IDB WORKING PAPER SERIES No. IDB-WP-200

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August 2010

Inter-American Development Bank
Integration and Trade Sector

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2010

Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library

Volpe Martincus, Christian.
Information barriers, export promotion institutions, and the extensive margin of trade / Christian Volpe Martincus, Antoni Estevadeordal, Andrés Gallo, Jessica Luna.
p. cm. (IDB working paper series ; 200)
Includes bibliographical references.
1. Foreign trade promotion—Latin America. 2. Exports—Latin America. 3. Export trading companies—Latin America. I. Estevadeordal, Antoni. II. Gallo, Andrés. III. Luna, Jessica. IV. Inter-American Development Bank. Integration and Trade Sector. V. Title. VI. Series.
HF1480.5.E9 V65 2010

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Abstract [*]

This paper assesses role played by export promotion institutions in shaping the extensive margin of Latin American and Caribbean countries' exports over the period 1995-2004. We find that the presence of offices of export promotion agencies abroad favors an increase in the number of differentiated goods that are exported, whereas a larger number of diplomatic representations in the importer countries seem to be associated with exports of a larger number of homogeneous goods.

Keywords: Information Barriers, Export Promotion Institutions, Latin America and the Caribbean.
JEL-Code: F13, O17, C23.

[*] This version: May 2009. The final version of this paper has been published at the *Review of World Economics,* Volume 146, Number 1. We would like to thank Jerónimo Carballo, Paulo Rodrigues Bastos, and Pedro Martínez Alanís for excellent research assistance. We also thank Maria Priscila Ramos and participants at the 9th and 10th Annual Meetings of the Iberoamerican Network of Trade Promotion Organizations (Buenos Aires and Costa Rica, respectively) for helpful and insightful comments. Usual disclaimers apply.

1 Introduction

Information incompleteness is an important barrier to trade. The severity of this problem is likely to vary across trade activities. Thus, obstacles are expectedly larger when expanding exports along the extensive margin (i.e., introducing new goods or adding new countries to the set of destination markets) than along the intensive margin (i.e., increasing exports of already exported goods or to countries that are already among the trading partners). Furthermore, information-related impediments to trade can be anticipated to vary with the nature of the goods being traded. In particular, they are larger for more differentiated goods, whose multidimensional characteristics do not allow for prices to fully play their signaling function. Trade promotion actions aiming at reducing information gaps should therefore have larger effects on the extensive margin of these goods' exports. This provides a natural strategy to identify the influence of export promotion institutions on trade. In this paper, we precisely explore whether and how these institutions influence the extensive margin of exports across goods with varying degree of differentiation on a sample of Latin American and Caribbean countries over the period 1995-2004.

Export promotion policies can be rationalized as responses to market failures associated with information spillovers originated in successful searches of business opportunities abroad and informational asymmetries between trading parties (see, e.g., Rauch, 1996; Copeland, 2007).[1] Whether these public interventions have been actually effective in correcting such market failures thus allowing for increased trade has been object of an intense debate. Empirical evidence thereon is essentially based on country-case studies (see, e.g., Álvarez and Crespi, 2000; Gil et al., 2008; Volpe Martincus and Carballo, 2008) and most of the existing literature relies on highly specific geographically and/or sectorally limited samples. In short, cross-country investigations are virtually absent and this raises the question to what extent established findings are applicable to other countries. Three exceptions to this general picture are the studies by Rose (2007), Lederman et al. (2006), and Volpe Martincus et al. (2009). Rose (2007)

[1] Strictly speaking, these market failures are not a sufficient condition to justify public interventions since their costs might be lager than their benefits. More concretely, there would be a case for trade promotion policies if the social benefits generated by the market failure correcting intervention would exceed the corresponding social costs they might cause.

assesses the impact of diplomatic foreign missions on countries' aggregate bilateral trade using a gravity model on a sample of 22 exporting, mostly developed countries.[2] He finds that each additional diplomatic representation is associated with six to ten percent larger exports. Lederman et al. (2006) perform a cross-country econometric analysis of the impact of export promotion agencies on country's total exports. They conclude that these agencies have a strong and statistically significant effect, in particular, they claim that for each dollar of export promotion, exports increase by 40 dollars for the median agency. Volpe Martincus et al. (2009), in turn, estimate gravity equations to assess the role played by both diplomatic foreign missions and offices of export promotion agencies abroad in shaping bilateral exports from Latin American and Caribbean countries along the intensive and extensive margins. They find that these institutions have a lager impact on the extensive margin of exports, especially in the case of trade promotion organizations. While insightful, these analyses fall short to uncover how export promotion institutions specifically affect countries' export diversification profiles, i.e., whether they contribute to expand trade uniformly or non-uniformly or non-uniformly across product groups. This natural next step is what we do in this paper. We specifically address one main question: Have export promotion institutions asymmetric effects on the extensive margins of exports of goods with varying degree of differentiation? We believe that this is a policy relevant question for countries such as those in Latin America and the Caribbean. These countries have traditionally lagged behind in terms of export diversification. In particular, they have been highly specialized in natural resources and primary products. Just to mention two examples, only one product, coffee, represented on average more than 60% of total Colombian exports over the period 1905-1986, whereas oil has accounted for more than 80% of Venezuelan total exports in recent years.

In addressing the former question, we empirically estimate the impact of trade promotion institutions on the extensive margin of exports as measured by the number of 6-digit HS products exported in each good category identified in the classification developed by Rauch (1999) while controlling for the standard gravity variables. This

[2] Furthermore, Nitsch (2007a) reports that state visits have on average a positive impact on bilateral exports. Moreover, Rose (2004, 2005) and Nitsch (2007b) analyze the influence of international organizations and country groupings such as the G7 on trade flows, respectively.

analysis is performed separately for each 2-digit SITC "sector" to allow for heterogeneity in the impact of the aforementioned institutions across these sectors.

We find that offices of export promotion agencies located abroad seem to favor an increase of the extensive margin of exports of differentiated goods. On the other hand, the presence of a larger number of diplomatic representations in the importer country is associated with exports of a larger number of homogeneous goods. These findings have a clear explanation. Specialized, export oriented offices abroad may be more effective in helping ameliorate the more severe informational problems linked to exporting more differentiated goods. Embassies and consulates perform more general functions and in many cases they do not even have a commercial section, so not being specific export promoting institutions, they are more likely to facilitate exports of homogeneous products, whose trade faces weaker informational barriers and thus have lower marketing expertise requirements.

The remainder of this paper is organized as follows: Section 2 explains the empirical approach. In particular, it specifies the estimation equation and addresses the main econometric problems. Section 3 introduces the dataset and presents descriptive evidence. Section 4 reports and discusses the estimation results, and Section 5 concludes.

2 Empirical Methodology

We empirically assess the effect of export promotion institutions on the extensive margin of countries' exports using a gravity model of trade. Specifically, we estimate by OLS the following equation:[3]

$$\begin{aligned} lnN_{ijt}^{k,z} = {} & \beta_1^{k,z} TPO_{ijt} + \beta_2^{k,z} EmbCon_{ij} + \beta_3^{k,z} lnDist_{ij} + \beta_4^{k,z} Cont_{ij} + \beta_5^{k,z} PTA_{ijt} + \beta_6^{k,z} Lang_{ij} + \\ & + \beta_7^{k,z} ColTies_{ij} + \beta_8^{k,z} ComCol_{ij} + \beta_9^{k,z} Is_{ij} + \beta_{10}^{k,z} Land_{ij} + \delta_i^{k,z} + \lambda_j^{k,z} + \omega_t^{k,z} + \mu_{ijt}^{k,z} \end{aligned} \quad (1)$$

where k indexes sectors, z type of goods (homogeneous, reference-priced, and differentiated), i exporter countries, j importer countries, and t time; N is the number of products exported in the relevant sector and good category; TPO is a binary variable taking the value of 1 if the trade promotion organization of the exporter country has an

[3] This estimation equation can be formally derived from a theoretical model similar to that developed by Helpman et al. (2008) by introducing trade promotion organizations as information cost- and thereby trade cost-reducing mechanisms and imposing a few additional assumptions. This derivation is included in an appendix available from the authors upon request.

office in the importer country and 0 otherwise; *EmbCon* is the number of diplomatic representations (embassies and consulates) of the exporter country in the importer country; remaining variables control for other factors that are likely to affect bilateral trade flows: (the natural logarithm of) the distance between (the main cities in) the trading partners (*Dist*); sharing a common land border (*Cont*); membership in the same preferential trade agreement (*PTA*), sharing a common language (*Lang*), former colonial ties (*ColTies*), sharing the same colonizer (*ComCol*), and whether there are island (*Is*) or landlocked (*Land*) countries among the trading partners; δ_i, λ_j, and ρ_t are exporter, importer, and year fixed effects; μ is the stochastic error.[4]

Equation (1) is estimated sector-by-sector. Estimating this equation using aggregate data would only be appropriate if the parameters were constrained to be equal across sectors. This restriction is unlikely to hold in general. Thus, for the exporter and importer fixed effects to effectively control for inter-sectoral determinants of comparative advantage they must sector specific (see Hallak, 2006).

More importantly, we expect the impact of export promotion institutions to differ across sectors. This would be the case because countries' varying sectoral comparative advantage will determine different sectoral capabilities to exploit a given reduction of trade costs such as the amelioration of information problems enabled by the aforementioned institutions. Furthermore, heterogeneity across sectors might be created by the different nature of the sectors' average goods and the associated information problems involved in their trade.

In this sense, as mentioned above, information costs are likely to specifically differ across groups of goods. In particular, in the case of highly differentiated products prices cannot convey all the relevant information for international trade (see Rauch, 1999). So their trade requires more communication, i.e., the volume and complexity of information exchanged between trading partners are larger (see Harris, 1995).[5] As a consequence, the

[4] Our survey suggests that trade promotion agencies operate abroad either directly through own offices or, in some cases, through embassies and consulates. Further, some countries have both offices of their agencies and diplomatic representations in certain importing economies. In particular, with only a few exceptions, offices of trade promotion organizations are located in countries where there is at least one diplomatic representation, which most likely has been opened before. Hence, these offices are in fact an additional presence of trade promotion institutions in the importer country and therefore their impact on trade is most properly compared to that of additional diplomatic missions as opposed to the existence of such missions at all (i.e., a count variable instead of a binary variable).

[5] Consistently, the existent empirical evidence indicates that the trade reducing effect of communication costs is larger for differentiated goods (see Fink et al., 2005). Similarly, Portes et al. (2001) find that information flows are more important for less

value of the information institutions disseminate and henceforth their effects may be also expected to differ across goods according to their degree of differentiation. In fact, this is what has been observed in the case of Chinese trading networks (see Rauch and Trindade, 2002).[6] A similar impact could also be anticipated in the case of trade promotion organizations. These organizations are likely to close information gaps proportionally more and thereby have a larger impact in promoting new exports in the case of differentiated goods than in the case of homogeneous goods, thus potentially influencing the countries' specialization profiles. Formally, we expect $\beta_1^{diff} > \beta_1^{hmg}$. Furthermore, export promotion agencies are generally endowed with personnel with specialized marketing expertise and are therefore a priori in a better position to alleviate the specific information problems impeding exports of new complex products than pure diplomatic missions. Embassies and consulates, on the other hand, tend to provide non-specific services such as those aiming at strengthening the country's image abroad, which would *a priori* seem to be more suitable to support trade in homogeneous goods, i.e., the ones which account for the largest fraction of Latin American and Caribbean countries exports. We therefore hypothesize $\beta_1^{diff} > \beta_2^{diff}$ and $\beta_1^{diff} - \beta_2^{diff} > \beta_1^{hmgf} - \beta_2^{hmg}$.

In assessing the significance of these estimated coefficients, the panel nature of the data should be explicitly taken into account. More precisely, disturbances can be expected to have specific patterns associated with the presence of groups of observations (see, e.g. Greene, 1997). In particular, errors can be serially correlated. It is well known that entering new export markets implies incurring in sunk costs (e.g., setting up distribution networks, adapting products to local specifications, etc). These costs may generate inertia in bilateral trade flows, so that it is more likely to see positive exports of certain goods to certain countries in the current period if these exports have been also positive in the previous period (see Baldwin, 1988; Broto el al., 2006). A similar pattern would arise when consumer grow accustomed to the partner countries' products, i.e., habit formation (see Bun and Klaaseen, 2002), in the presence of network and fashion effects (see, e.g., Vettas, 2000) or under stick buyer-supplier relationships due to costly

standardized financial assets such as portfolio equity or corporate bonds, as opposite to more homogeneous products such as treasury bonds.

[6] Hanson and Feenstra (2001) examine the role of Hong Kong as intermediary for Chinese goods. They show that the markups on re-export of these goods are higher for differentiated products and products with higher variance in export prices, i.e., goods for which

switching-in and switching-out (see, e.g., Webster and Wind, 1972; and Rangan and Lawrence, 1999). When serial correlation is not properly addressed, least squares estimates are inefficient and inference based thereon is adversely affected (see Greene, 1997). We therefore use standard errors clustered by country pairs to allow for intra-group correlations over time.

Three main econometric issues should be addressed when estimating Equation (1). First, country fixed effects are included to account for country-level variables such as those traditionally incorporated to proxy for the mass of the trading partners, namely, GDP and population, and what Anderson and van Wincoop (2003, 2004) refer to multilateral resistance. These variables rather than being time invariant actually change over time. Hence, there is potential for omitted variable biases originated in the time dimension of the data. In order to assess whether this is indeed an issue in our case, we check the robustness of the estimates to replacing time-varying exporter and importer fixed effects for their time-constant versions (see, e.g., Baldwin and Taglioini, 2006; and Ruiz and Vilarrubia, 2007).

Second, the dependent variable is in fact a count variable that may take the value of zero. Thus, applying natural logarithm implies disregard all observations when a given exporting country does not export any product to a given importing country. If this is more likely to occur when there is no presence of trade promotion institutions of the former country in the latter country (or, for instance, when both are far apart or do not share a common border), then estimates of the parameter of interest will be biased. Hence, we investigate whether our results are robust to using an econometric strategy that makes use of all observations, including the zero ones. More specifically, we implement the poisson pseudo maximum likelihood estimator proposed by Santos Silva and Tenreyro (2006).

Third, endogeneity may be present in the form of reverse causality. In particular, countries may set up foreign representations in those partners where exports are relatively large (e.g., Rose, 2007).[7] Notice, however, that this is less likely to be serious problem for our estimations since they are performed at the sectoral level. More concretely, while

quality is relatively difficult to observe or verify and thus services of middlemen to resolve information problems involved in exchange are likely to be required.

[7] Similar considerations can be made on preferential trade arrangements.

countries may decide to open an office of their trade promotion organization or new diplomatic representations in countries where their *aggregate exports* are both large and highly diversified, it less clear that they will do so on the basis of *exports in a particular sector*. In short, sectoral estimates are less likely to be affected by endogeneity biases.[8]

3 Data and Descriptive Statistics

Our sample includes 26 Latin American and Caribbean countries: Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, El Salvador, Suriname, Trinidad and Tobago, Uruguay, and Venezuela.

As mentioned above, we characterize these countries' extensive margin of exports with the number of exported products in each sector. More precisely, our dependent variable is the number of 6-digit HS products exported by a certain country to a specific partner country within each 2-digit SITC sector. To compute this measure we use bilateral export data from the countries listed above to all countries around the world over the period 1995-2004.[9] These data come from COMTRADE.

Following Rauch (1999), we distinguish goods according to the degree of severity of the information problems their trade faces with in three categories: homogeneous goods (whose prices are quoted in organized exchanges), reference-priced goods (whose prices are only quoted in specialized trade publications), and differentiated goods (with no reference prices).[10] In particular, we use the liberal version of this classification because it is more stringent in typifying goods as differentiated, which we believe is more appropriate for our sample of developing countries.[11] Similar to Hallak (2006), when a 2-digit sector includes products that belong to different categories, it is broken accordingly, with each part only including the relevant exported goods.

[8] Furthermore, results from GMM estimations using the procedure proposed by Blundell and Bond (1998) on the whole sample (i.e., pooling over sectors) do not significantly differ from our OLS estimates. These results are available from the authors upon request.
[9] In particular, we use mirror values (i.e., imports from Latin American and Caribbean countries).
[10] Rauch's (1999) original classification is based on the 4-digit SITC Revision 2. We have mapped this classification into our 6-digit HS classification using conversion tables available in COMTRADE.
[11] Estimation results based on the conservative classification coincide with those presented here and are available from the authors upon request.

Data on offices abroad of export promotion agencies have been collected directly from these agencies through a survey (see Jordana et al., 2009), whereas data on embassies and consulates in each possible trade partner have been collected from the websites of the corresponding Ministries of Foreign Affairs.[12]

Our dataset also includes traditional gravity variables. Data on bilateral distance, common border, common language, colonial ties, common colonizer and island and landlocked conditions are from the databases maintained by CEPII. Data on preferential trade agreements are those used by Glick and Rose (2002) and are generously provided by Andrew Rose in his website. These data have been complemented and updated with information reported in the WTO's webpage.

Figure 1 reports the overall number of products exported by each country relative to the total number of products in each good category in 2004. There is substantial heterogeneity both across countries within good categories and across good categories within countries. As expected, the largest economies in the region have the largest numbers in differentiated goods. Thus, Argentina, Brazil, and Mexico export approximately 80.0% of these goods. In contrast, such a share does not reach 20.0% in the case of smaller countries such as Bahamas, Belize, Guyana, Panama, and Suriname. Furthermore, in the latter three countries the share of differentiated products that are exported is even lower than that of homogeneous products.

Figure 2 shows, for each exporting country, the number of importing countries where they have foreign diplomatic mission and offices of their trade promotion organizations in 2004. This figure reveals that most countries rely only in diplomatic foreign missions as institutional means to promote exports abroad. The number of countries where these missions are present varies significantly across economies. In general, this number is larger for larger economies. Just a few trade promotion organizations have offices abroad and even in this case there is an important variation across countries in how spread these offices are. Thus, while Chile's national export promotion agency is represented in

[12] We use two alternative definitions of offices of export promotion offices: a conservative definition, which only considers commercial offices and a liberal definition which also includes representation offices, and promotion and distribution centers. Estimates reported below are based on the former definition. Results obtained with the latter are almost identical and are available from the authors upon request. In addition, we should mention that, due to lack of precise date information, offices of export promotion agencies are assumed to be opened the same year these agencies started to operate. The index *t* on TPO in Equation (1) then reflects the fact that some agencies began their operations after our initial sample year. Finally, following Rose (2007), the number of embassies and consulates is determined excluding honorary consulates. This number is assumed to remain constant over the period. This seems to be a sensible assumption as changes in the number of diplomatic foreign missions have not been substantial.

almost 40 countries, Jamaica's JAMPRO (currently Jamaica Trade and Investment) is present in only two countries. Hence, the evidence suggests that Latin American and Caribbean economies have notorious differences in the size of the extensive margins of their exports of goods with varying degree of differentiation. To what extent the also heterogeneous presence of their trade promotion institutions abroad help understand these differences in export patterns across countries and goods? In the next section, we perform a formal econometric analysis to answer this question.

4 Estimation Results

In this section we first examine how offices of trade promotion organizations and diplomatic foreign missions affect the overall extensive margin of exports across sectors. We then turn to specifically investigate whether these effects systematically differ across groups of goods which feature varying degrees of differentiation and whose trade thus faces information-related obstacles of different magnitude.

The top panel of Table 1 reports estimates of Equation (1) pooling over sectors. These provide us with an average-like measure of the impact of export promotion institutions on the extensive margin of countries' exports. The bottom panel of Table 1 presents summary measures (simple average, maximum, and minimum) of the distribution of the estimated coefficients on the variables accounting for these institutions across the 67 2-digit SITC sectors as obtained from sector-by-sector estimations, whereas Figure 3 is a kernel density of the associated estimated effects.

The results suggest that, on average, both export promotion institutions, trade promotion organizations and diplomatic foreign missions, help increase the extensive margin of exports. Their effects are, however, asymmetric. More specifically, opening an office of the trade promotion organization in the importer country has a significantly larger impact on the extensive margin of bilateral exports than placing an additional diplomatic mission. Thus, according to the pooled estimates, while a new office of the trade promotion organization is associated with an increase in the number of goods that are exported of 27.6% ($(e^{0.236}-1)x100=27.6$), setting up another diplomatic representation would raise this number by 0.5%. For the average (median) number of products across

countries, sectors, and years, this would imply an increase of 7.8 (3.3) and 0.1 (0.1) products, respectively.

The results shown in the bottom panel of Table 1 and Figure 3 reveal that the impact of export promotion institutions is markedly heterogeneous across sectors. In particular, trade promotion organizations have a positive effect on the extensive margin of exports in 48 sectors. These sectors include: organic chemicals; machinery specialized for particular industries; electrical machinery, apparatus, and appliances; road vehicles, furniture and parts thereof; articles of apparel and clothing accessories; and footwear. The aforementioned positive effect ranges between 13.9% ($(e^{0.130}-1)x100=13.9$) and 93.0% ($(e^{0.658}-1)x100=93.0$) with an average of 37.9% ($(e^{0.321}-1)x100=37.9$). These figures are clearly larger than those observed for diplomatic foreign missions. Thus, one additional mission would result in an average (maximum) expansion of the number of exported products across sectors of 1.9% (3.1%). Further, notice that the density of the estimated effects of trade promotion organizations is completely to the right of that for the estimated effects of embassies and consulates (Figure 3). These differences are significant from a statistical point of view. Using the procedure proposed by Delgado et al. (2002), we find that the distribution of the effects associated with the former institutional arrangement statistically dominates that of the effects linked to the latter (see Table 2).

It should be mentioned herein that, in general, most standard gravity variables have the expected sign and are significant.[13] Thus, preferential trade agreements, lower distance, sharing a common border, direct colonial ties, having a common colonizer, and not being islands are associated with increased diversification across sectors.[14]

We next investigate the impact of export promotion institutions on the extensive margin of exports distinguishing across goods with varying degree of differentiation.[15] Table 3 presents the results from pooled estimations and summary measures of those

[13] Estimations results are robust to using alternative specifications including binary variables accounting for membership in the WTO and common currencies. These estimation results are available from the authors upon request.
[14] Table A1 in the Appendix presents both pooled estimates and summary measures of the estimated coefficients on these variables over sectors. A table with detailed sectoral estimates is available from the authors upon request.
[15] Notice that the total number of sectors differs across goods categories. The reason is that trade in specific good categories may not be observed in some sectors (or the number of observations with positive trade is not large enough to perform an estimation).

results based on sector-by-sector estimations, whereas Figure 4 shows the estimated effects of the aforementioned institutions for each sector.[16]

Both sets of estimates suggest trade promotion organizations seem to be more effective than diplomatic representations abroad in increasing the extensive margin of exports of differentiated goods and, to less extent, reference-priced goods. In particular, both the number machinery, apparatus, and appliances; road vehicles; textiles yarns, fabrics, and related of sectors for which positive and significant effects are observed and the average effects are larger for these kinds of goods. Thus, for instance, for differentiated products, setting up an office of trade promotion organizations would have a positive effect in 33 sectors, including: power generating machinery and equipment; machinery specialized for particular industries; general industry machinery and equipment; electrical products; articles of apparel and clothing accessories; photographic apparatus; optical goods, and watches; and professional, scientific, and controlling instruments. This positive impact averages 37.7% ($(e^{0.320}-1)x100=37.7$) and reaches a maximum of 85.6% ($(e^{0.620}-1)x100=85.6$) in the case of textiles yarns, fabrics, and related products. An additional diplomatic foreign mission would, on the other hand, lead to a significant increase in the extensive margin of exports in only 11 sectors with an average impact of 2.0%.

Interestingly, the overall average impact of offices of trade promotion organizations (diplomatic representations), as determined based on the pooled estimates, decreases (increases) as the degree of differentiation of the goods declines. In fact, the difference in the effectiveness of the different institutional arrangements is substantially smaller for the homogeneous goods. This is formally confirmed by the tests of stochastic dominance performed on the distribution of estimated impacts of the aforementioned export promotion institutions across sectors for each good category (see Table 4). More specifically, these tests suggest that, while the estimated effects of trade promotion organization stochastically dominate those of foreign diplomatic missions when

[16] A table presenting sector specific estimates is available from the authors upon request.

differentiated and reference-priced goods are focused on, their distributions are not significantly different from each other in the case of homogeneous goods.[17]

These results are in line with our expectations. Trade promotion agencies have larger effects on exports of goods which are more affected by information problems and this is particularly so for specialized public organizations with clear mandate to foster and diversify trade and more properly endowed in terms of personnel such as trade promotion agencies. On the other hand, diplomatic foreign missions can perform general marketing activities, mostly related to strengthening country image. These activities are more likely to facilitate an expansion of the extensive margin of trade through the incorporation of new goods that are "technologically" closer to the countries' products that are best known abroad. For Latin American and Caribbean countries, this is clearly the case of homogeneous goods. Summing up, offices of trade promotion organizations seem to favor the expansion of the number of differentiated goods, whereas diplomatic missions seem to contribute more to the increase of homogeneous goods.

As discussed in Section 3, in a panel data setting, standard fixed effects may be insufficient to properly account for country level variables which vary over time thus creating a potential omitted variable bias. This bias source would be eliminated using year-specific exporter and importer fixed effects in Equation (1) instead of their time constant versions. Estimation results based on this alternative specification are shown in Tables 5 and 6. These results fully confirm our findings.

Moreover, dropping zero observations might potentially result in biased estimates. Hence, we check the robustness of our findings to using a poisson estimator, which besides allowing us considering zero observations, explicitly takes into account the count nature of the underlying dependent variable. Table 7 presents summary measures of the estimated coefficients on the variables of interest across sectors, while Table 8 reports similar measures distinguishing across categories of goods defined in terms of their degree of differentiation. While the proportion of sectors with positive and significant effects of export promotion institutions changes, overall, averages and ranges of these effects corroborate our main conclusions.

[17] Notice, further, that the share of sectors where positive effects are registered reverses in this case. Thus, embassies and consulates affect the number of products exported in 48.3% of the sectors, while offices of trade promotion organizations do it only in 10.2% of the sectors.

5 Concluding Remarks

Sectoral and even product concentration of exports has been a distinguishing feature of Latin American and Caribbean countries. This insufficient diversification mightpotentially help to explain why their actual growth performance is below expectations.[18] It should not be then a surprise that this issue has been a longstanding matter of concern for policy makers in these countries.

In recent years, several institutional efforts have been made throughout the region to support the expansion of exports. Some countries have strengthened the commercial functions of their embassies and many have established or re-established export promotion agencies, in most cases with the explicit goal of contributing to diversify the exports. In this paper, we assess whether these export promotion institutions have actually helped increase exports of Latin American and Caribbean countries along the extensive margin over the period 1995-2004.

We have used disaggregated data on bilateral exports from those countries to all countries to examine the impact of foreign representations of trade promotion organizations and embassies and consulates on the extensive margin of trade, i.e., the number of products exported, controlling for standard gravity variables. This analysis has been performed at the sectoral level, both pooling and distinguishing across goods with different degrees of differentiation.

Our findings indicate that export promotion agencies seem to favor the expansion of the extensive margin of exports of more differentiated goods, while embassies and consulates are associated with increased extensive margin of homogeneous goods. There are good reasons for this to be the case. Export promotion agencies are specialized institutions explicitly focused in expanding exports and potentially better endowed in terms of expertise to alleviate the specific problems impeding exports of differentiated products. On the other hand, diplomatic representations usually accomplish diverse tasks, trade promotion being just one of them. Further, embassies do not always have a commercial section. Hence, these foreign missions may also stimulate exports, but more likely through larger exports of products with less severe informational impediments and

accordingly lower intensity in the specific skills required to deal with them. These results point out the relevance of having specialized trade promoting services abroad in pursuing export diversification. However, this does not necessarily imply that trade promotion organizations should necessarily open offices abroad. The aforementioned objective might be also achieved by properly strengthening trade competencies in diplomatic representations.

[18] Lack of diversification can be potentially costly in terms of economic growth (e.g., Lederman and Maloney, 2003; and Herzer and Nowak-Lehmann, 2006).

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Table 1

The Impact of Export Promotion Institutions on the Extensive Margin of Countries' Sectoral Exports OLS Estimates

	Offices of Trade Promotion Organizations	Embassies and Consulates
Pooled Estimates		
Estimated Coefficient	0.244***	0.005***
(Standard Error)	(0.039)	(0.001)
Sector-by-Sector Estimates		
Positive	48	17
Maximum	0.658	0.031
Minimum	0.130	0.012
Simple Average	0.321	0.019
Negative	0	0
Maximum	0.000	0.000
Minimum	0.000	0.000
Simple Average	0.000	0.000
Non-Significant	19	50

The table reports OLS estimates of Equation (1). The top panel presents the estimated coefficients on offices of trade promotion organizations and embassies and consulates as obtained when pooling over sectors (sector fixed effects are included in this case). The bottom panel presents the number of sectors where positive and significant, negative and significant, and non-significant estimated coefficients are registered for these variables along with their respective relevant summary measures (maximum, minimum, and simple average). Standard errors clustered by country pairs are used to assess the significance of these coefficients. * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 2

Differences in the Estimated Impacts of Export Promotion Institutions across Sectors
Two-Sided and One-Sided Smirnov-Kolmogorov Tests

Variables	Equality of Distribution	Difference Favorable to the Second Variable
Offices of Trade Promotion Organizations vs. Embassies and Consulates	0.716*** [0.000]	0.000 [1.000]

The table reports the two-sided and the one-sided statistics and p-values of the Kolmogorov-Sminorv tests of differences in the distribution of the estimated impacts of offices of trade promotion organizations and embassies and consulates across sectors. *significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 3

The Impact of Export Promotion Institutions on the Extensive Margin of Countries' Sectoral Exports by Good Categories
OLS Estimates

	Differentiated Goods		Reference-Priced Goods		Homogeneous Goods	
	Offices of Trade Promotion Organizations	**Embassies and Consulates**	**Offices of Trade Promotion Organizations**	**Embassies and Consulates**	**Offices of Trade Promotion Organizations**	**Embassies and Consulates**
Pooled Estimates						
Estimated Coefficient	0.236***	-0.000	0.168***	0.005***	0.050***	0.009***
(standard error)	(0.007)	(0.001)	(0.009)	(0.001)	(0.010)	(0.001)
Sector-by-Sector Estimates						
Positive	33	11	24	16	3	14
Maximum	0.620	0.030	0.560	0.030	0.310	0.040
Minimum	0.100	0.010	0.080	0.000	0.150	0.010
Simple Average	0.320	0.020	0.260	0.020	0.230	0.020
Negative	2	1	0	2	2	1
Maximum	-0.170	-0.010	0.000	0.000	-0.100	-0.020
Minimum	-0.200	-0.010	0.000	-0.010	-0.130	-0.020
Simple Average	-0.180	-0.010	0.000	-0.010	-0.110	-0.020
Non-Significant	19	42	17	23	24	14

The table reports OLS estimates of Equation (1) distinguishing across categories of goods defined in terms of their degree of differentiation (see Rauch , 1999). The top panel presents the estimated coefficients on offices of trade promotion organizations and embassies and consulates as obtained when pooling over sectors (sector fixed effects are included in this case). The bottom panel presents the number of sectors where positive and significant, negative and significant, and non-significant estimated coefficients are registered for these variables along with their respective relevant summary measures (maximum, minimum, and simple average). Standard errors clustered by country pairs are used to assess the significance of these coefficients. * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 4

Differences in the Estimated Impacts of Export Promotion Institutions across Sectors
Two-Sided and One-Sided Smirnov-Kolmogorov Tests

Variables	Differentiated Goods		Reference-Priced Goods		Homogeneous Goods	
	Equality of Distribution	Difference Favorable to the Second Variable	Equality of Distribution	Difference Favorable to the Second Variable	Equality of Distribution	Difference Favorable to the Second Variable
Offices of Trade Promotion Organizations vs. Embassies and Consulates	0.611*** [0.000]	-0.037 [0.929]	0.585*** [0.000]	0.000 [1.000]	0.319 [0.111]	-0.379 [0.111]

The table reports the two-sided and the one-sided statistics and p-values of the Kolmogorov-Sminorv tests of differences in the distribution of the estimated impacts of offices of trade promotion organizations and embassies and consulates across sectors for each category of goods defined in terms of their degree of differentiation (see Rauch , 1999). *significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 5

The Impact of Export Promotion Institutions on the Extensive Margin of Countries' Sectoral Exports OLS Estimates, Year Specific Country Fixed Effects		
	Offices of Trade Promotion Organizations	**Embassies and Consulates**
Pooled Estimates		
Estimated Coefficient	0.236***	0.004***
(Standard Error)	(0.006)	(0.001)
Sector-by-Sector Estimates		
Positive	44	13
Maximum	0.633	0.029
Minimum	0.131	0.012
Simple Average	0.316	0.020
Negative	0	1
Maximum#	0.000	0.000
Minimum#	0.000	0.000
Simple Average#	0.000	0.000
Non-Significant	23	53

The table reports OLS estimates of an alternative specification of Equation (1), which includes exporter-year and importer-year fixed effects instead of their time invariant counterparts. The top panel presents the estimated coefficients on offices of trade promotion organizations and embassies and consulates as obtained when pooling over sectors (sector fixed effects are included in this case). The bottom panel presents the number of sectors where positive and significant, negative and significant, and non-significant estimated coefficients are registered for these variables along with their respective relevant summary measures (maximum, minimum, and simple average). # The estimated coefficient on *EmbCon* is negative and significant, but it is very small in absolute value. Standard errors clustered by country pairs are used to assess the significance of these coefficients. * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 6

The Impact of Export Promotion Institutions on the Extensive Margin of Countries' Sectoral Exports by Good Categories
OLS Estimates, Year Specific Country Fixed Effects

	Differentiated Goods		Reference-Priced Goods		Homogeneous Goods	
	Offices of Trade Promotion Organizations	Embassies and Consulates	Offices of Trade Promotion Organizations	Embassies and Consulates	Offices of Trade Promotion Organizations	Embassies and Consulates
Pooled Estimates						
Estimated Coefficient	0.236***	-0.000	0.168***	0.005***	0.050***	0.009***
(standard error)	(0.007)	(0.001)	(0.009)	(0.001)	(0.010)	(0.001)
Sector-by-Sector Estimates						
Positive	36	13	25	19	8	18
Maximum	0.614	0.027	0.554	0.024	0.296	0.038
Minimum	0.013	0.005	0.005	0.004	0.005	0.005
Simple Average	0.287	0.017	0.231	0.017	0.124	0.017
Negative	2	2	0	1	1	1
Maximum	-0.158	-0.002	0.000	-0.009	-0.105	-0.026
Minimum	-0.248	-0.016	0.000	-0.009	-0.105	-0.026
Simple Average	-0.203	-0.009	0.000	-0.009	-0.105	-0.026
Non-Significant	16	49	16	21	20	10

The table reports OLS estimates of an alternative specification of Equation (1), which includes exporter-year and importer-year fixed effects instead of their time invariant counterparts, distinguishing across categories of goods defined in terms of their degree of differentiation (see Rauch , 1999). The top panel presents the estimated coefficients on offices of trade promotion organizations and embassies and consulates as obtained when pooling over sectors (sector fixed effects are included in this case). The bottom panel presents the number of sectors where positive and significant, negative and significant, and non-significant estimated coefficients are registered for these variables along with their respective relevant summary measures (maximum, minimum, and simple average). Standard errors clustered by country pairs are used to assess the significance of these coefficients. * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

Table 7

The Impact of Export Promotion Institutions on the Extensive Margin of Countries' Sectoral Exports
Poisson Estimates

	Offices of Trade Promotion Organizations	Embassies and Consulates
Pooled Estimates		
Estimated Coefficient	0.175***	0.006**
(Standard Error)	(0.049)	(0.003)
Sector-by-Sector Estimates		
Positive	55	54
Maximum	0.630	0.070
Minimum	0.030	0.000
Simple Average	0.214	0.017
Negative	0	0
Maximum	0.000	0.000
Minimum	0.000	0.000
Simple Average	0.000	0.000
Non-Significant	12	13

The table reports Poisson estimates of Equation (1). The top panel presents the estimated coefficients on offices of trade promotion organizations and embassies and consulates as obtained when pooling over sectors (sector fixed effects are included in this case). The bottom panel presents the number of sectors where positive and significant, negative and significant, and non-significant estimated coefficients are registered for these variables along with their respective relevant summary measures (maximum, minimum, and simple average). Standard errors clustered by country pairs are used to assess the significance of these coefficients. * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

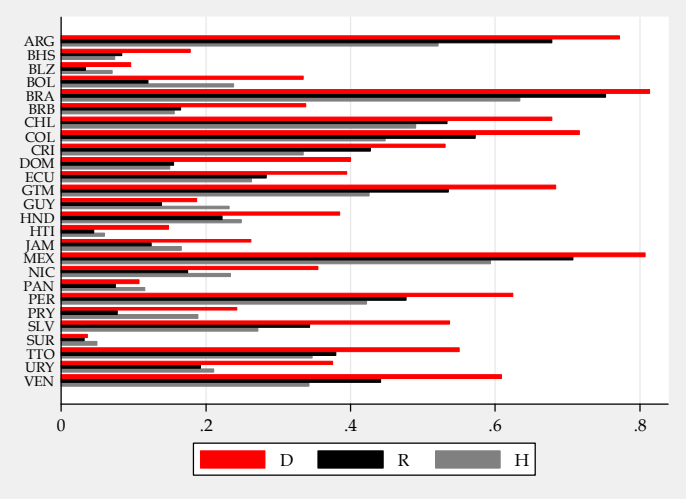
Table 8

The Impact of Export Promotion Institutions on the Extensive Margin of Countries' Sectoral Exports by Good Categories
Poisson Estimates

	Differentiated Goods		Reference-Priced Goods		Homogeneous Goods	
	Offices of Trade Promotion Organizations	**Embassies and Consulates**	**Offices of Trade Promotion Organizations**	**Embassies and Consulates**	**Offices of Trade Promotion Organizations**	**Embassies and Consulates**
Pooled Estimates						
Estimated Coefficient	0.180***	0.002	0.163***	0.009***	0.057*	0.010***
(standard error)	(0.055)	(0.003)	(0.050)	(0.003)	(0.030)	(0.002)
Sector-by-Sector Estimates						
Positive	37	41	23	30	10	21
Maximum	0.909	0.036	0.472	0.037	0.238	0.066
Minimum	0.065	0.004	0.072	0.004	0.093	0.008
Simple Average	0.220	0.018	0.181	0.017	0.159	0.022
Negative	2	0	3	0	1	0
Maximum	-0.144	0.000	-0.144	0.000	-0.154	0.000
Minimum	-0.389	0.000	-0.614	0.000	-0.154	0.000
Simple Average	-0.266	0.000	-0.380	0.000	-0.154	0.000
Non-Significant	12	10	12	8	15	5

The table reports OLS estimates of Equation (1) distinguishing across categories of goods defined in terms of their degree of differentiation (see Rauch , 1999). The top panel presents the estimated coefficients on offices of trade promotion organizations and embassies and consulates as obtained when pooling over sectors (sector fixed effects are included in this case). The bottom panel presents the number of sectors where positive and significant, negative and significant, and non-significant estimated coefficients are registered for these variables along with their respective relevant summary measures (maximum, minimum, and simple average). Standard errors clustered by country pairs are used to assess the significance of these coefficients. * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.

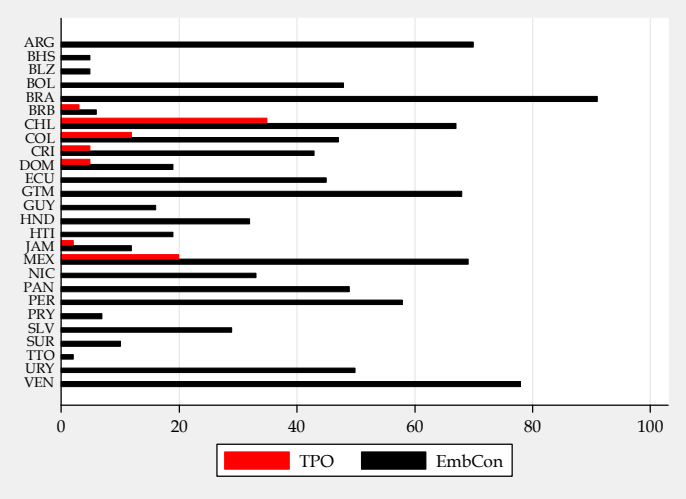
Figure 1
Countries' Export Extensive Margin in each Good Category, 2004



The figure shows the number of products exported by each sample country relative to the total number of products in each good category identified in the classification proposed by Rauch (1999).

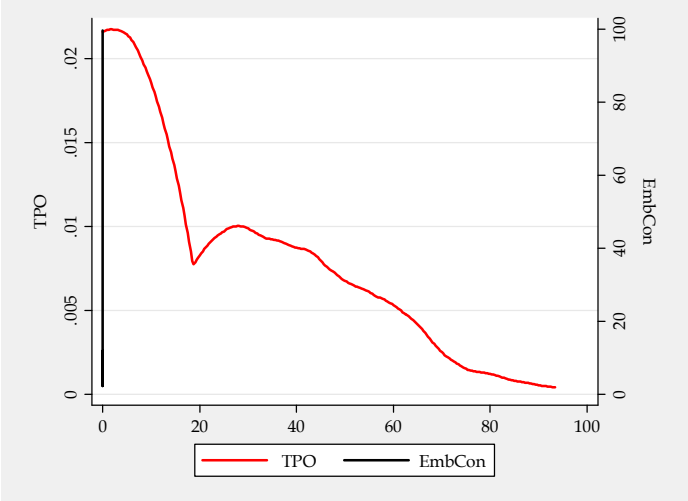
Figure 2

Number of Countries where Offices of Trade Promotion Organizations and Embassies or Consulates are Present, 2004



The figure reports the number of importing countries where exporting countries have diplomatic missions (embassies and/or consulates). In the case of Guatemala, it was not always possible to determine which of the consulates were honorary. We include them all.

Figure 3
Distribution of Sectoral Estimated Effects



The figure is a kernel density of the estimated effects of the presence of an office of the trade promotion organizations and those associated with adding a new foreign diplomatic mission in the importing countries on the extensive margin of exports across sectors. These estimated effects have been obtained estimating Equation (1) separately for each 2-digit SITC sector.

Figure 4
Sectoral Estimated Estimates by Good Categories

The figure reports the estimated effects of the presence of an office of the trade promotion organizations and those associated with adding a new foreign diplomatic mission in the importing countries on the extensive margin of exports for each sector across good categories identified in the classification proposed by Rauch (1999).. These estimated effects have been obtained estimating Equation (1) separately for each 2-digit SITC sector.

Appendix

Table A1

The Impact of Gravity Variables on the Extensive Margin of Countries' Sectoral Exports								
	Dist	**Cont**	**PTA**	**Lang**	**ColTies**	**ComCol**	**Is**	**Land**
Pooled Estimates								
Estimated Coefficient	-0.410***	0.314***	0.198***	0.115***	0.153*	0.665***	-0.158***	0.071
(standard error)	(0.025)	(0.057)	(0.038)	(0.042)	(0.092)	(0.063)	(0.046)	(0.185)
Sector-by-Sector Estimates								
Positive	0	57	47	27	18	53	0	14
Maximum	0.000	0.725	0.427	0.455	0.537	1.234	0.000	1.727
Minimum	0.000	0.153	0.103	0.105	0.181	0.271	0.000	0.236
Simple Average	0.000	0.390	0.252	0.242	0.379	0.697	0.000	0.641
Negative	63	1	1	3	3	1	19	3
Maximum	-0.089	-0.284	-0.113	-0.124	-0.368	-0.375	-0.143	-0.383
Minimum	-0.772	-0.284	-0.113	-0.217	-0.535	-0.375	-0.541	-0.678
Simple Average	-0.404	-0.284	-0.113	-0.182	-0.425	-0.375	-0.277	-0.517
Non-Significant	4	9	19	37	46	13	48	50

The table reports OLS estimates of Equation (1). The top panel presents the estimated coefficients on gravity variables as obtained when pooling over sectors (sector fixed effects are included in this case). The bottom panel presents the number of sectors where positive and significant, negative and significant, and non-significant estimated coefficients are registered for these variables along with their respective relevant summary measures (maximum, minimum, and simple average). Standard errors clustered by country pairs are used to assess the significance of these coefficients. * significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level.