

# Economic Integration Effects on Trade Margins : Sectoral Evidence from Latin America

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## Abstract

The present paper aims to determine the effects of different levels of economic integration on the intensive and the extensive margins of trade. Specifically, the analysis focuses on the case of Latin America. It is of great importance for development policies in the region since the extensive margin can be defined as those exports that provide new market entrants, while the intensive margin is due to continued growth in sales of old exporters to the same destinations. Therefore, obtained results have important policy implications related to diversification strategies. The long-term period considered will allow us to determine whether different effects on trade margins might arise in the following two sub-periods: 1962~1989 and from 1990 onwards, i.e. before and after the spread of regional integration agreements and the deepening of the liberalization process

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in the region. Finally, we focus on those specific sectors in which Latin American countries present a higher relative participation of trade. The obtained results show that the effect of economic integration is both time and period sensitive. The main positive effects are found to be reflected in the intensive margin for all different types of agreements. Moreover, we find that deeper economic integration agreements have the greatest effect on trade margins.

**JEL Classifications:** F14, F15

**Keywords:** Economic Integration, Extensive Margin, Intensive Margin, Latin America, Panel Data

## I. Introduction

Increasing knowledge of the consequences that the dynamics of shallow versus deep<sup>1</sup> economic integration has in Latin America, in terms of trade margins and in different sectors, is highly desirable. It seems that a new stage of regional integration is starting in the region (Peña 2011). In this sense, it is important to note that there has been a considerable growth in the number of Economic Integration Agreements (EIAs) since the 1990s, and that, over the last two decades of this new wave of regionalism, not only the number of EIAs has increased significantly, but also the increased complexity of the regionalization process. For example, there has been an increase of North-South agreements, as well as the creation and the enhancement of deeper economic integration agreements.

This paper seeks to determine the effects of different levels of Latin American EIAs

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<sup>1</sup> In this paper we take into account two integration levels: shallow EIAs (Non-Preferential Trade Agreements) and Preferential Trade Agreements and deep EIAs (Free Trade Agreements and Customs Unions).

on the intensive and the extensive margins of trade. This issue is very important and in line with the latest trade literature. In addition, as we are aware that the effect of trade liberalisation on trade margins in developing countries might be period sensitive, we distinguish two different periods.

According to Grugel (2004), new regionalism provides a framework for the ordering and regulation of the South; however, there have been important differences between the models of new regionalism followed by the Latin American developed partners. Specifically, although both the European Union (EU) and the United States aim to push economic liberalisation in the Southern Cone, Europe is more explicitly concerned with politics and institution-building than the US market-led pattern of new regionalism and endorses a North–South model of global cooperation in which the North assumes some responsibilities for the development of the South (Grugel 2004). Nonetheless, it is important to point out that Pomfret (2007) concludes that the long-term dynamics of EIAs lead to ineffectiveness in the majority of cases, and points out that the increased complexity of regional arrangements open up opportunities for managed trade that can benefit insiders and become a stumbling block to progress at a global level (p. 940). Previous research (Florensa *et al.* 2013 and 2014) analyses the consequences of Latin American economic integration on trade margins over the periods of 1962–2005 and 1962–2009, respectively. The results show that the signed integration agreements in the region have positively affected the intensive and extensive margins of trade and that the deepest integration agreements have a bigger impact on trade margins than shallower ones. However, when the effect of economic integration is analysed for different sectors (primary goods and agricultural manufactures, industrial manufactures and mineral fuels, lubricants and related materials), the deepest integration agreements do not seem to have fostered exports of new industrial products (the extensive margin does not increase) although both deeper and shallower agreements seem to have maintained and enhanced the trade relations of primary goods and agricultural manufactures (the intensive margin increases) over time.

The present paper goes further than the existing literature by analysing the effect of EIAs on trade margins in two different periods, and by using a more disaggregated trade classification. In particular, we consider the two above mentioned forms of integration, known as the old and new regionalisms (Baier *et al.* 2006) by focusing on two sub-periods: 1962–1989 and 1990–2009. We then focus on those specific sectors in which Latin American countries present a higher relative participation.

Our results point to the idea that the extensive and intensive margins of trade have

increased with the spread of new generation agreements in those sectors in which the considered developing nations export to a greater extent. These results have important policy implications as an increase in the extensive margin can be understood as a diversification of the export matrix and hence the structure of domestic production, while an increase in intensive margin can result in the concentration of the export matrix. Obtaining a higher positive effect of deeper agreements on the extensive margin of different sectors would be in line with development and industrialisation objectives in the region.

This paper is divided into seven parts: after the introduction in Section I, Section II presents a brief description of the Latin American integration process. Section III justifies the measurement of trade margins as defined by Hummels and Klenow (2005) in our framework<sup>2</sup>; i.e., a gravity equation that allows the analysis of the effect of shallow and deep EIAs on trade margins over different time periods while dealing with the endogeneity of EIAs. Section IV describes the methodology; Section V describes data, sources, and variables and includes a descriptive analysis. Section VI shows the main results that aim to answer whether the effect of economic integration on trade margins is period-sensitive. It also includes the analysis for specific sectors. The final section concludes.

## II. The Economic Integration Process in Latin America

The group of 11 Latin American countries under analysis signed a significant number of EIAs over the period 1962~2009.<sup>3</sup> First, the 1960 Montevideo Treaty created the Latin American Free Trade Association (LAFTA), signed initially by Argentina, Brazil, Chile, Mexico, Paraguay, Peru, and Uruguay. As of 1970, LAFTA has expanded to include four more countries: Bolivia, Colombia, Ecuador, and Venezuela. The signatories hoped to create a common market in Latin America and offered tariff rebates among member nations. LAFTA came into effect in January of 1962 and was superseded in 1980 by the Latin American Integration Association (LAIA). Cuba was the last country to accede,

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<sup>2</sup> We are grateful to an anonymous referee for this suggestion.

<sup>3</sup> Tables A.1, A.2, and A.3 in Florensa *et al.* (2014) summarize this information.

becoming a full member of LAIA in 1999. LAIA is today the largest Latin American integration group and includes all 11 exporting countries of the analyzed sample of countries.

The Andean Pact came into existence with the signing of the Cartagena Agreement in 1969 by Bolivia, Chile, Colombia, Ecuador, and Peru. In 1973, the mentioned pact gained its sixth member, Venezuela. In 1976, however, its membership was again reduced to five when Chile withdrew. Venezuela announced its withdrawal in 2006, reducing the Andean Community to four member states. The Andean Community (or CAN, called the Andean Pact until 1996) is today a Customs Union (CU).

The Mercosur was created in 1991 by the Asuncion Treaty and was signed initially by Argentina, Brazil, Paraguay, and Uruguay. It became a Customs Union in 1995 but, in practice, it is still an imperfect CU (Phillips 2003). Bolivia and Chile have been associate members since 1996, Peru since 2003, and Colombia, Ecuador, and Venezuela since 2004. Paraguay was suspended in 2012.<sup>4</sup> Venezuela has recently been incorporated into Mercosur; and Bolivia is in accession process.

Following the new cooperation agreement with Mercosur, the Andean Community gained four new associate members: Argentina, Brazil, Paraguay, and Uruguay. These four Mercosur members were granted associate membership in 2005. Countries in other regions have also signed agreements with LAIA members. For example, over the time period considered, the European Economic Area (EEA)<sup>5</sup> has signed an integration agreement with Chile and Mexico, the Caribbean Community and Common Market (CARICOM) with Colombia and Venezuela, and Canada, Mexico, and the United States with the North America Free Trade Agreement (NAFTA). Finally, Chile signed the Trans-Pacific Strategic Economic Partnership with Brunei, New Zealand and Singapore in 2007.

Chile has signed the largest number of bilateral agreements in the region: with Bolivia, Canada, China, Colombia, Costa Rica, El Salvador, Honduras, India, Japan, Mexico, Korea, Panama, Peru, Venezuela, and the United States. In fact, Chile has undergone the farthest-reaching liberalisation process in the Latin American region over the period 1994~2008 and, together with Mexico, seems to have liberalised relatively

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<sup>4</sup> Paraguay rejoined Mercosur in 2013.

<sup>5</sup> The European Free Trade Association (EFTA) is a trade bloc created in 1960 by Austria, Denmark, the United Kingdom, Norway, Portugal, Sweden, and Switzerland. Finland became a member in 1961, Iceland in 1970, and Liechtenstein in 1991. Following the abandonment of EFTA and the entry into the European Community of the United Kingdom and Denmark in 1973, Portugal in 1986, and Austria, Sweden, and Finland in 1995, the importance of EFTA diminished. Today, this block consists of Switzerland, Iceland, Liechtenstein, and Norway, and they have a free trade area with the EU (European Economic Area, or EEA for its acronym in English).

more within other integration agreements, such as the NAFTA and the EU, than within LAIA (Florensa *et al.* 2011; Florensa *et al.* 2015b). Mexico is also worth highlighting for having signed a number of important bilateral agreements. It signed EIAs with Bolivia, Chile, Colombia, Costa Rica, Israel, Japan, and Nicaragua. Other bilateral agreements are Guatemala-Venezuela and Peru-United States.

An important number of developed countries have signed non-reciprocal agreements with developing countries; for example, Japan and Norway in 1971, New Zealand in 1972, Australia and Canada in 1974, Russia in 1994, and Turkey in 2002. They all signed the Generalized System of Preferences with all LAIA countries.<sup>6</sup>

### III. Measuring Trade Margins

Since the 1950's (Viner 1950), many authors have contributed to the debate of the effects of EIAs on trade gains among member countries. Since the early 1990's, there has been a considerable increase in the number of studies based on gravity models, among which are Eichengreen and Frankel (1995), Frankel *et al.* (1996 and 1998), Soloaga and Winters (2001), Magee (2008). Most of these works imply that all products are traded with all destinations; however, empirical evidence indicates that only a few firms export and these exporters sell to a limited number of countries. This situation has led to the development of new theories concerning international trade based on the heterogeneity of firms (only the most productive export) and the existence of fixed exporting costs (Melitz 2003). It is worth analyzing whether an increase in a country's exports is due to maintaining and enhancing trade relations over time (Intensive Margin or IM) or to the appearance of new products and markets (Extensive Margin or EM).

In relation to the studies that provide background to this work, it is worth mentioning Hummels and Klenow (2005) and Baier *et al.* (2011 and 2014). For the effect of specific EIAs, Hillberry and McDaniel (2003) focus on the NAFTA, and Bensassi *et al.* (2012) focus on the effects of the Barcelona Process on North African countries. Kehoe and Ruhl (2013) focus on the importance of the EM on the growth in trade not only among

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<sup>6</sup> To sum up, there has been a gradual disappearance of new agreements under the Generalized System of Preferences, with concessions granted by developed to developing countries. Additionally, there is a proliferation of bilateral agreements between countries in the region and between countries and trading blocs that already existed (Florensa *et al.* 2014).

NAFTA members, but also between the US and third trading partners. These authors find that the EM is more important over longer time frames and show that the EM is a significant contributor to trade growth during trade liberalisation or periods of structural change although it is not highly important for country pairs with a stable policy.

Hummels and Klenow (2005) found that the extensive margin accounts for 60% of export growth in major economies. From a different perspective, Hillberry and McDaniel (2003) apply a decomposition of growth in trade which provides evidence about whether the United States has traded more of the same products with partners in NAFTA since 1993, or whether they have traded new products. Their results show that both margins coexist after the creation of NAFTA. Bensassi *et al.* (2012) follow the decomposition of trade proposed by Hillberry and Hummels (2008) and they show that North African countries enjoyed significant positive returns from the Barcelona Process through increased exports of manufactured products to the European Union (EU). Abraham *et al.* (2011) use two alternative measures of each of the margins: the average value of exports per product and the count measure of newly established trade flows between countries, as well as the Hummels and Klenow (2005) decomposition. These authors find that, by using the Hummels and Klenow decomposition, their results at macro-level are similar to those obtained previously at firm-level. This methodology has also been followed by Baier *et al.* (2011 and 2014), Soete and Van Hove (2013), and Florensa *et al.* (2013, 2014 and 2015a). Following these authors, we analyze the effects of different economic integration agreements on the intensive and extensive margins by computing the Hummels and Klenow (2005) indices.

## IV. Methodology

By using a panel of bilateral trade flows of goods for a large number of countries and for the period 1962~2009, we will distinguish the effects of different levels of integration in the signed arrangements. The length of this period will allow us not only to study the short and long-term effects, but also to divide it into two different sub-periods, i.e., before and after the spread of Latin American EIAs in the 90s.

With respect to estimating the effects of EIAs, if this variable is correlated with the error term in gravity equations, it is econometrically endogenous and ordinary least

squares can lead to biased and inconsistent coefficient estimates.<sup>7</sup> In order to eliminate endogeneity bias from the variable EIA, Baier and Bergstrand (2007) and Baier *et al.* (2011) propose the use of panel techniques and estimation by Fixed Effects (FE) of the following Equation (1):

$$\ln X_{ijt} = \beta_0 + \beta_1 EIA_{ijt} + \eta_{ij} + \delta_{it} + \psi_{jt} + \varepsilon_{ijt} \tag{1}$$

where  $\eta_{ij}$  is a country-pair fixed effect to capture all time-invariant bilateral factors influencing nominal trade flows;  $\delta_{it}$  and  $\psi_{jt}$  are exporter-time and importer-time fixed effects, respectively, to capture time-varying exporter and importer GDP, as well as all other time-varying country-specific effects that are unobservable in  $i$  and  $j$  and influence trade, including the exporter's and importer's multilateral price resistance terms.

In order to address the issue of the timing effects of EIAs, we use an additional equation:

$$\ln X_{ijt} = \alpha_0 + \alpha_1 EIA_{ijt} + \alpha_2 EIA_{ijt-5} + \alpha_3 EIA_{ijt-10} + \eta_{ij} + \delta_{it} + \psi_{jt} + \varepsilon_{ijt} \tag{2}$$

Equation (2) generalizes Equation (1) by including five and ten - year lags of the EIA variable to distinguish current and lagged effects ( $EIA_{ijt-5}$  and  $EIA_{ijt-10}$ , respectively). In the empirical analysis, we estimate Equation (1) and (2), whereby  $X_{ijt}$  might denote the value of exports of goods from country  $i$  to  $j$  in the year  $t$  (TRADE), the EM, or the IM.<sup>8</sup>

As pointed above, following Baier *et al.* (2011 and 2014), Soete and Van Hove (2013), and Florensa *et al.* (2013 and 2014), we employ the methodology developed in Hummels and Klenow (2005) to obtain the EM and the IM.<sup>9</sup> This methodology can be used in a panel that permits the use of the indicators employed in the construction of  $EM_{ijt}$  and  $IM_{ijt}$  so that they may vary over time. Furthermore, the log of the value of trade flows

<sup>7</sup> For a complete explanation of this issue, see Baier and Bergstrand (2007) and Baier *et al.* (2011).

<sup>8</sup> We also estimate a third Equation based on the Fifth-Differences (FD) as follows (Baier *et al.* 2014):

$$\Delta_5 \ln X_{ijt} = \gamma_0 + \gamma_1 (\Delta_5 EIA_{ijt}) + \gamma_2 (\Delta_5 EIA_{ijt-5-t-10}) + \delta_{it} + \psi_{jt} + \eta_{ij} + \Delta_5 \varepsilon_{ijt}$$

These results have not been included in the paper to save space, but they are available upon request. We rely on fixed effects regressions as they might soften the dramatic variations that might exist in a given period.

Also note that we are controlling for all types of integration in the regressions and then, for example, in Equation (1) we estimate:

$$\ln X_{ijt} = \beta_0 + \beta_1 NRPTA_{ijt} + \beta_2 PTA_{ijt} + \beta_3 FTA_{ijt} + \beta_4 CU_{ijt} + \eta_{ij} + \delta_{it} + \psi_{jt} + \varepsilon_{ijt}$$

Here, the four types of EIAs denote Non-reciprocal or one-way Preferential Trade Agreements (NRPTA), two-way Preferential Trade Agreements (PTA), Free Trade Agreements (FTA), and Customs Unions (CU), respectively.

<sup>9</sup> This methodology used bilateral trade flows at a high level of disaggregation of products seeking to explain the growth in exports by major exporting quantities of a particular good (IM) or a wider range of goods (EM). Note that using minimum thresholds by category (instead of zero) to classify a product as active might not be a better strategy in our context. As when Kehoe and Ruhl (2013) use a fixed cut-off to determine a good's trade status, they are not able to capture the changing composition of trade.

from  $i$  to  $j$  in the year  $t$  can be decomposed linearly into logs of the extensive margin, the intensive margin and the value of  $j$ 's imports from the world ( $\ln X_{jt}$ ). This term, as we use estimations with fixed effects, is included in the fixed time-importer effects  $\psi_{jt}$ .

## V. Empirical Analysis

### A. Data

In order to perform the empirical analysis, two main sources of data have been used: bilateral trade flows and a polychotomous variable representing the level of economic integration the agreement entails.<sup>10</sup> For the construction of the database, yearly bilateral trade flows for the period 1962~2009 were taken into account. Trade data for the period 1962~2000 were obtained from the National Bureau of Economic Research (NBER)-United Nations trade data set,<sup>11</sup> and documented in Feenstra *et al.* (2005), whereas WITS (COMTRADE) was used for the period 2001~2009. In both cases, the data are classified according to 4-digit Standard Industrial Trade Classification (SITC), Revision 2. The exporting countries are the 11 members of LAIA (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Paraguay, Venezuela, and Uruguay)<sup>12</sup> while the importers are the 161 destination countries as shown in Table A in the Appendix. In addition, we had to build a database with the same characteristics (period and classification of goods), considering the world as an exporter and the 161 destination countries as importers in order to calculate the margins of trade.

The variable indicating the level of integration between country pairs takes the form of a polychotomous index built by Baier *et al.* (2011).<sup>13</sup> The Baier *et al.* (2011) polychotomous indexes for the period 1962~2005 were checked by the documents available in this database and also by the EIA set out in the website of the World Trade Organization (WTO). We have completed the polychotomous index from 2006 to 2009

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<sup>10</sup> Polychotomous variables are categorical variables that can be classified into many categories.

<sup>11</sup> Available at <http://cid.econ.ucdavis.edu/data/undata/undata.html>.

<sup>12</sup> Cuba has been a member since 1999, but it is not considered in the empirical analysis because trade data is available only for some years of the period.

<sup>13</sup> Available at [www.nd.edu/~jbergstr/](http://www.nd.edu/~jbergstr/).

for our sample of countries. Specifically, the index is defined as follows: (0) when there is no EIA, (1) when an agreement is asymmetrical or one-way Non-reciprocal Preferential Trade Agreement (NRPTA), (2) when an agreement corresponds to two-way Preferential Trade Agreements (PTA), (3) when it defines Free Trade Agreements (FTA), and (4) when an agreement refers to Customs Unions (CU).

Initially, the analysis is performed for all goods pooled together over the period 1962~2009, and for the two sub-periods considered. Afterwards, we run regressions for different sets of products. In particular, we focus on the ten sectors where LAIA countries have the greatest relative participation of world exports.

With respect to the sectors taken into account, we selected a group of 8 divisions out of all the divisions included in the SICT, and an additional category that includes the combination of divisions 61 and 85. Our selection has taken into account the following criteria: (i) the share over the total value of exports, (ii) the relative participation over the total number of observations, and (iii) the inclusion of those divisions that represent the two main export sectors in LAIA where the first is the primary goods and agricultural manufactures and the second is the industrial manufactures. The selected sectors represent an average of 33% of LAIA exports and 28.3% of observations over the period 1962~2009. We subsequently focus on the most traded goods, opposite to Kehoe and Ruhl (2013) who focus on the least traded goods.

The first and second columns in Table B in the Appendix shows the selected sectors. The third column shows the number of observations. The fourth column shows the participation of each sector in the total number of observations, while the last column lists the participation of each sector in the value of total exports. Sectors are ordered from higher to lower importance according to the indicator in the last column.

## B. Descriptive analysis

Firstly, we study the evolution of the participation in exports of the analysed sectors by different levels of EIAs. This supposes an interesting test to clarify the differential impact by period that we might expect arising at different levels of economic integration.<sup>14</sup>

Overall, there is a growing export share of the LAIA countries with countries they

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<sup>14</sup> These figures are available upon request.

hold some type of trade agreement. In the case of NRPTAs (EIA=1), it can be seen that for most of the sectors, there was a significant increase in the share of exports up to the early 90s; thereafter, the trend is reversed with the spread of the deepest trade agreements (FTAs and CUs). In the case of PTAs (EIA=2), there is a decrease in the share of exports of all sectors, which is maintained throughout the period, except for cereals. This increase in the share of cereals probably occurs because some destination countries with EIA=0 become countries with EIA=2.

With respect to the FTAs (EIA=3), there has been a marked increase in the share of exports of cereals, vegetables and fruit, and non-ferrous metals as from the signature of this kind of agreement. Concerning the rest of the items in the analysis, an increase is observed up to the end of the 90s when stabilization takes place or there is a slight share decrease.

Three different performance types can be seen in relation to CUs (EIA=4). The textile, road vehicles,<sup>15</sup> and leather sectors show a decreasing share up to the start of the present century when the trend is reversed. Cereals and industrial machinery exhibit a diminishing share over the period while the share is almost constant for the remaining sectors.

Secondly, it is worth introducing figures of the time evolution of the EM and the IM for all the goods pooled together. Figures A and B in the Appendix show the evolution of the EM and the IM, respectively, in four representative countries in the region i.e., Argentina, Brazil, Chile, and Mexico. We can observe the highest values for the IM at the beginning of the second time period taken into account, and that the IM has decreased importantly after the Latin American economic crises at the beginning of the present century. Otherwise, the EM seems to have increased considerably during the second wave of regionalism, being quite stable during the years of crisis, but increasing sharply as from 2001 onwards.

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<sup>15</sup> Concerning the Mercosur automotive policy, it is important to note that there is a particular agreement that also affects the sector of road vehicles.

## VI. Main Results

### A. All goods

Tables 1 and 2 show the main results of our regressions. Each table reports the results for three alternative LHS variables: bilateral trade (trade), Extensive Margin (EM), and Intensive Margin (IM). Additionally, we have vertically ordered the list of existing EIAs from shallower to deeper economic integration.

Tables 1 and 2 show the results obtained when Equation (1), i.e., without lags for the variables of interest, and Equation (2), which includes lagged values of EIA dummies, are estimated, respectively. Table 1 shows that the estimated coefficients for the IM of NRPTA and PTA are negative and significant when the full period is taken into account. Negative and significant coefficients for shallower trade agreements are also obtained by Baier *et al.* (2011) and Florensa *et al.* (2013 and 2014); however, this result might be partially explained by a differential trend in the IM in different sub-periods. Whereas in the first period the IM is negative for NRPTAs and PTAs, it is positive and significant in the case of the IM for PTA in the second period. The coefficient for EM of PTA over the first period is positive and significant although it is negative over the second; the overall effect on the EM is positive and statistically significant. For the deepest EIAs (FTA and CU), trade, EM, and IM coefficients are positive in Equation (1) when the entire period is taken into account although the coefficient of FTA is not significant on the intensive margin. Additionally, the effect on IM is larger than on EM in the case of CU.

When we focus on the second sub-period that covers the increase of deeper EIAs and other integration agreements in which developed countries are involved, positive and significant coefficients of FTAs and CUs are obtained for trade and the IM in the current period. Based on the characteristics of the EIAs, previous research found that the deepest integration agreements have a greater effect on trade margins than shallower ones (Baier *et al.* 2011 and 2014, Florensa *et al.* 2013 and 2014). Nonetheless, when different time periods and exports of all goods are pooled together to analyze the effect of different EIAs on the EM and the IM, it seems that the deepest integration agreements in Latin America have fostered exports of new products although the PTAs signed over the period 1962~1989 (LAIA and the agreements under the Generalized System of Preferences) have increased the extensive margin to a higher extent.

Columns 1-3 in Table 2 show a positive and significant coefficient for the 5-year lag

of FTAs on the intensive margin, for the CU on both the EM and the IM, and for the 5-year lag of the variable CU on the intensive margin. Moreover, the CU has the greatest positive effect on both margins of trade, but it is in the intensive margin of trade where the positive and significant effect of economic integration seems to persist after 5 years.

In particular, the sum of the estimated coefficients for the CU and L5.CU variables is 0.741 when the dependent variable is the logarithm of the intensive margin. If a Latin American country engages in a customs union, the intensive margin of its exports increases by 110% ( $[e^{0.741}-1] * 100$ ), and most of the observed effects is achieved after five years.

When different sub-periods are considered, the 10-year lag of PTAs, FTAs, and CUs, and the 5-year lag of FTAs and CUs have a positive and significant effect on the intensive margin in the second sub-period. These results indicate not only that it is worth taking long-term effects into account when analyzing the effect of regional integration in Latin American countries, but also that the agreements signed in the second sub-period have a more persistent effect on trade margins and, specifically, on the IM. In sum, during the second sub-period, both deeper and shallower agreements seem to have maintained and enhanced trade relations over time, and this positive effect occurs also in the long term. We also show that the most recent Latin American trade integration has contributed to increasing the concentration of the export matrix. Finally, the obtained results show that the effect of economic integration is sensitive to the period of time taken into account.<sup>16</sup>

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<sup>16</sup> The results obtained in Equation (3) are in line with those obtained with Equation (1) and (2). As Equation (1) and (2) seem to be capturing both the short and the long-term effects in a more accurate way than Equation (3) for different sub-periods, these are our preferred equations.

**Table 1. Main results for all goods**

for Equation (1)

	1962~2009			1962~1989			1989~2009		
	TRADE(1)	EM(2)	IM(3)	TRADE (4)	EM (5)	IM (6)	TRADE (7)	EM (8)	IM (9)
<i>NRPTA</i>	-0.288***	-0.027	-0.263***	-0.457	0.007	-0.465	-0.068	-0.059	-0.011
	-2.906	-0.325	-2.781	-1.321	0.025	-1.442	-0.66	-0.64	-0.10
<i>PTA</i>	-0.007	0.123**	-0.130*	0.166	0.611***	-0.445***	0.191*	-0.148*	0.340***
	-0.088	2.014	-1.832	1.247	5.627	-3.595	1.93	-1.68	3.37
<i>FTA</i>	0.313***	0.185**	0.129	.	.	.	0.386***	0.002	0.384***
	3.521	2.527	1.519	.	.	.	3.97	0.02	3.90
<i>CU</i>	0.914***	0.250***	0.663***	.	.	.	0.778***	-0.058	0.836***
	7.828	2.608	5.972	.	.	.	5.77	-0.48	6.12
Number of observations	45,303	45,304	45,303	22,784	22,784	22,784	27,071	27,072	27,071
R <sup>2</sup>	0.69	0.49	0.47	0.62	0.39	0.39	0.43	0.52	0.53

(Notes) (i) \*\*\* denote statistically significant at 1%,

\*\* denote statistically significant at 5%,

\* denote statistically significant at 10%.

(ii) T-statistics are provided below every coefficient.

Table 2. Main results for all goods

for Equation (2)

	1962~2009			1962~1989			1989~2009		
	TRADE(1)	EM(2)	IM(3)	TRADE(4)	EM(5)	IM(6)	TRADE(7)	EM(8)	IM(9)
<i>NRPTA</i>	-0.232**	-0.126	-0.106	-0.419	-0.115	-0.304	-0.040	0.049	-0.089
	-2.201	-1.57	-1.049	-1.217	-0.442	-0.953	-0.32	0.49	-0.68
<i>L5.NRPTA</i>	-0.073	-0.132	0.059	-0.455	0.163	-0.618*	0.056	-0.011	0.067
	-0.59	-1.403	0.498	-1.233	0.583	-1.805	0.44	-0.11	0.50
<i>L10.NRPTA</i>	-0.064	0.028	-0.091	-0.2	-0.172	-0.028	-0.263	0.015	-0.277
	-0.376	0.215	-0.563	-0.46	-0.523	-0.07	-1.39	0.09	-1.38
<i>PTA</i>	-0.078	-0.111	0.033	-0.659	0.711	-1.371*	0.323	0.176	0.147
	-0.77	-1.443	0.342	-0.78	1.114	-1.75	2.49	1.66	1.07
<i>L5.PTA</i>	-0.064	-0.136*	0.072	0.084	-0.061	0.146	0.079	-0.027	0.107
	-0.604	-1.69	0.711	0.471	-0.452	0.876	0.66	-0.28	0.84
<i>L10.PTA</i>	0.076	0.069	0.006	-0.18	0.069	-0.249*	0.088	-0.297	0.385**
	0.78	0.94	0.068	-1.187	0.604	-1.773	0.62	-2.55	2.54
<i>FTA</i>	0.181*	0.055	0.126	.	.	.	0.355**	0.160	0.195
	1.833	0.731	1.331	.	.	.	3.09	1.7	1.6
<i>L5.FTA</i>	-0.077	-0.399***	0.322***	.	.	.	0.105	-0.206	0.311**
	-0.656	-4.466	2.86	.	.	.	0.89	-2.14	2.49
<i>L10.FTA</i>	0.237	-0.05	0.287**	.	.	.	0.123	-0.341*	0.464**
	1.601	-0.447	2.024	.	.	.	0.76	-2.58	2.7
<i>CU</i>	0.598***	0.342***	0.256*	.	.	.	0.260	0.039	0.221
	3.974	2.986	1.774	.	.	.	1.08	0.20	0.87
<i>L5.CU</i>	0.043	-0.442***	0.485***	.	.	.	0.212	-0.308	0.520***
	0.241	-3.286	2.859	.	.	.	1.31	-2.33	3.03
<i>L10.CU</i>	0.101	-0.088	0.19	.	.	.	-0.064	-0.524***	0.460**
	0.564	-0.645	1.1	.	.	.	-0.34	-3.41	2.31
Number of observations	25,463	25,463	25,463	10,856	10,856	10,856	12,360	12,360	12,360
R <sup>2</sup>	0.68	0.63	0.57	0.54	0.50	0.51	0.49	0.64	0.57

(Notes) (i) \*\*\* denote statistically significant at 1%,

\*\* denote statistically significant at 5%,

\* denote statistically significant at 10%.

(ii) T-statistics are provided below every coefficient.

## B. By sector<sup>17</sup>

Tables 3–6 show separately the effects of different levels of EIAs: Table 3 for NRPTAs, Table 4 for PTAs, Table 5 for FTAs, and Table 6 for CUs. These tables take into account the exports of all sectors pooled together as well as the specific sectors defined in Section V as shown in Table B. In addition, regressions of the entire period of 1962–2009, and the sub-period of 1989–2009 are shown separately. These tables show the convenience of distinguishing among different divisions: in the previous sub-section, when all goods were pooled together, negative or not significant coefficients were frequently obtained, especially true in the case of the shallower EIAs –NRPTAs and PTAs. However, those results could lead to misleading interpretations, as Tables 3 and 4 show that this could be due to sectoral aggregation.

For the shallower EIAs, the positive effects of NRPTAs on trade are found in non-ferrous metals (s68), vegetables and fruit (s05), cereals (s04), and leather and footwear (s99) in the current period for Equation (1), and only in sector 05 for Equation (2). This means that the estimated coefficients for Equation (1) may include effects that go beyond the current period. In all the above mentioned sectors, the effects on trade are explained mainly by the IM. The table also shows a long-term effect on trade only in iron and steel (s67), which is also explained by the IM. Road vehicles (s78) and general industrial machinery (s74) show a long-term effect of shallower EIAs, but these cases are explained by the EM.

When regressions are run for the sub-period 1989–2009, similar conclusions are reached, but the effect is lower for sectors 68 and 05 and greater for sectors 04 and 99. It is not surprising that the IM of sectors 04 and 05, which suppose exports of primary goods, has increased considerably, as these sectors are homogeneous, and then, there is a lower margin for diversification. Nevertheless, it is important to note also that the IM has increased to a greater extent in some industrial manufactures (s68) over the second sub-period (second wave of regionalism), except for the case of sector 99 that has experienced a greater increase of the EM in the long term. This result shows that non-reciprocal EIAs have increased the concentration of the export matrix in LAIA countries among the most traded goods. In sum, the (short-term) main effect was reflected on the intensive margin in the most recent sub-period in non-ferrous metals (s68), vegetables

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<sup>17</sup> This section includes the results for different sectors and for Equation (1) and (2). We only include the results for the second sub-period; as the estimates for the period 1962–1989, the estimation of a number of coefficients is not allowed due to the lack of enough observations. The full results are available upon request.

and fruit (s05), cereals (s04), and leather and footwear (s99).

Table 4 shows that throughout the period, PTAs have a positive effect on trade in the current period in the case of non-ferrous metals, vegetables and fruit, cereals, and leather. Similar to NRPTAs, the effects are explained by the IM. For the long term, there is evidence of a positive effect on trade only for vegetables and fruit, general industrial machinery and iron and steel; the IM also dominates. In the case of non-ferrous metals and cereals, there is a positive effect on the IM in the long term, but it is compensated with a significant and negative effect on the EM which yields a non-significant effect on the total trade. There is no evidence of a positive effect on the EM, except for electrical machinery (s77) in the current period. Furthermore, there is an additional effect on trade in the current period for electrical machinery and iron and steel when the period 1989~2009 is taken into account. For the same period, there is evidence of a long-run effect on trade for general industrial machinery.

In relation to Table 5 and for the period 1962~2009, there is a positive and significant effect on trade for electrical machinery, non-ferrous metals, vegetables and fruit, cereals, and leather in the current period. For all these sectors, the effect mentioned above is explained by the IM except for electrical machinery and vegetables and fruit, where the EM coefficients are positive and significant but they represent only 30% of the total increase in trade. For electrical machinery and vegetables and fruit, the effects on trade were maintained in the long term. For example, if a LAIA country engages in FTA, its exports of vegetables and fruit increase by 1074% ( $(e^{2.463} - 1) * 100$ ), and about 50% of this effect is achieved after ten years. Only with positive and significant long-term effects on trade, we can mention the sector of iron and steel (s67), general industrial machinery (s74), and textiles (s65). In all cases, these effects are explained by the IM.

In the second sub-period, as has been previously found for the case of NRPTAs and PTAs, the positive and significant effects of FTAs are reflected mainly in the IM, excluding the case of sector 67 (iron and steel), which presents a positive and significant effect of the 5-year lag of FTA on the EM. Finally, the obtained results show that the FTAs signed in the Latin American region have not had positive consequences in terms of trade margins in the sector of road vehicles (s78), which, in fact, is the most important sector of the total value of exports from the region as shown in Table B. Another aspect worth mentioning is the positive effect on trade in the current period for iron and steel (s67) and general industrial machinery (s74) when the second sub-period is considered.

Overall, Table 6 shows that CUs (Mercosur and Andean Community) present the most important effects and for a broader number of the selected sectors in the region.

However, several differences among sectors must be mentioned. First, the coefficients obtained in the current period are much higher in magnitude in almost all of the considered sectors than the coefficients for all goods pooled together. However, sector 78 (road vehicles) presents a considerably lower coefficient than the rest of selected sectors. This might be due to the fact that although this sector has the most important participation of LAIA members, it has shown special conditions that affect trade exchanges. This issue is highly controversial and has been accentuated within Mercosur and, particularly, between Brazil and Argentina over the recent years. Second, CUs have a positive and significant effect on the EM in the current period for the case of sectors 77, 05, 67 and 04 and also for the 5-year lag in the case of 67; surprisingly, two of these sectors (05 and 04) are primary goods and agricultural manufactures. Third, CUs increase the IM in the current period for all sectors. Fourth, the 5-year lag of CUs presents a positive and significant effect on the IM in the case of sectors 77, 05, 67, and 65, but the 10-year lag of CUs is only positive and significant on the IM for sectors 77 and 05. With respect to the sub-period 1989~2009, as Latin American CUs were signed in the 1990's, the results obtained throughout the period are explained by the evolution of the most recent wave of regionalism. However, the obtained results show that it is important to take into account a long-time period in order to analyze differential timing and test whether positive effects are more persistent over time in trade margins.

Concerning specific sectors, and in line with results obtained in previous research (Baier *et al.* 2011 and 2014, Florensa *et al.* 2013 and 2014), Customs Unions show more significant effect than partial trade agreements. Our results show that in the case of sector 99 (leather, leather manufactures, and footwear), the strongest positive effects on trade margins are for CUs, shown in Table 6 on the IM, but only in the current period. On the other hand, the NRPTAs have fostered growth of this type of industrial manufactures (which represent 1.5% of the value of exports from LAIA) to a greater extent in the EM in the long term as shown in Table 3.

**Table 3. Effects of NRPTAs on trade**

		1962~2009			1989~2009		
		TRADE(1)	EM(2)	IM(3)	TRADE (4)	EM (5)	IM (6)
All sectors	NRPTA- Equation (1)	-0.288***	-0.027	-0.263***	-0.068	-0.059	-0.011
	NRPTA- Equation (2)	-0.232**	-0.126	-0.106	-0.040	0.049	-0.089
	L5.NRPTA	-0.073	-0.132	0.059	0.056	-0.011	0.067
	L10.NRPTA	-0.064	0.028	-0.091	-0.263	0.015	-0.277
Sector 78	NRPTA- Equation (1)	-1.248***	-0.335***	-0.911***	-0.991***	-0.615***	-0.375
	NRPTA- Equation (2)	-1.681***	-0.604***	-1.077***	-1.806***	-0.558**	-1.248***
	L5.NRPTA	0.108	-0.280	0.388	0.098	-0.273	0.371
	L10.NRPTA	-0.369	0.660**	-1.029*	-0.767	0.330	-1.098*
Sector 77	NRPTA- Equation (1)	0.132	0.270***	-0.136	0.376*	0.165	0.213
	NRPTA- Equation (2)	-0.155	0.223	-0.378	0.085	0.054	0.031
	L5.NRPTA	0.325	-0.104	0.430	0.370	-0.222*	0.592**
	L10.NRPTA	0.590	-0.005	0.595	0.638	-0.243	0.881**
Sector 68	NRPTA- Equation (1)	0.532**	-0.135	0.668***	0.475*	-0.361***	0.836***
	NRPTA- Equation (2)	0.187	-0.296*	0.482	-0.122	-0.599***	0.477
	L5.NRPTA	-0.864**	-0.455**	-0.409	-0.735*	-0.545***	-0.189
	L10.NRPTA	0.138	0.298	-0.160	0.104	-0.123	0.227
Sector 05	NRPTA- Equation (1)	0.922***	0.386***	0.536***	0.624***	0.039	0.587***
	NRPTA- Equation (2)	0.722***	-0.039	0.761***	0.429*	-0.320**	0.749***
	L5.NRPTA	-0.085	0.047	-0.132	-0.215	-0.302**	0.087
	L10.NRPTA	0.390	-0.071	0.461	-0.249	-0.397*	0.148
Sector 67	NRPTA- Equation (1)	-0.274	-0.129	-0.145	0.319	0.018	0.302
	NRPTA- Equation (2)	-0.651*	-0.467**	-0.183	0.023	-0.569***	0.592
	L5.NRPTA	1.231***	0.206	1.025***	1.432***	0.290	1.141***
	L10.NRPTA	0.624	0.42	0.204	-0.304	-0.150	-0.154
Sector 74	NRPTA- Equation (1)	-0.585***	-0.328***	-0.258*	-0.002	-0.213*	0.210
	NRPTA- Equation (2)	-0.412*	-0.343***	-0.069	-0.329	-0.357***	0.027
	L5.NRPTA	-0.031	0.017	-0.048	0.288	0.002	0.286
	L10.NRPTA	0.470	0.516***	-0.047	0.012	0.026	-0.014
Sector 04	NRPTA- Equation (1)	1.780***	0.154	1.628***	1.852***	0.634***	1.218***
	NRPTA- Equation (2)	-2.580***	-1.960***	-0.621	-0.615	0.104	-0.719
	L5.NRPTA	-0.369	-0.419	0.051	-0.530	-0.076	-0.454
	L10.NRPTA	-0.364	0.409	-0.774	0.280	-0.285	0.565
Sector 65	NRPTA- Equation (1)	-0.398***	-0.218**	-0.182	-0.573***	-0.241*	-0.334*
	NRPTA- Equation (2)	-0.516**	-0.424***	-0.092	-0.536**	-0.715***	0.179
	L5.NRPTA	0.063	0.221	-0.158	-0.445*	0.189	-0.633**
	L10.NRPTA	-0.852***	0.018	-0.870***	-0.882**	-0.335	-0.548
Sector 99	NRPTA- Equation (1)	0.388**	-0.110	0.498**	0.553**	0.132	0.421
	NRPTA- Equation (2)	-0.160	0.114	-0.274	1.379**	0.090	1.290*
	L5.NRPTA	-0.416	-0.081	-0.335	-0.143	0.227	-0.370
	L10.NRPTA	-0.207	0.283	-0.490	0.053	1.056***	-1.002*

(Notes) \*\*\* denote statistically significant at 1%,

\*\* denote statistically significant at 5%,

\* denote statistically significant at 10%.

**Table 4. Effects of PTAs on trade**

		1962~2009			1989~2009		
		TRADE(1)	EM(2)	IM(3)	TRADE (4)	EM (5)	IM (6)
All sectors	PTA- Equation (1)	-0.007	0.123**	-0.130*	0.191*	-0.148*	0.340***
	PTA- Equation (2)	-0.078	-0.111	0.033	0.323	0.176	0.147
	L5.PTA	-0.064	-0.136*	0.072	0.079	-0.027	0.107
	L10.PTA	0.076	0.069	0.006	0.088	-0.297	0.385**
Sector 78	PTA- Equation (1)	-0.610***	0.047	-0.657***	-0.466	-0.347**	-0.120
	PTA- Equation (2)	-1.083***	-0.322	-0.761*	-0.739	-0.077	-0.662
	L5.PTA	0.187	0.033	0.154	0.083	-0.173	0.255
	L10.PTA	-0.411	0.122	-0.533	-0.730	0.381	-1.112**
Sector 77	PTA- Equation (1)	0.208	0.146**	0.063	0.389*	-0.268**	0.658***
	PTA- Equation (2)	-0.562**	-0.127	-0.435*	0.044	0.009	0.035
	L5.PTA	0.316	-0.062	0.378*	0.277	-0.058	0.336
	L10.PTA	-0.060	-0.233**	0.173	0.012	-0.322**	0.335
Sector 68	PTA- Equation (1)	0.799***	-0.126	0.925***	0.782***	-0.316**	1.097***
	PTA- Equation (2)	-0.028	-0.129	0.101	-0.397	-0.345*	-0.052
	L5.PTA	0.277	-0.454**	0.731**	0.407	-0.542**	0.950**
	L10.PTA	-0.606*	-0.338*	-0.268	-0.832	-0.678*	-0.154
Sector 05	PTA- Equation (1)	1.015***	-0.002	1.021***	0.957***	-0.157	1.118***
	PTA- Equation (2)	0.968***	-0.197	1.165***	1.058***	-0.184	1.242***
	L5.PTA	-0.177	-0.236	0.060	-0.086	-0.447***	0.361
	L10.PTA	1.037***	-0.270	1.306***	0.335	-0.466*	0.801
Sector 67	PTA- Equation (1)	0.154	-0.188*	0.342*	0.431*	-0.166	0.596**
	PTA- Equation (2)	-0.795**	-0.511***	-0.284	0.096	-0.696***	0.792*
	L5.PTA	1.150***	0.292*	0.858***	1.451***	0.393**	1.057***
	L10.PTA	0.267	0.029	0.237	-0.316	-0.316	0.000
Sector 74	PTA- Equation (1)	0.034	-0.214***	0.249**	0.357*	-0.198*	0.557***
	PTA- Equation (2)	-0.234	-0.265**	0.031	0.203	-0.076	0.279
	L5.PTA	0.126	-0.059	0.185	0.462*	-0.019	0.481**
	L10.PTA	0.462***	0.008	0.454***	0.069	0.112	-0.043
Sector 04	PTA- Equation (1)	1.303***	0.068	1.234***	1.456***	0.076	1.375***
	PTA- Equation (2)	-2.116***	-2.083***	-0.032	-0.325	-0.184	-0.141
	L5.PTA	0.115	-0.915***	1.031**	0.015	-0.598*	0.613
	L10.PTA	-1.116**	0.002	-1.117**	0.052	-0.110	0.162
Sector 65	PTA- Equation (1)	-0.437***	-0.218**	-0.218*	-0.013	-0.256**	0.245
	PTA- Equation (2)	-0.544**	-0.498***	-0.047	-0.057	-0.628***	0.571**
	L5.PTA	0.554**	0.303**	0.250	-0.056	0.251	-0.308
	L10.PTA	-0.894***	0.071	-0.965***	-0.334	-0.654***	0.320
Sector 99	PTA- Equation (1)	0.552**	0.021	0.531***	0.406*	0.084	0.322
	PTA- Equation (2)	-0.308	-0.014	-0.295	0.798	-0.048	0.846
	L5.PTA	-0.331	-0.544**	0.213	0.033	-0.494	0.527
	L10.PTA	0.291	-0.086	0.377	0.223	0.541	-0.318

(Notes) \*\*\* denote statistically significant at 1%,  
 \*\* denote statistically significant at 5%,  
 \* denote statistically significant at 10%.

Table 5. Effects of FTAs on trade

		1962~2009			1989~2009		
		TRADE(1)	EM(2)	IM(3)	TRADE (4)	EM (5)	IM (6)
All sectors	FTA- Equation (1)	0.313***	0.185**	0.129	0.386***	0.002	0.384***
	FTA- Equation (2)	0.181*	0.055	0.126	0.355**	0.160	0.195
	L5.FTA	-0.077	-0.399***	0.322***	0.105	-0.206	0.311**
	L10.FTA	0.237	-0.050	0.287**	0.123	-0.341*	0.464**
Sector 78	FTA- Equation (1)	-0.786***	0.025	-0.812***	-0.422	-0.156	-0.267
	FTA- Equation (2)	-1.287***	-0.300	-0.987***	-0.876**	0.002	-0.877**
	L5.FTA	-0.320	-0.245	-0.075	-0.313	-0.298	-0.014
	L10.FTA	-0.482	0.045	-0.527	-0.834	0.276	-1.110**
Sector 77	FTA- Equation (1)	0.478***	0.139*	0.340**	0.450**	-0.154	0.604***
	FTA- Equation (2)	-0.129	0.031	-0.160	-0.018	0.020	-0.039
	L5.FTA	0.418*	-0.188	0.606***	0.353*	-0.205*	0.558***
	L10.FTA	0.153	-0.245**	0.397*	0.014	-0.347**	0.361
Sector 68	FTA- Equation (1)	0.749***	-0.114	0.863***	0.796***	-0.304**	1.100***
	FTA- Equation (2)	0.273	-0.165	0.438	0.083	-0.297*	0.380
	L5.FTA	-0.063	-0.379**	0.316	0.045	-0.445**	0.491
	L10.FTA	-0.350	-0.399**	0.049	-0.468	-0.641**	0.173
Sector 05	FTA- Equation (1)	1.284***	0.369***	0.917***	1.062***	0.152	0.913***
	FTA- Equation (2)	1.212***	0.095	1.117	1.009***	-0.090	1.099***
	L5.FTA	0.148	0.086	0.062***	-0.108	-0.209	0.102
	L10.FTA	1.251***	-0.415***	1.666***	0.472	-0.628**	1.100**
Sector 67	FTA- Equation (1)	0.293	-0.046	0.339*	0.593**	0.103	0.490**
	FTA- Equation (2)	-0.482	-0.542***	0.06	0.237	-0.611***	0.848**
	L5.FTA	1.233***	0.214	1.019***	1.465***	0.303*	1.163***
	L10.FTA	0.431	-0.022	0.452	-0.118	-0.314	0.197
Sector 74	FTA- Equation (1)	0.137	-0.130**	0.267**	0.434**	-0.095	0.530***
	FTA- Equation (2)	-0.047	-0.253**	0.206	0.253	-0.149	0.402*
	L5.FTA	0.127	-0.115	0.242	0.291	-0.051	0.342*
	L10.FTA	0.401*	-0.080	0.481**	-0.038	-0.029	-0.010
Sector 04	FTA- Equation (1)	0.983***	0.033	0.952***	1.172***	0.044	1.128***
	FTA- Equation (2)	-2.475***	-2.257***	-0.218	-0.491	-0.406	-0.085
	L5.FTA	-0.518	-0.941***	0.423	0.316	-0.327	0.643
	L10.FTA	-1.249**	-0.416	-0.833	0.094	-0.417	0.511
Sector 65	FTA- Equation (1)	-0.216	-0.218**	0.003	-0.011	-0.030	0.022
	FTA- Equation (2)	-0.348*	-0.370***	0.022	-0.017	-0.389***	0.373
	L5.FTA	0.411**	0.005	0.406*	-0.030	0.101	-0.131
	L10.FTA	-0.372*	-0.031	-0.341	-0.115	-0.579**	0.464
Sector 99	FTA- Equation (1)	0.877***	0.011	0.866***	0.439*	0.096	0.342
	FTA- Equation (2)	0.031	-0.132	0.163	1.144**	-0.123	1.267*
	L5.FTA	-0.539*	-0.296	-0.243	-0.440	0.046	-0.486
	L10.FTA	0.509	-0.231	0.741**	0.406	0.485	-0.079

(Notes) \*\*\* denote statistically significant at 1%,

\*\* denote statistically significant at 5%,

\* denote statistically significant at 10%.

**Table 6. Effects of CUs on trade**

		1962–2009			1989–2009		
		TRADE(1)	EM(2)	IM(3)	TRADE (4)	EM (5)	IM (6)
All sectors	CU- Equation (1)	0.914***	0.250***	0.663***	0.778***	-0.058	0.836***
	CU- Equation (2)	0.598***	0.342***	0.256*	0.260	0.039	0.221
	L5.CU	0.043	-0.442***	0.485***	0.212	-0.308	0.520***
	L10.CU	0.101	-0.088	0.190	-0.064	-0.524***	0.460**
Sector 78	CU- Equation (1)	0.679***	0.059	0.620***	0.657**	-0.378*	1.034***
	CU- Equation (2)	1.167**	0.183	0.985**	0.117	0.630	-0.513
	L5.CU	-0.136	-0.653*	0.517	-0.263	-0.863***	0.600
	L10.CU	-0.966*	0.049	-1.015**	-1.330**	0.255	-1.584***
Sector 77	CU- Equation (1)	1.435***	0.224**	1.213***	1.616***	-0.235	1.852***
	CU- Equation (2)	0.145	0.326*	-0.181	-0.299	0.881***	-1.181*
	L5.CU	0.835**	-0.653***	1.488***	0.932***	-0.717***	1.648***
	L10.CU	0.166	-0.379**	0.545**	-0.095	-0.575***	0.480
Sector 68	CU- Equation (1)	1.540***	0.041	1.498***	1.395***	-0.130	1.525***
	CU- Equation (2)	0.397	-0.145	0.542	0.200	-0.413	0.613
	L5.CU	0.046	-0.303	0.348	0.137	-0.422*	0.558
	L10.CU	-0.313	-0.470**	0.157	-0.421	-0.723**	0.302
Sector 05	CU- Equation (1)	1.644***	0.570***	1.078***	1.074***	0.225*	0.853***
	CU- Equation (2)	0.958***	0.116	0.841**	0.883*	-0.030	0.912*
	L5.CU	0.535	-0.245	0.781*	0.447	-0.528***	0.974***
	L10.CU	0.754	-0.475***	1.229***	0.002	-0.756***	0.758
Sector 67	CU- Equation (1)	1.704***	0.240*	1.464***	2.044***	0.405**	1.638***
	CU- Equation (2)	-0.099	-0.948***	0.849*	0.087	-0.944**	1.031
	L5.CU	1.558***	0.505**	1.053**	1.809***	0.566**	1.243**
	L10.CU	0.412	-0.054	0.466	-0.256	-0.331	0.075
Sector 74	CU- Equation (1)	0.318*	-0.066	0.384**	0.963***	-0.189	1.154***
	CU- Equation (2)	0.019	-0.156	0.175	-0.094	-0.169	0.075
	L5.CU	0.113	-0.286*	0.398	0.406	-0.266**	0.672***
	L10.CU	0.213	-0.075	0.288	-0.257	-0.080	-0.177
Sector 04	CU- Equation (1)	2.671***	0.605***	2.066***	2.692***	0.387*	2.305***
	CU- Equation (2)	-0.598	-1.261*	0.662	-0.226	0.966	-1.192
	L5.CU	0.231	-0.701	0.932	0.972*	-0.192	1.164*
	L10.CU	-1.524***	-0.601	-0.923	-0.260	-0.696	0.436
Sector 65	CU- Equation (1)	0.974***	0.039	0.936***	1.026***	-0.047	1.075***
	CU- Equation (2)	0.247	-0.151	0.398	0.063	-1.022***	1.085**
	L5.CU	0.743***	-0.103	0.846***	0.153	-0.170	0.322
	L10.CU	-0.609**	-0.168	-0.441*	-0.231	-0.753***	0.521
Sector 99	CU- Equation (1)	1.691***	0.147	1.544***	1.101***	-0.060	1.161***
	CU- Equation (2)	0.798	0.339	0.460	1.174	-0.285	1.459
	L5.CU	0.084	-0.669*	0.753	0.502	-0.566	1.068
	L10.CU	0.137	-0.350	0.487	0.162	0.331	-0.169

(Notes) \*\*\* denote statistically significant at 1%,  
 \*\* denote statistically significant at 5%,  
 \* denote statistically significant at 10%.

## VII. Conclusion

In order to analyze the effects of economic integration in Latin America on the extensive and intensive margins of trade, we follow the methodology introduced in Baier *et al.* (2011). The analysis is performed for all members of Latin American Integration Association (LAIA) and their bilateral exports to a large group of trading partners over the period 1962~2009; also, two different sub-periods, 1962~1989 and 1989~2009, are analyzed.

Given the economic instability that characterizes the group of the selected exporting countries, different periods of time have been taken into account in order to confirm whether the results over 1962~2009 can be generalized, or dissimilar effects exist according to the period under consideration. Initially, this long time period allowed us to determine whether different effects on trade margins might arise and, then, with the analysis for the two sub-periods, we answered whether the effect of economic integration on trade margins is period-sensitive. In particular, our interest lied in the period after the extension of trade integration agreements and the deepening of the liberalization process in the region. In addition, we distinguished the effects on different sectors selected that represent an average of one-third of the exports in value from LAIA countries over the period 1962~2009.

The obtained results show that the effect of economic integration is both time- and period-sensitive. For the new regionalism, the main positive effects were reflected in the intensive margin for all different types of agreements, not only for primary goods and agricultural manufactures but also for industrial manufactures. Moreover, in line with previous research, we find that deeper economic integration agreements have a greater effect on international trade.

The obtained results also show that it is important to take into account a long time period in order to analyze differential timing and test whether positive effects are more persistent over time in trade margins. In this respect, the results show that the deepest Economic Integration Agreements (EIAs), that is the Customs Union (CU), appear to promote the development of industrial manufactures in the long run, especially in the intensive margin. Therefore, we provide partial evidence in favour of the trade gains of EIAs in Latin America.

Finally, an increase in the Intensive Margins (IM) or in the Extensive Margins (EM) can have a different impact in terms of the structure of production and development

in LAIA countries depending on the sector. For example, an increase of the intensive margin in a sector such as non-ferrous metals has necessarily other implications for the structure of production than an increase in the sector of vegetables and fruit. Therefore, the findings obtained in this paper have important policy implications, in particular, for policies that target economic development. With regard to two strategic sectors in the region, the obtained results show that the Free Trade Agreements (FTAs) signed have not had positive consequences in terms of trade margins in the division of road vehicles. For leather, leather manufactures, and footwear, the strongest positive effect on trade margins are for CUs on the IM, but only in the current period. Otherwise, the Non-reciprocal Preferential Trade Agreement (NRPTA) have fostered growth of this type of industrial manufactures to a greater extent in the EM in the long term.

In this paper, we present the following policy implications with regards to Latin American integration:

- Main results are that the main effects on trade flows occur in the long-term. Also, deeper economic integration agreements have a greater effect on international trade. The effect of economic integration on trade margins is both time and period sensitive. Therefore, it is difficult for the economies in the region to commit into strong objectives due to political and economic instability.
- Changes in the alignment within groups of countries should also be considered (see for example the case of the alignment of Argentina and Ecuador with the Bolivarian strategy).
- Signed agreements might not be respected in the long-run, or might be overridden by new agreements.
- The utility of the recent wave of new agreements in Latin America, which increases the complexity in economic integration in the region, should be taken into account. In fact, it could be argued that to sign a high number of overlapping agreements when the main consequence might be to continue exporting (a higher amount of) the same goods (increase in the intensive margin) is not the best strategy to follow.
- It is worth mentioning that an increase in the extensive margin or in the intensive margin can have a different impact in terms of the structure of production and development depending on the sector: it is not the same to increase exports in primary goods and agricultural manufactures than to increase exports in industrial manufactures.
- Obtained results help decisions about the reconfiguration of the Latin American

region.

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## Appendices

**Table A. List of destination countries**

Afghanistan	Dominican Rep.	Latvia	Seychelles
Albania	Ecuador	Lebanon	Sierra Leone
Algeria	Egypt	Liberia	Singapore
Angola	El Salvador	Libya	Slovakia
Argentina	Equatorial Guinea	Lithuania	Slovenia
Armenia	Estonia	Madagascar	Somalia
Australia	Ethiopia	Malawi	South Africa
Austria	Fiji	Malaysia	Spain
Azerbaijan	Finland	Mali	Sri Lanka
Bahamas	France	Malta	St. Kitts and Nevis
Bahrain	Gabon	Mauritania	Sudan
Bangladesh	Gambia	Mauritius	Suriname
Barbados	Georgia	Mexico	Sweden
Belarus	Germany	Mongolia	Switzerland
Belgium-Luxembourg	Ghana	Morocco	Syria
Belize	Greece	Mozambique	Taiwan
Benin	Greenland	Myanmar	Tajikistan
Bermuda	Guatemala	Nepal	Tanzania
Bolivia	Guinea	Netherlands Antilles	Thailand
Bosnia Herzegovina	Guinea Bissau	Netherlands	Togo
Brazil	Guyana	New Caledonia	Trinidad and Tobago
Bulgaria	Haiti	New Zealand	Tunisia
Burkina Faso	Honduras	Nicaragua	Turkey
Burundi	Hungary	Niger	Turkmenistan
Cambodia	Iceland	Nigeria	UK
Cameroon	India	Norway	USA
Canada	Indonesia	Oman	Uganda
Central African Rep.	Iran	Pakistan	Ukraine
Chad	Iraq	Panama	Un. Arab Emirates
Chile	Ireland	Papua New Guinea	Uruguay
China	Israel	Paraguay	Uzbekistan

**Table A. List of destination countries**

(Continued)

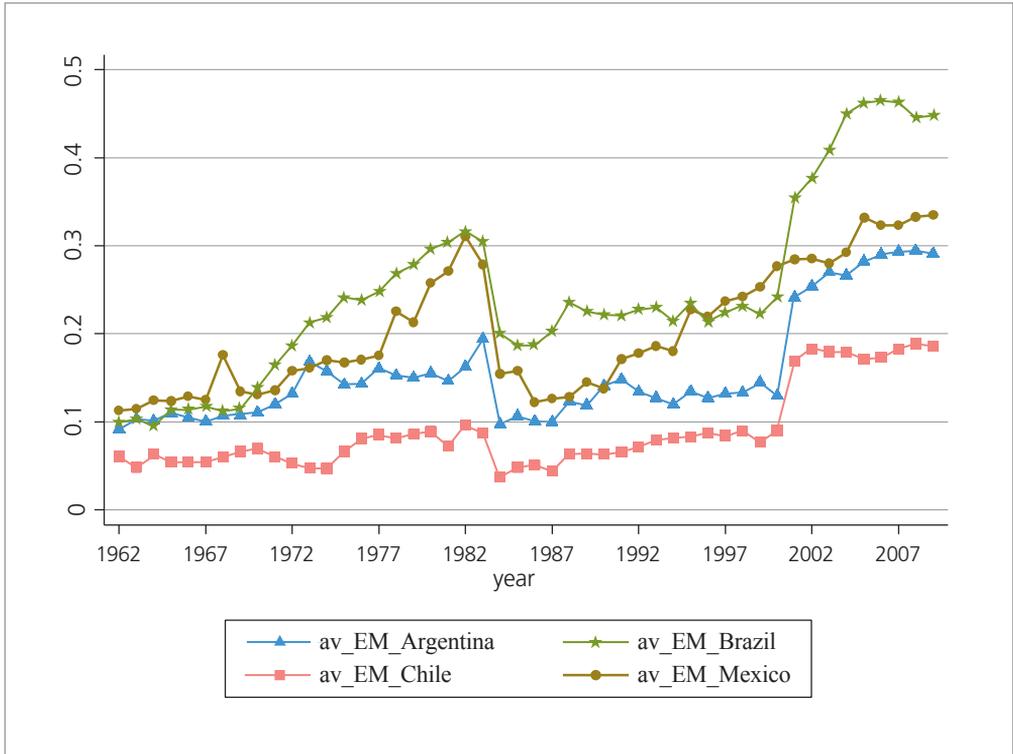
China HK SAR	Italy	Peru	Venezuela
China MC SAR	Jamaica	Philippines	Vietnam
Colombia	Japan	Poland	Zambia
Costa Rica	Jordan	Portugal	Zimbabwe
Croatia	Kazakhstan	Qatar	
Cuba	Kenya	Romania	
Cyprus	Kiribati	Russian Fed.	
Czech Rep.	Korea Rep.	Rwanda	
Czechoslovakia	Kuwait	Samoa	
Denmark	Kyrgyzstan	Saudi Arabia	
Djibouti	Lao People's Dem. Rep.	Senegal	

**Table B. Selected sectors**

(1962~2009)

SITC2	Description	Number of observations	Participation in the number of observations (%)	Participation in the value of exports (%)
78	Road vehicles (incl. air cushion vehicles)	37,172	1.85	8.47
77	Electrical machinery, apparatus and appliances n.e.s.	81,889	4.07	5.33
68	Non-ferrous metals	31,133	1.55	4.76
05	Vegetables and fruit	79,162	3.94	3.80
67	Iron and steel	58,628	2.92	3.17
74	General industrial machinery and equipment and parts n.e.s.	92,717	4.61	2.01
04	Cereals and cereal preparations	30,902	1.54	1.65
65	Textile yarn, fabrics, made-up articles and related products n.e.s.	102,170	5.08	1.21
61	Leather, leather manufactures, n.e.s. and dressed fur skins	30,278	1.51	0.81
85	Footwear	8,321	0.41	0.68
	<b>Total</b>	<b>569,162</b>	<b>28.3</b>	<b>33.07</b>

**Figure A. Evolution of the average extensive margins by country**



**Figure B. Evolution of the average intensive margins by country**

