The Growth of China and India in World Trade: Opportunity or Threat for Latin America and the Caribbean?[*]

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1. Introduction

Although the rise of China and India in the global economy cannot be ignored, their impact on the development prospects of other developing countries is difficult to identify. The emergence of these Asian economies in world markets is seen as an opportunity by some analysts and as a threat by others. This paper studies the relationship between the rapid growth of China and India in world trade and Latin American and Caribbean (LAC) commercial flows from two perspectives: first, from the viewpoint of China and India as fast-growing export markets and as sources of imports for LAC, and second, in terms of their potential effects on LAC trade flows with other markets.

The economic accomplishments of these Asian economies have been extraordinary. During the past two decades China and India increased their share of global GDP from 3 to 7 percent. China is currently the sixth and India the tenth largest economy in terms of GDP. The growth of China and India was accompanied by their rapid integration into world markets. China is currently the third largest trading economy in the world (behind the United States and Germany), while India ranks twenty-fifth.

These trends can be seen as an opportunity for other developing countries. For example, China and India became the third trading partner of the LAC region, and with a growth rate of their demand close to 9 percent over the last two decades, the future potential looms large. The importance of China and India as destinations for LAC exports increased four-fold since 1990, when they represented around 1 percent of LAC exports. Furthermore, during 2000-2004, LAC non-fuel merchandise exports to China grew by an average annual rate of over 40 percent (in current US$), while exports to India grew by 25 percent.[1] These rates of export growth signal significant opportunities, even though the levels remain low, representing less than 10 percent of total exports for most LAC economies (see Figure 1). Similarly, the share of China and India in total LAC imports increased significantly over this period (see Figure 2).

[1] The rate of growth of non-fuel merchandise exports to China and India was calculated with data from WITS/UNCOMTRADE data in current US dollars covering the following sample of countries during 2000-2004: Argentina, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominica, Ecuador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Lucia, Trinidad and Tobago, Uruguay, Venezuela.

The emergence of China and India in world markets might have benefited LAC commercial flows through less direct channels. The most obvious is that China and India's imports of commodities have contributed to the recent boom in commodity prices that has benefited many LAC exporters. 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 commodities to China and India, or when the two Asian economies only represent a small share of total exports (e.g., Bolivia, Colombia and Ecuador), LAC economies have benefited from rising commodity prices associated with the growth of China and India (Calderón 2006; Lederman et al. 2006). Manufacturing and other industries in LAC might also have benefited indirectly from the growth of China and India through international production networks. For instance, it is possible that rising exports from China and India to third markets have been associated with increases in demand for LAC products in third markets as retailers in those markets experience rising profits and rely on exports from some LAC countries to satisfy demand for just-in-time deliveries. Also, rising profits of multinational enterprises with operations in China might allow them to expand their operations in LAC. Furthermore, LAC imports from these Asian economies might allow LAC producers to reduce input costs, thus enhancing their competitiveness in third markets.

The threat that China and India's growth may represent for LAC is associated with their growing presence in world markets that may be displacing LAC exports. China and India's manufacturing exports increased by around 15 percent per year over the last decade. China, for example, replaced Mexico as the second source of United States imports. Some analysts suggest that the Mexican *maquiladoras* lost around 250 thousand employees since the early 2000s due to their relocation to Asia (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.[2] More recently,

[2] These authors identified products under threat from China as those where LAC has lost market share while China increased its market share. They also identified products under a partial threat as products on which China is gaining market share more rapidly than LAC. From an economic viewpoint, these

Hanson and Robertson (2006) explored the impact of the increased supply capacity of China in LAC exports of the top manufacturing industries in Argentina, Brazil, Chile and Mexico (metals, machinery, electronics, transport and industrial equipment). They found that without the increase in Chinese supply of these products, export growth in these products 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 encompassing all goods, and without disentangling between supply and demand shocks. They found that export growth from China are hurting LAC exports to third markets but only in some industries, namely textiles, electronics and electrical appliances, and telecommunications equipment, which are the industries studied by Hanson and Robertson.

Hence there seems to be sufficient uncertainty about the aggregate trade effects of the rise of China and India to merit further analysis, especially because the aforementioned econometric studies (Hanson and Robertson 2006; Freund and Ozden 2006) focused on intra-industry effects and ignored the potential for inter-industry effects. For example, the existing studies on the threats posed by these Asian economies do not consider the *direct* effects of rising import demand in China and India as a potential boost for LAC exports. Also, none of the cited studies explore all the potential *indirect* effects mentioned above. This paper addresses these issues, by examining the potential for complementarities and substitutability between LAC and Chinese exports to third markets at the aggregate level, allowing therefore for both intra-industry and inter-industry effects.

As mentioned, the objectives of this paper are twofold. First, we focus on the opportunities offered to LAC exports by the growth of Chinese and Indian demand. Second, we examine whether the growing presence of China and India in third markets should be seen as a threat or an opportunity for LAC exporters and importers.

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definitions are rather loose, because even declining markets shares do not necessarily reflect a direct substitution effect whereby Chinese exports would be displacing LAC exports.

We address both questions using the gravity model of trade, whereby bilateral imports and exports of LAC countries are explained by the GDP of the importer and the exporter (their economic size), their bilateral distance (as a proxy for transport costs), and country and year effects to control for time-invariant characteristics of trading partners and global conditions. It is worth noting that importer and exporter fixed effects are theoretically justified as they capture the influence of each economy's time invariant trade frictions (i.e., trade policies and transport costs) with the rest of the world (Anderson and Van Wincoop 2003; Feenstra 2002). Since the direct and indirect effects of the emergence of China and India undoubtedly can be different across countries with different factor endowments and/or production structures, the econometric specifications of the gravity model allow the relevant parameters to vary across four broad LAC sub-regions: 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) and Mexico; and the Southern Cone (Argentina, Brazil, Chile, Paraguay, and Uruguay).

Overall the results suggest that the growth of China and India in world markets are an opportunity for LAC exporters and importers. A back-of-the-envelop calculation based on our estimates of the import-demand elasticity of China and India with respect to LAC exports suggests that the growth of China and India during 2000-2004 could account for up to 8 percent of LAC exports in 2004, mainly driven by China, as India accounts for less than 0.5 percentage points of this 8 percent. 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. Furthermore, we found no robust evidence of substitution between China's trade flows and LAC exports to third markets. In fact, most of the statistically significant indirect elasticities tend to be positive for both Chinese and Indian trade flows.

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

2. Empirical Models

Our methodology relies on the gravity model of trade that explains bilateral imports as a function of the GDP of the importer and the exporter, bilateral distance among trading partners, and fixed effects to control for unobservable variables such as the policy-induced and other trade frictions affecting each country's trade potential with the rest of the world (Anderson and Van Wincoop 2003; Feenstra 2002). Because we are interested in the impact of the growth of China and India's demand on LAC exports, 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 need to address these two questions with different samples and with different augmented specifications of the gravity model. In addition, the models discussed below were estimated with data covering all LAC-countries' trade flows with the world, but we do not include data for trade among the rest of the world. Hence the models and the resulting econometric estimates need to be interpreted as applying to LAC countries only.[3]

2.1 The growth of Chinese and Indian bilateral trade with LAC

The basic gravity framework in the existing literature is given by:

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

where M_{ijt} are imports of country *i* from country *j* at time *t*. The right-hand side of (1) includes the standard explanatory variables plus a minor extension. Y_{it} 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, and ℓ_{ij} is a dummy that takes the value 1 if the exporter and the importer share a common language. In a modest departure from the standard gravity model found in the literature, $Linder_{ijt}$ is the absolute value of the difference of GDP per capita between the importer

[3] In econometric terms, these estimations with the LAC data can be interpreted as providing estimates of the relevant parameter for LAC in models with data from the whole world, but allowing for strict heterogeneity between the LAC coefficients and those from the rest of the world.

and the exporter at time *t*.[4] Following Anderson and Van Wincoop (2003) as well as Feenstra (2002), 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 augment the model in equation (1) by including 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 variables 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). The same logic applies for 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 Linder effect.[5] The final specification that captures the impact on bilateral imports is:

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

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.

[4] The Linder variable is often used in gravity specifications to capture the effect of similarities between importers and exporters in their levels of development on bilateral trade (see for example Thursby and Thursby, 1987). However, this captures intra-industry trade effects, whereas most of the trade between LAC and China and India is inter-industry. In 2005, LAC's trade deficit in manufactured products with China represented 277% percent of LAC exports to China, while its trade surplus for agriculture and mining was 92 percent of exports. The numbers for trade with India are 108 and 46 percent respectively. We nevertheless follow the traditional specification and include it as a control variable. In practice, the inclusion of this variable does not affect the parameters of interest for this paper.

[5] We also examined the differential effects on LAC imports from China and 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.

Some caution is warranted for the interpretation of these elasticities. On the import-demand side, the estimates can capture two distinct effects. One concerns the marginal propensity to import goods exported by LAC; the other concerns substitution or relative-price effects that could be driven by the increase in demand from these countries or other global factors. Hence the coefficients need not equal to one as predicted by some theories underpinning the gravity model of trade (see, for example, Eaton and Kortum 2002, Feenstra 2004, among others). Furthermore, it is noteworthy that recent contributions to the estimation (Santos Silva and Tenreyro 2006) and theory of the gravity model (Dalgin, Trindade, and Mitra 2006) have also examined the possibility that import-demand elasticities can vary across countries depending on factors such as the level of development, the size of GDP, and domestic inequality. Finally, some estimates of LAC export-supply elasticites might be negative for the same reasons, but also because of macroeconomic crises experienced by some countries (e.g., Argentina and Uruguay) during 2000-2004, when exports grew quickly in some years while GDP contracted, thus inducing a negative correlation (or a downward bias in the correlation) between exporters' GDP and non-fuel exports to China or India.

Multiplying each of the region-specific elasticities discussed above by either the change in China's GDP or LAC's GDP provides 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 imports. The magnitude of the change in GDP during the period under study times the estimated elasticity provides an indication of what would have happened to LAC trade flows, for example, if China's GDP had not grown between 2000 and 2004. Of course, this is a rather discretionary counterfactual, and many others can be calculated. Perhaps more importantly, the validity of any counterfactual will depend on the consistency of the estimated elasticities.

One concern with the existing literature on the estimation of the gravity model is the application of OLS or other linear estimators to model (2). It is now known that linear estimators can yield inconsistent coefficient estimates due to the correlation between the expected value of bilateral trade flows among country pairs and the variance of their

regression errors.[6] 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 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 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 (see Santos Silva and Tenreyro 2006).

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 means. Silva and Tenreyro (2006) argue that the Negative Binomial estimator might not be desirable if the trade data of country pairs with little bilateral trade are more prone to measurement errors than the observations with large bilateral trade. 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) 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 associated with small countries like Uruguay are more likely to be subject to measurement error than the trade flows of large countries like Venezuela.[7] We therefore present results from the Negative Binomial estimator along with OLS and Poisson estimates of equation (2). Since this estimator does not fully account for the heteroscedasticity in the model we use the Eicker-White correction by reporter to obtain a robust covariance matrix.

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

There are four potential channels through which Chinese and Indian trade 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

[6] The expected variance falls with the expected level of bilateral trade.
[7] Venezuela's trade flows are approximately 10 times larger than those of Uruguay.

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 of model (1).

To account for potential differences in the relevant elasticities across the LAC sub-regions, we also include the products of these four variables with dummy variables that take a value of 1 when region *R* is an exporter.[8] The final specification for China, for example, is given by:

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

This same specification applies to the estimation of the relevant elasticities for the case of India.

3. Results

The following paragraphs discuss the econometric estimates of the relevant demand and supply elasticities of model (2) and of the complementarity or substitution elasticities in model (3). The discussion focuses first on the effect that the growth of China and India's demand (as well as LAC's GDP growth) may have had on exports of LAC to these Asian economies, as in model (2), using data on aggregate non-fuel merchandise exports. We then turn to the impact of China and India's trade flows on LAC exports to (and imports from) third markets through the four channels indicated in equation (3).[9] For ease of exposition, we do not report or discuss the resulting estimates of the other explanatory variables, but our estimates of the standard gravity-model variable coefficients have the expected signs and all are significant, except for the Linder variable capturing the similarity in GDP per capita between LAC economies and their trading partners, which is

[8] As in the estimation described in section 2.1, we also allow for heterogeneity across regions on the import side, but we do not include them in equation (3) below for ease of exposition.
[9] The appendix presents the results of the impact of China, India, and LAC GDP growth on LAC imports from these two Asian economies.

generally insignificant.[10] Bilateral distance between trading partners and sharing a border are always negative and significant; the dummy for common language is also always positive and significant.[11]

3.1 Demand and supply elasticities of LAC trade with China and India

Results for the estimation of model (2) using non-fuel bilateral trade flows for our sample of LAC exporters and importers are reported in Tables 1 and 2 for China and India respectively. The first column of each table reports the estimated elasticity concerning the effect that 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-values of the null hypotheses that the elasticities are equal to zero. In all exercises, we cannot reject the possibility that the data suffer from over-dispersion, as the estimated p-values of the null hypothesis that there is no over-dispersion were zero (not reported in the table), thus justifying the use of the Negative Binomial estimator. Note, however, that results using OLS or Poisson estimators, which are the most commonly used estimators in the gravity-model literature, are qualitatively similar. In particular, they also imply a much larger impact of China's demand (China's GDP) on bilateral exports from LAC than the one obtained for the impact of LACs' supply (LAC's GDP) on their exports to China.

The estimated import-demand elasticities reported in Table 1 suggest that China's demand growth offered opportunities for LAC exporters. The highest elasticities, which exceed 4 for all LAC groups, correspond to the Negative Binomial estimator. The OLS estimates are all greater than 3, whereas the Poisson estimate hover around 3. The estimates for the Southern Cone are higher than those of the other country groups; the lowest estimates are those of the Central America and Mexico group. The Andean and Caribbean estimates fall in between the aforementioned groups, depending on the econometric methodology. More importantly, China's elasticities of demand for imports from LAC countries are significantly larger than the estimated supply elasticities of the four groups of LAC countries. Indeed, only two estimated supply elasticities are positive

[10] This is a common result in the literature when gravity models focus on developing countries. See the discussion in Arnon and Weinblatt (1998).
[11] The full regression results are available from the authors upon request.

and statistically different from zero. Furthermore, the economic magnitude of the estimated Chinese demand-elasticities for imports from LAC countries is large. A straightforward calculation of the magnitude of the China-demand effect, namely the product of the demand-elasticities times the change in China's GDP between 2000 and 2004, suggests that if LAC exports to China had fully exploited the increased demand from China between 2000 and 2004, they would have accounted for 8 percent of LAC exports in 2004. As mentioned, this calculation is based on a particular counterfactual analysis, namely the comparison of Chinese imports from LAC in 2000 and 2004 under the assumption that these trade flows would have remained at their 2000 level if China's GDP had not grown. Of course, we could choose other counterfactuals. For example, we could assume a low-growth scenario for China as the base case, instead of zero growth, and the resulting estimate of the magnitude of China's demand effect on LAC exports would be smaller than the 8 percent.[12] The point is that China's LAC-imports-demand elasticities are large, whereas LAC's export-supply elasticities with respect to the Chinese market are negligible. That is, even if LAC's GDP growth had matched China's during 2000-2004, there would have been unsatisfied Chinese demand for LAC exports. Hence we interpret this evidence as suggesting that LAC economies missed out on handsome export opportunities offered by the Chinese market.[13]

Table 2 lists our estimates of India's demand elasticities as well as LAC's supply elasticities for the Indian market. Table 4 presents the corresponding estimated elasticities derived from the application of the empirical model to the commodity-trade data. As was the case for Chinese-LAC trade, the results presented in both tables suggest that India's demand elasticities were positive, large, and statistically significant for all four LAC sub-regions. However, Table 2 also suggests that there were no significant differences in the magnitudes of India's demand elasticities for imports from the four LAC-country groups, and the rankings across the four groups depends on the estimators. A comparison of the results in Table 1 for China and Table 2 for India indicates that China's demand

[12] To be precise, it would be around 2 percent of 2004 exports, when the counterfactual is that China grows at the same rate as the rest of the world.

[13] A similar conclusion is observed when comparing the predicted export growth associated with China's GDP growth with the observed export growth during the period. Export growth of LAC to China could have been 20 percent larger had if followed the increase in Chinese demand for LAC exports.

elasticities for LAC imports (Table 1) are significantly higher than the corresponding elasticities for India (Table 3). Regarding LAC supply elasticities with respect to the Indian market, there is no evidence that LAC's supply response was significantly positive. Indeed, of the 12 estimates only the OLS estimate of the Southern Cone is positive and significant.

In sum, the econometric evidence suggests that the growth of the two Asian economies during 2000-2004 represented a large opportunity for LAC exporters from all four sub-regions. There is also evidence of missed opportunities for all LAC regions in those two markets, as the demand elasticities of both China and India for imports from LAC countries were dramatically larger than LAC's supply elasticities. The gap between the estimated supply and demand elasticities was significantly larger for the case of LAC-China trade, however.

3.2 Elasticities of LAC's trade with third markets with respect to China and India's trade flows

Results for the estimation of model (3) using non-fuel bilateral trade flows for our sample of LAC exporters are reported in Table 3 for China and Table 4 for India.[14] To clarify, the impact on LAC exports to third markets is decomposed into four trade flows: exports of either China or India to third markets, their imports from third markets, their exports to LAC, and their imports from LAC. We cannot overstate the importance of controlling for these four trade flows in order to estimate consistent elasticities for each, because Chinese and Indian trade with all countries grew during the period under investigation. The disadvantage of this approach is that the correlation across trade flows can itself produce imprecise and volatile estimates. The large number of observations, however, should reduce this problem. In any case, if substitution effects are large, the estimations should clearly identify them.

Table 3 shows the estimates from OLS, Poisson, and Negative Binomial regressions. Again, the tests of over-dispersion (not reported) significantly rejected the null of no

[14] Results for imports are presented in the appendix.

over-dispersion with a p-value of zero. The results suggest that there is no robust evidence of substitution effects in third markets. In fact, of the 48 estimates, only 3 are negative and significant, and none maintain their signs across the three estimators. Interestingly, the estimated elasticities of substitution between Chinese exports and LAC exports to third markets (first row in italics and bold under each LAC-country group heading) are all positive except the OLS estimate for the Caribbean. The latter changes sign with the Poisson estimator.

Table 4 contains the estimated elasticities for India. There are 7 statistically significant (at the 10% level) and negative estimates, but none of these are robust across the three estimators. If we focus on the signs of the estimates only, there are two sets of elasticities that are consistently negative. These are associated with Central America and Mexico. One concerns Indian imports from third countries, the other concerns Indian exports to Central America and Mexico. In contrast, all estimates of the effects of Indian exports to third markets on LAC exports are positive, but with one exception, namely the OLS estimate for the Caribbean. The latter becomes positive with the Poisson and Negative Binomial estimators.

Overall, the estimates of the effects of China and India's trade on LAC exports to third markets show little evidence of strong substitution effects between the Asian economies' growing presence in world markets and LAC exports to third markets. Nonetheless, we must be careful as not to interpret the estimated elasticities as evidence of causal effects, because omitted variables may be affecting these correlations. For example, our estimations do not control for bilateral terms of trade. Also, although we do include exporter and importer dummies, we do not control for any trade-policy changes that might have affected bilateral and global trade flows during any year in the period 2000-2004. Furthermore, exports to third markets by LAC countries could be causing increases in exports from LAC to China or India, rather than the reverse. Still, at first sight, there is little evidence consistent with dramatic negative impacts of China's growing exports to third markets on LAC exports. On the contrary, LAC exports were positively correlated with the growth of Chinese and Indian exports to third countries. These results are at odds

with industry-level studies cited in the introduction, but can be explained by inter-industry effects captured by the aggregate merchandise trade data, which could be due to increasing production-sharing around the world. More importantly, the few negative elasticities pale in comparison with the large Chinese and Indian demand elasticities for LAC exports, which were presented in Tables 1 and 2. Therefore, the preponderance of the evidence makes it difficult to conclude that the threats posed by the growth of China and India in world markets have outweighed the opportunities offered to LAC exporters.

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 undoubtedly an opportunity for exporters from throughout the world, but their accompanying growing presence in world markets can be either a threat or an opportunity. It can be a threat because it may have displaced exporters 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 chapter assessed the importance of the opportunity that the growth of China and India's markets represented for LAC exporters during 2000-2004. It also explored the extent to which China and India's growing presence in world markets affected 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 countries. The preponderance of evidence suggests that the opportunities offered by the growth of China and India easily outweigh any potential threats, which might not have materialized in any event as far as aggregate non-fuel merchandise exports are concerned. In other words, the growth of these Asian giants is not a zero-sum game for LAC exporters.

We found that the growth of the two Asian economies represented a significant opportunity for LAC exporters. The corresponding elasticities for India were smaller. But in both cases, LAC's supply elasticities were significantly smaller than the demand elasticities of the two Asian economies. Hence, even if LAC countries had experienced similar GDP growth as China or India during 2000-2004, their exports would not have matched the increase in Chinese and Indian demand for LAC exports. More active promotion policies and a better understanding of the functioning of the two Asian economies markets may help LAC take full advantage of the growing opportunities.

We found no robust evidence that China's growing presence in world markets represented a threat for LAC exporters. On the contrary, the relevant point estimates suggest that LAC exporters could have benefited from complementarities with China's exports to third markets, and perhaps from imports from China. These results thus signal the growing importance of international production networks, the impact that imports of intermediate inputs have on LAC's competitiveness and learning by exporting for LAC exports to China. The results for India were similar in that there is little robust evidence of substitutions effects against LAC exports to third markets through any channel. Indeed, the results for India could also be interpreted as suggesting that the effect of India's exports to third markets had positive effects on LAC exports to third markets.

In sum, our results suggest that the growth of the two Asian markets has produced large opportunities for LAC exporters, which nevertheless have not been fully exploited. Also, the growth of China and India in world markets tended to complement LAC exports to third markets. These findings need to be weighed against the caveats discussed in Sections 2 and 3, which related to the inferences that can be made with the econometric estimations of the gravity model of trade. In general, however, China's and to a large extent India's growing presence in world trade has been good news for LAC, but some of the potential benefits remain unexploited.

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Data Appendix

Data on bilateral imports, both at the aggregate level and for commodities only, for the period 2000-2004 come from the United Nation's Comtrade database accessed through the World Integrated Trade Statistics (WITS) software. Data on GDP and GDP per capita come from the World Bank's World Development Indicators (WDI) database. All data are deflated using the United States producer price index from World Development Indicators, but all estimations included year dummies. The bilateral distance, common language, and common border variables come from Soloaga and Winters (2001).

Data for mainland China were added to Hong Kong data. Hong Kong has been a part of China since 1997 and therefore should be considered part of the Chinese economy for the period under investigation. 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.

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

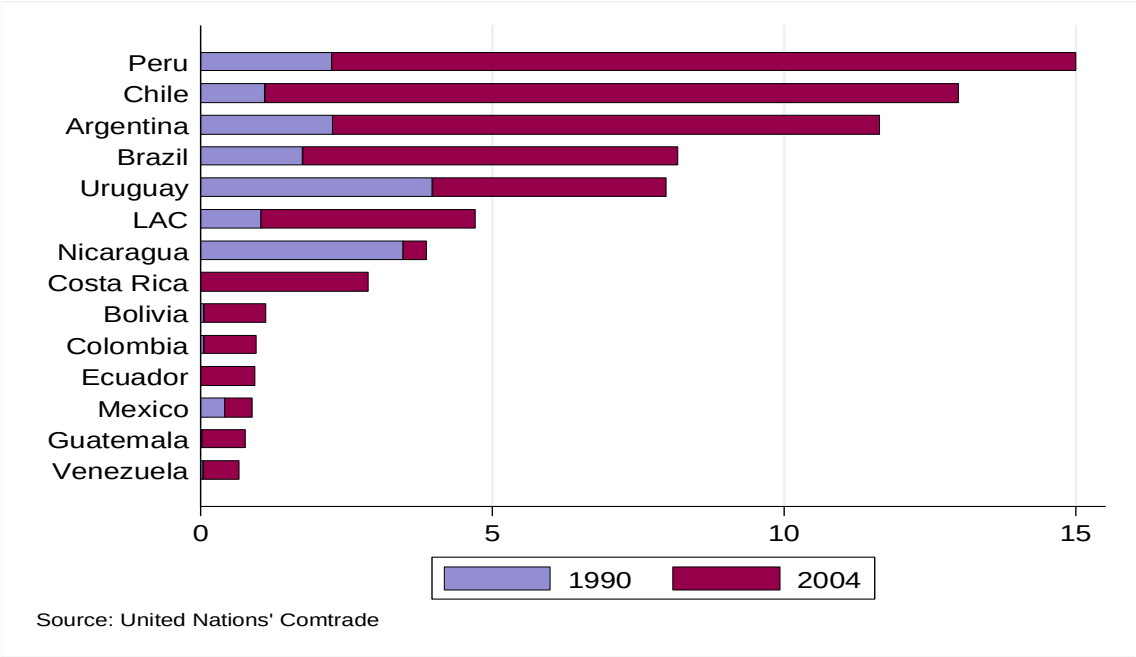

Figure 2: Share of China and India in LAC imports, 1990 versus 2004

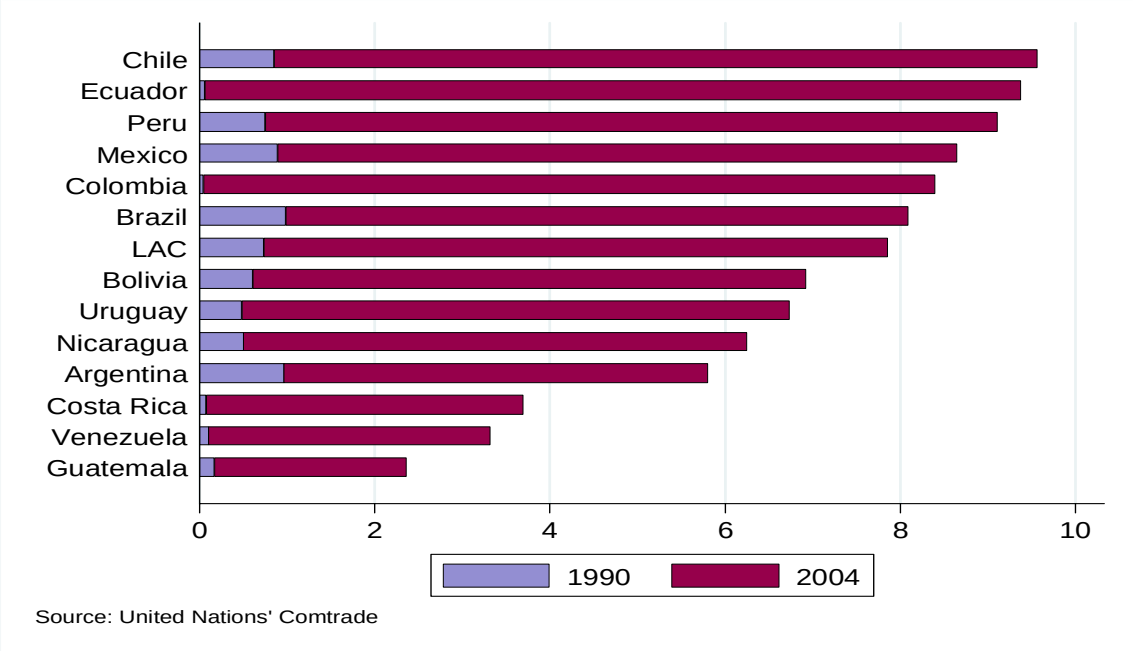

Table 1. Trade Demand and Supply Elasticities of GDP for LAC-China Trade – Non-Fuel Merchandise Trade Data						
	OLS		**Poisson**		**Negative Binomial**	
	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value
Andean Countries						
Own supply	0.51	0.00	0.28	0.14	0.38	0.19
China demand	***3.40***	***0.00***	***3.01***	***0.00***	***4.42***	***0.00***
Caribbean Countries						
Own supply	0.15	0.19	-0.11	0.52	-0.81	0.24
China demand	***3.32***	***0.00***	***3.04***	***0.00***	***4.49***	***0.00***
Central America/Mexico						
Own supply	-0.03	0.89	-0.97	0.01	-2.10	0.00
China demand	***3.20***	***0.00***	***2.95***	***0.00***	***4.25***	***0.00***
Southern Cone						
Own supply	0.28	0.01	-0.03	0.70	-0.09	0.58
China demand	***3.59***	***0.00***	***3.19***	***0.00***	***4.69***	***0.00***
Observations	21480		21480		21480	

Table 2. Trade Demand and Supply Elasticities of GDP for LAC-India Trade – Non-Fuel Merchandise Trade Data						
	OLS		**Poisson**		**Negative Binomial**	
	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value
Andean Countries						
Own supply	0.29	0.35	0.28	0.25	-0.27	0.56
India demand	***1.84***	***0.00***	***1.62***	***0.00***	***2.99***	***0.00***
Caribbean Countries						
Own supply	-0.26	0.02	-0.21	0.21	-1.47	0.04
India demand	***1.87***	***0.00***	***1.55***	***0.00***	***2.78***	***0.00***
Central America/Mexico						
Own supply	-0.34	0.08	-1.40	0.00	-2.47	0.00
India demand	***1.76***	***0.00***	***1.74***	***0.00***	***2.72***	***0.00***
Southern Cone						
Own supply	0.39	0.00	-0.08	0.21	-0.09	0.50
India demand	***1.78***	***0.00***	***1.88***	***0.00***	***2.90***	***0.00***
Observations	21480		21480		21480	

Notes for Tables 1 and 2: Numbers in bold are for the effect of China's and India's GDP growth on LAC exports (Chinese and Indian demand). "Own supply" captures the effect of LAC's GDP growth on their exports to China/India. The reported coefficients come from the econometric estimation of the gravity model of trade, augmented by the interaction of country and country-group dummy variables. The estimated coefficients from the other variables in the empirical model are not reported, but all the gravity variables had the expected magnitudes and signs. The over-dispersion test, which corresponds to the null hypothesis that there is no over-dispersion of the errors with respect to the expected trade flows among country pairs, is not reported but was significant at the 1% level. Exporter, importer, and year dummies are not reported either. See text for details.

Table 3: Impact of China's Trade Flows on LAC Non-Fuel Exports to Third Countries						
	OLS		**Poisson**		**Negative Binomial**	
	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value
Andean Countries						
China exports to third countries	***0.06***	***0.10***	***0.11***	***0.38***	***0.14***	***0.15***
China imports from third countries	0.01	0.65	0.10	0.30	0.06	0.38
China Exports to Andean	-0.07	0.25	0.21	0.25	0.03	0.83
China Imports from Andean	-0.05	0.10	0.21	0.00	0.03	0.64
Caribbean Countries						
China exports to third countries	***-0.14***	***0.00***	***0.14***	***0.31***	***-0.06***	***0.74***
China imports from third countries	-0.04	0.27	0.08	0.33	0.04	0.76
China Exports Caribbean	-0.04	0.66	0.27	0.29	0.15	0.67
China Imports from Caribbean	0.00	0.82	0.02	0.46	0.09	0.03
Central America/Mexico						
China exports to third countries	***0.00***	***0.91***	***0.85***	***0.00***	***0.16***	***0.19***
China imports from third countries	-0.04	0.15	-0.25	0.00	0.00	0.98
China Exports to Central America	-0.03	0.31	-0.04	0.71	0.01	0.93
China Imports from Central America	0.03	0.10	0.06	0.40	0.10	0.08
Southern Cone						
China exports to third countries	***0.21***	***0.00***	***0.02***	***0.87***	***0.14***	***0.14***
China imports from third countries	0.02	0.51	0.19	0.05	0.06	0.33
China Exports to Southern Cone	0.05	0.56	0.05	0.72	0.30	0.08
China Imports from Southern Cone	0.02	0.64	0.45	0.00	0.21	0.09
Observations	15440		15440		15440	

Notes: The reported coefficients come from the econometric estimation of the gravity model of trade, augmented by the interaction of country and country-group dummy variables. The estimated coefficients from the other variables in the empirical model are not reported, but all the gravity variables had the expected magnitudes and signs. The over-dispersion test, which corresponds to the null hypothesis that there is no over-dispersion of the errors with respect to the expected trade flows among country pairs, is not reported but was significant at the 1% level. Exporter, importer, and year dummies are not reported either. See text for details.

Table 4: Impact of Indian Trade Flows on LAC Non-Fuel Exports to Third Countries						
	OLS		**Poisson**		**Negative Binomial**	
	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value
Andean Countries						
India exports to third countries	***0.10***	***0.13***	***0.36***	***0.04***	***0.20***	***0.22***
India imports from third countries	-0.02	0.49	0.16	0.13	-0.15	0.07
India Exports to Andean	-0.19	0.00	0.13	0.48	-0.04	0.71
India Imports frop Andean	0.00	0.80	0.03	0.35	-0.02	0.47
Caribbean Countries						
India exports to third countries	***-0.09***	***0.22***	***0.15***	***0.46***	***0.05***	***0.82***
India imports from third countries	-0.07	0.08	0.30	0.12	-0.16	0.23
India Exports Caribbean	-0.08	0.12	-0.18	0.56	0.30	0.06
India Imports from Caribbean	-0.03	0.06	0.03	0.35	0.01	0.87
Central America/Mexico						
India exports to third countries	***0.00***	***0.99***	***1.02***	***0.00***	***0.11***	***0.52***
India imports from third countries	-0.02	0.36	-0.15	0.22	-0.11	0.21
India Exports to Central America	-0.08	0.08	-0.37	0.01	-0.16	0.14
India Imports from Central America	-0.01	0.32	0.08	0.16	0.01	0.74
Southern Cone						
India exports to third countries	***0.21***	***0.01***	***0.34***	***0.10***	***0.25***	***0.10***
India imports from third countries	0.04	0.13	0.24	0.01	-0.10	0.10
India Exports to Southern Cone	-0.12	0.19	-0.03	0.90	0.37	0.07
India Imports from Southern Cone	0.03	0.14	0.17	0.00	0.07	0.07
Observations	14592		14592		14592	

Notes: The reported coefficients come from the econometric estimation of the gravity model of trade, augmented by the interaction of country and country-group dummy variables. The estimated coefficients from the other variables in the empirical model are not reported, but all the gravity variables had the expected magnitudes and signs. The over-dispersion test, which corresponds to the null hypothesis that there is no over-dispersion of the errors with respect to the expected trade flows among country pairs, is not reported but was significant at the 1% level. Exporter, importer, and year dummies are not reported either.. See text for details.