decade is seen with envy by many observers. The growth of their internal markets is no doubt an opportunity for rest of the world exporters, but their accompanying growing presence in world markets can be either a threat or an opportunity. It can be threat because it may displaced exporters from the rest of the world from third markets, and it can be an opportunity because the availability of a growing variety of Chinese and Indian products at cheaper prices in world markets open production possibilities for exporters in third markets through different channels, linked to the availability of cheaper imported inputs at home that increase the efficiency of home exporters, the increase presence of production networks, and learning by exporting for firms selling to the growing Chinese and Indian markets.

This paper assess the importance of the opportunity that the growth of China and India's markets represent for LAC exporters. It also explores the extent to which China and India's growing presence in world markets affects LAC exports to third markets, aiming at disentangling the net impact through four different channels, which are associated with the two Asian economies exports to third markets, their imports from third markets and their bilateral imports and exports with LAC.

We found that the growth of the two Asian economies market, in particular China, represent a significant opportunity for LAC exporters, especially those with a strong comparative advantage in natural resource intensive products (Andean Countries and the Southern Cone). The growth of China's GDP over the period 2000-2004 accounted on average for 7 percent of LAC exports in 2004. The impact is even larger for commodities, but this effect is obviously driven by Andean and Southern Cone countries.

The impact of India's growth on LAC exports to India is relatively small due to the small size of their bilateral trade. However, there is evidence that LAC (in particular Andean

and Southern countries) have not fully taken advantage of the rapid growth of the two Asian economies markets, including India's market, leaving unsatisfied part of the growth in demand for their products. More active promotion policies and a better understanding of the functioning of the two Asian economies markets may help take full advantage of this growing opportunity.

We found no evidence that China's growing presence in world markets represented a threat for LAC exporters. On the contrary LAC exporters seem to be benefiting from complementarities with China's exports to third markets, China exports to LAC and China's imports from LAC, signaling the growing importance of production networks, the impact that imports of intermediate inputs have on LAC's competitiveness and learning by exporting for LAC exports to China.

The impact of India's growing presence in world markets on LAC exports to third markets is smaller than in the case of China's growing presence. However, in the case of there is some evidence that its growing presence in world markets may be negatively affecting LAC exports to third markets through some channels, but this is compensated by evidence of complementarities through other channels.

To conclude, overall China and India's growing market seem to be an opportunity for LAC exporters, especially in countries that are abundant in natural resources. But it is an opportunity that has not been fully exploited. Perhaps, more importantly, China and India's growing presence in world markets does not seem to be a threat to LAC exporters to third markets. On the contrary, their growing trade opens new production possibilities for LAC exporters associated with demand complementarities (production networks), higher efficiency (due to the availability of a larger variety of cheaper imported intermediate inputs), and learning by doing.

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Data Appendix

Data on bilateral imports, both at the aggregate level and for commodities only, for the period 1990-2004 is from United Nation's Comtrade obtained through WITS. Data on GDP and GDP per capita is from World Bank's World Development Indicators. All data is deflated using the United States producer price index. Bilateral distance, common language and border are from Soloaga and Winters (2000).

Data for China is merged with Hong Kong data. Hong Kong has been a part of China since 1997 and therefore should be considered part of the Chinese economy. Moreover, some observers have argued that China's and Hong Kong's trade data should be combined to approximate the trade flows coming from China mainland due to transshipments of merchandise through Hong Kong (Fernald et al. 1998). Hong Kong has a significant contribution in the marketing and distribution of Chinese exports, thus making it difficult to differentiate the value added in each country. Similarly, multinational enterprises may be moving to Hong Kong to conduct activities in mainland China.

Appendix: Impact of Chinese and Indian growth on bilateral imports

Tables A1 and A2 reproduce the results of Tables 1 and 3, but focusing on imports. Results on the import side tend to be much smaller in magnitude than the results of Table 1 and 3. The growth in GDP of China accounted for an increase in supply of Chinese products to LAC markets equivalent to 2 percent of LAC total imports in 2004 (the

equivalent number for exports was 7 percent). In the case of India's GDP growth the impact on LAC imports from India is negligible when compared as share of total LAC imports (except in the case of Central America where the impact of India's GDP growth accounts for 1 percent of total Central American imports). The relatively small impact of India is mainly due to the small size of LAC bilateral imports from India.

Also note that as in the case of exports the impact of the growth of China and India's GDP is larger than the impact of LAC's GDP growth. This is due to both the more rapid growth of China and India's GDP over the period (13 and 11 percent respectively, versus 5 percent on average for LAC), but also the much larger coefficient estimated for China and India's GDP.

Table A1: Impact of China (and LAC) GDP growth on LAC non-fuel imports from China

	Estimated Coefficient β_R (i)	p-value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)= (iv) in %	M_{ijt} (v) as % of total 2004 imports	(v) as a share of bilateral import growth
Andean countries							
Own demand	1.38	0.00	0.20	0.28	32%	1%	18%
China supply	2.46	0.00	0.38	0.92	152%	4%	83%
Caribbean countries							
Own demand	0.44	0.06	0.10	0.05	5%	0%	21%
China supply	2.23	0.03	0.38	0.84	131%	2%	581%
Central America							
Own demand	0.96	0.00	0.20	0.19	21%	0%	6%
China supply	2.21	0.02	0.38	0.83	129%	2%	38%
Southern Cone							
Own demand	0.06	0.68	-0.18	-0.01	0%	0%	0%
China supply	1.27	0.00	0.38	0.48	61%	2%	64%
LAC							
<i>Own demand</i>						0%	4%
<i>China supply</i>						2%	34%

Source: Authors estimates. When the p-value on the estimated coefficient α_R is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero. Numbers in bold are for the impact of China's GDP growth on LAC imports (China supply). "Own demand" captures the impact of LAC's GDP growth on LAC imports from China.

Table A2: Impact of India (and LAC) GDP growth on LAC non-fuel imports from India

	Estimated coefficient β_R (i)	p- value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)=(iv) in %	M_{ijt} (v) as % of total 2004 imports	(v) as a share of bilateral import growth
Andean countries							
Own demand	0.79	0.00	-0.18	-0.14	-13%	0%	-27%
India supply	1.27	0.00	0.41	0.53	69%	0%	140%
Caribbean countries							
Own demand	1.00	0.00	0.20	0.20	22%	0%	11%
India supply	2.44	0.02	0.41	1.01	175%	0%	90%
Central America							
Own demand	0.67	0.00	0.10	0.07	7%	0%	37%
India supply	2.24	0.01	0.41	0.93	154%	1%	783%
Southern Cone							
Own demand	1.30	0.00	0.20	0.27	31%	0%	23%
India supply	2.38	0.01	0.41	0.99	168%	0%	129%
LAC							
<i>Own demand</i>						0%	2%
<i>India supply</i>						0%	58%

Source: Authors estimates. When the p-value on the estimated coefficient α_R is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero. Numbers in bold are for the impact of India's GDP growth on LAC imports (India supply). "Own demand" captures the impact of LAC's GDP growth on LAC imports from India.

Figure 1: Share of China and India in Latin American exports, 1990 versus 2004

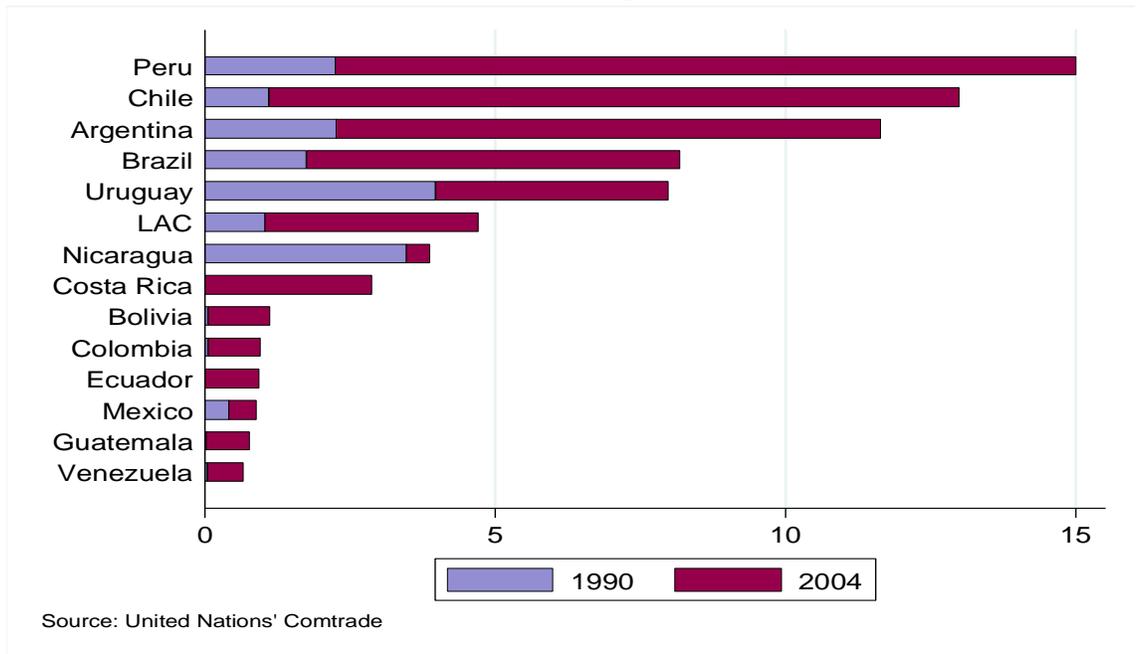


Figure 2: Share of China and India in Latin American imports, 1990 versus 2004

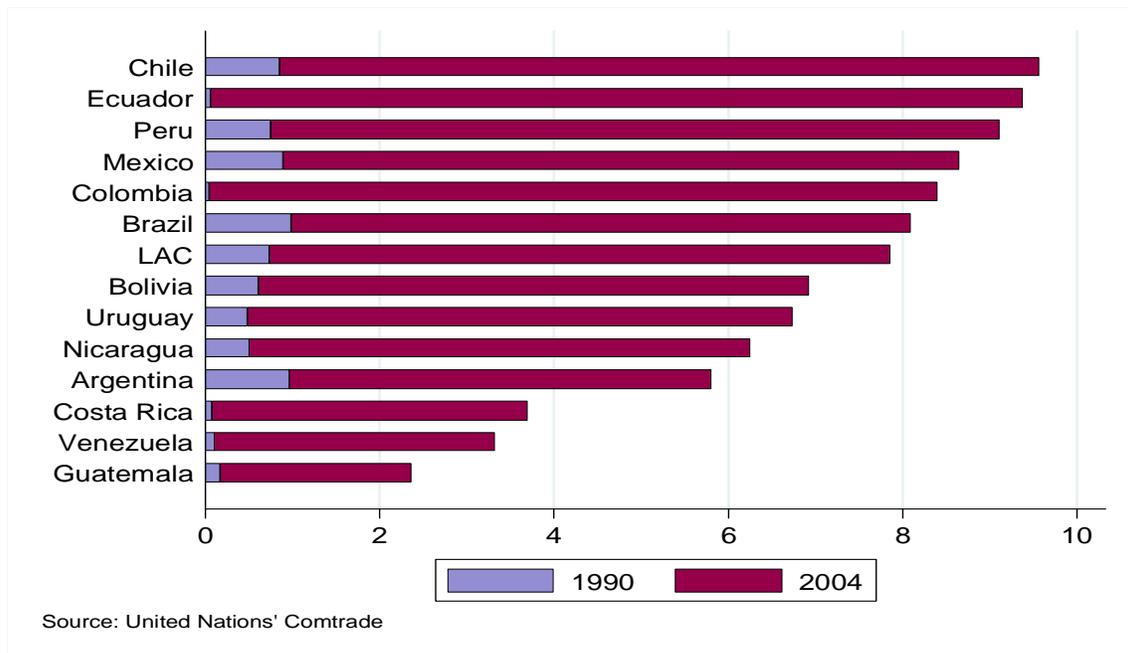


Table 1: Impact of China (and LAC) GDP growth on LAC non-fuel exports to China

	Estimated Coefficient α_R (i)	p- value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)=(iv) in %	M_{ijt} (v) as % of total 2004 exports	(v) as a share of bilateral export growth
Andean countries							
Own supply	0.59	0.26	0.20	0.00	0%	0%	0%
China demand	4.32	0.00	0.38	1.62	408%	9%	207%
Caribbean countries							
Own supply	0.75	0.14	0.10	0.00	0%	0%	0%
China demand	4.43	0.00	0.38	1.66	428%	1%	58%
Central America							
Own supply	0.86	0.00	0.20	0.17	19%	0%	6%
China demand	4.13	0.00	0.38	1.55	372%	2%	118%
Southern Cone							
Own supply	-0.18	0.35	-0.18	0.00	0%	0%	0%
China demand	4.58	0.00	0.38	1.72	459%	14%	193%
LAC							
<i>Own supply</i>						0%	1%
<i>China demand</i>						7%	128%

Source: Authors estimates. When the p-value on the estimated coefficient α_R is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero. Numbers in bold are for the impact of China's GDP growth on LAC exports (China demand). "Own supply" captures the impact of LAC's GDP growth on their exports to China.

Table 2: Impact of China (and LAC) GDP growth on LAC exports of commodities to China

	Estimated Coefficient α_R (i)	p-value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)= (iv) in %	M_{ijt} (v) as % of total 2004 exports	(v) as a share of bilateral export growth
Andean countries							
Own supply	0.21	0.45	0.20	0.04	4%	0%	1%
China demand	3.90	0.00	0.38	1.47	333%	10%	92%
Caribbean countries							
Own supply	-0.24	0.00	0.10	-0.03	-3%	0%	-2%
China demand	3.74	0.00	0.38	1.41	308%	0%	220%
Central America							
Own supply	0.71	0.00	0.20	0.14	15%	0%	4%
China demand	3.36	0.00	0.38	1.26	91%	0%	23%
Southern Cone							
Own supply	0.07	0.71	-0.18	-0.01	-1%	0%	0%
China demand	3.62	0.00	0.38	1.36	290%	14%	105%
LAC							
<i>Own supply</i>						0%	0%
<i>China demand</i>						10%	75%

Source: Authors estimates. When the p-value on the estimated coefficient α_R is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero. Numbers in bold are for the impact of China's GDP growth on LAC exports (China demand). "Own supply" captures the impact of LAC's GDP growth on their exports to China.

Table 3: Impact of India (and LAC) GDP growth on LAC non-fuel exports to India

	Estimated coefficient α_R (i)	p-value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)= (iv) in %	M_{ijt} (v) as % of total 2004 exports	(v) as a share of bilateral export growth
Andean countries							
Own supply	0.61	0.02	0.20	0.13	13%	0%	76%
India demand	3.50	0.00	0.41	1.45	327%	1%	1866%
Caribbean countries							
Own supply	0.07	0.12	0.10	0.00	0%	0%	0%
India demand	3.35	0.00	0.41	1.39	301%	0%	6%
Central America							
Own supply	0.88	0.00	0.20	0.17	19%	0%	8%
India demand	3.37	0.00	0.41	1.40	91%	0%	37%
Southern Cone							
Own supply	1.14	0.00	-0.18	-0.21	-19%	0%	-11%
India demand	3.48	0.00	0.41	1.44	323%	1%	186%
LAC							
<i>Own supply</i>						0%	-5%
<i>India demand</i>						1%	112%

Source: Authors estimates. When the p-value on the estimated coefficient α_R is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero. Numbers in bold are for the impact of China's GDP growth on LAC exports (China demand). "Own supply" captures the impact of LAC's GDP growth on their exports to China.

Table 4: Impact of India (and LAC) GDP growth on LAC exports of commodities to India

	Estimated Coefficient α_R (i)	p-value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)= (iv) in %	M_{ijt} (v) as % of total 2004 exports	(v) as a share of bilateral export growth
Andean countries							
Own supply	0.58	0.00	0.20	0.12	12%	0%	15%
India demand	2.61	0.00	0.41	1.08	195%	0%	236%
Caribbean countries							
Own supply	0.32	0.00	0.10	0.03	3%	0%	0%
India demand	2.76	0.00	0.41	1.15	215%	0%	2%
Central America							
Own supply	0.36	0.00	0.20	0.07	7%	0%	3%
India demand	2.67	0.00	0.41	1.11	91%	0%	33%
Southern Cone							
Own supply	0.42	0.00	-0.18	-0.08	-7%	0%	-2%
India demand	3.08	0.00	0.41	1.28	258%	1%	75%
LAC							
<i>Own supply</i>						0%	-1%
<i>India demand</i>						0%	59%

Source: Authors estimates. When the p-value on the estimated coefficient α_R is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero. Numbers in bold are for the impact of China's GDP growth on LAC exports (China demand). "Own supply" captures the impact of LAC's GDP growth on their exports to China.

Table 5: Impact of China's trade flows on LAC non-fuel exports to third markets

	Estimated coefficient (i)	p-value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)= (iv) in %	M_{ijt} (v) as % of total 2004 exports	(v) as a share of total export growth
Andean Countries							
China exports to third countries	0.5	0	1.27	0.63	88%	222%	675%
China imports from third countries	0.05	0.51	1.47	0	0%	0%	0%
China exports to Andean	0.18	0.16	1.2	0	0%	0%	0%
China imports from Andean	0.05	0.14	0.92	0	0%	0%	0%
Caribbean Countries							
China exports to third countries	-0.09	0.16	1.27	0	0%	0%	0%
China imports from third countries	0.05	0.49	1.47	0	0%	0%	0%
China exports to Caribbean	1.07	0.02	0.2	0.21	24%	19%	100%
China imports from Caribbean	0.08	0	0.3	0.02	3%	2%	11%
Central America							
China exports to third countries	0.15	0.03	1.25	0.19	21%	18%	138%
China imports from third countries	0	0.97	1.45	0	0%	0%	0%
China exports to Central America	-0.01	0.92	2.32	0	0%	0%	0%
China imports from Central America	0.08	0.22	2.59	0	0%	0%	0%
Southern Cone							
China exports to third countries	0.13	0.03	1.27	0.16	18%	11%	28%
China imports from third countries	0.05	0.34	1.47	0	0%	0%	0%
China exports to Southern Cone	0.41	0.05	0.61	0.25	28%	17%	44%
China imports from Southern Cone	0.26	0.09	1.03	0.27	31%	18%	49%
LAC							
<i>China exports to third countries</i>						32%	129%
<i>China imports from third countries</i>						0%	0%
<i>China exports to LAC</i>						7%	29%
<i>China imports from LAC</i>						7%	30%

Source: Authors estimates. When the p-value on the estimated coefficient is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero.

Table 6: Impact of China's trade flows on LAC commodity exports to third markets

	Estimated coefficient (i)	p-value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)= (iv) in %	M_{ijt} (v) as % of total 2004 exports	(v) as a share of total export growth
Andean Countries							
China exports to third countries	0.01	0.61	1.18	0.00	0%	0%	0%
China imports from third countries	0.15	0.01	1.53	0.23	26%	19%	301%
China exports to Andean	0.18	0.16	0.86	0.00	0%	0%	0%
China imports from Andean	-0.12	0.21	0.74	0.00	0%	0%	0%
Caribbean Countries							
China exports to third countries	0.15	0.37	1.18	0.00	0%	0%	0%
China imports from third countries	-0.09	0.42	1.53	0.00	0%	0%	0%
China exports to Caribbean	-0.56	0.01	0.20	-0.11	-11%	-10%	-833%
China imports from Caribbean	0.14	0.02	0.20	0.03	3%	3%	222%
Central America							
China exports to third countries	0.19	0.03	1.18	0.23	26%	23%	258%
China imports from third countries	-0.04	0.06	1.53	-0.07	-6%	-6%	-65%
China exports to Central America	-0.05	0.38	3.19	0.00	0%	0%	0%
China imports from Central America	0.00	0.77	1.37	0.00	0%	0%	0%
Southern Cone							
China exports to third countries	0.17	0.03	1.18	0.20	22%	12%	27%
China imports from third countries	0.07	0.00	1.54	0.11	11%	6%	14%
China exports to Southern Cone	0.66	0.00	0.87	0.57	77%	40%	92%
China imports from Southern Cone	0.00	0.97	1.35	0.00	0%	0%	0%
LAC							
<i>China exports to third countries</i>						13%	44%
<i>China imports from third countries</i>						4%	15%
<i>China exports to LAC</i>						24%	82%
<i>China imports from LAC</i>						0%	0%

Source: Authors estimates. When the p-value on the estimated coefficient is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero.

Table 7: Impact of India's trade flows on LAC non-fuel exports to third markets

	Estimated coefficient (i)	p-value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)= (iv) in %	M_{ijt} (v) as % of total 2004 exports	(v) as a share of total export growth
Andean Countries							
India exports to third countries	0.38	0.08	0.94	0.36	43%	113%	344%
India imports from third countries	-0.15	0.06	1.08	-0.16	-15%	-40%	-121%
India exports to Andean	0.01	0.96	0.97	0.00	0%	0%	0%
India imports from Andean	-0.02	0.54	-0.71	0.00	0%	0%	0%
Caribbean Countries							
India exports to third countries	0.04	0.83	0.92	0.00	0%	0%	0%
India imports from third countries	-0.17	0.22	1.05	0.00	0%	0%	0%
India exports to Caribbean	0.59	0.00	0.20	0.12	13%	10%	53%
India imports from Caribbean	-0.10	0.03	0.10	-0.01	-1%	-1%	-4%
Central America							
India exports to third countries	0.10	0.54	0.92	0.00	0%	0%	0%
India imports from third countries	0.00	0.97	1.05	0.00	0%	0%	0%
India exports to Central America	-0.23	0.03	1.88	-0.42	-35%	-30%	-229%
India imports from Central America	0.00	0.91	2.71	0.00	0%	0%	0%
Southern Cone							
India exports to third countries	0.25	0.10	0.94	0.00	0%	0%	0%
India imports from third countries	-0.11	0.09	1.05	-0.11	-11%	-7%	-17%
India exports to Southern Cone	0.40	0.05	0.42	0.17	18%	11%	30%
India imports from Southern Cone	0.07	0.05	1.09	0.08	8%	5%	13%
LAC							
<i>India exports to third countries</i>						10%	39%
<i>India imports from third countries</i>						-6%	-24%
<i>India exports to LAC</i>						-10%	-39%
<i>India imports from LAC</i>						2%	8%

Source: Authors estimates. When the p-value on the estimated coefficient is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero.

Table 8: Impact of India's trade flows on LAC commodity exports to third markets

	Estimated coefficient (i)	p-value (ii)	$\Delta Y_{i \text{ or } j}$ (iii)	(iv)= (iii)*(i)	(v)= (iv) in %	M_{ijt} (v) as % of total 2004 exports	(v) as a share of total export growth
Andean Countries							
India exports to third countries	0.32	0.01	0.32	0.25	29%	17%	56%
India imports from third countries	0.00	0.94	0.00	0.00	0%	0%	0%
India exports to Andean	-0.08	0.28	0.00	0.00	0%	0%	0%
India imports from Andean	-0.02	0.63	0.00	0.00	0%	0%	0%
Caribbean Countries							
India exports to third countries	0.09	0.53	0.00	0.00	0%	0%	0%
India imports from third countries	-0.05	0.45	0.00	0.00	0%	0%	0%
India exports to Caribbean	0.01	0.94	0.00	0.00	0%	0%	0%
India imports from Caribbean	-0.07	0.07	-0.07	-0.01	-1%	-1%	-55%
Central America							
India exports to third countries	0.03	0.73	0.00	0.00	0%	0%	0%
India imports from third countries	-0.06	0.03	-0.06	-0.05	-5%	-4%	-49%
India exports to Central America	0.03	0.27	0.00	0.00	0%	0%	0%
India imports from Central America	0.01	0.30	0.00	0.00	0%	0%	0%
Southern Cone							
India exports to third countries	0.10	0.22	0.00	0.00	0%	0%	0%
India imports from third countries	0.03	0.43	0.00	0.00	0%	0%	0%
India exports to Southern Cone	0.01	0.90	0.00	0.00	0%	0%	0%
India imports from Southern Cone	0.04	0.00	0.04	0.19	21%	12%	28%
LAC							
<i>India exports to third countries</i>						2%	7%
<i>India imports from third countries</i>						-1%	-3%
<i>India exports to LAC</i>						0%	0%
<i>India imports from LAC</i>						7%	22%

Source: Authors estimates. When the p-value on the estimated coefficient is smaller than 0.10 we set column (iv) to 0, i.e., the predicted change in the left hand side variable is not different from zero.