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The Portrait of Success: Firms in International Trade

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El retrato del éxito: Empresas de comercio internacional

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Resumen

Este artículo plantea un retrato de la heterogeneidad de las empresas asociadas a actividades internacionales, mostrando cómo se diferencian de las empresas orientadas exclusivamente hacia el mercado interno y el impacto de los flujos comerciales a través de varias dimensiones: la situación comercial internacional, los márgenes extensivos de productos y de mercados de las exportaciones e importaciones y el flujo comercial con diferentes tipos de socios comerciales (desarrollados vs. menos desarrollados). Estos primeros enfoques descriptivos se complementan con regresiones por mínimos cuadrados ordinarios y efectos fijos (controlando por sector industrial, años, la propiedad extranjera y tamaño de la empresa), lo que permite la comparación de los resultados obtenidos con los hallazgos de otros países para los que hay estudios similares. Para ello utilizamos datos detallados de aduanas y de encuestas a firmas manufactureras de Uruguay para el período 1997-2006. En línea con trabajos anteriores, encontramos que entre las firmas el comercio internacional está más concentrado que el empleo y las ventas, y que las empresas con comercio bidireccional (empresas que exportan e importan) se desempeñan mejor que aquellas que sólo exportan, sólo importan o las empresas domésticas. Por otra parte, nos encontramos con que el margen extensivo de productos de las importaciones y el margen extensivo de mercados de las exportaciones tienen efectos positivos en dos variables clave: la productividad total de los factores y el empleo. Por último, los resultados también respaldan que las empresas que comercian únicamente con países de altos ingresos exhiben un mejor rendimiento que las empresas que lo hacen únicamente con los socios del Mercosur, pero las empresas con mejor desempeño son aquellas que comercian con ambos mercados.

Palabras clave: comercio internacional, mercado laboral, productividad, exportaciones

Código JEL: F14, F16, J23, O33

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Abstract

This article sets a portrait of firm heterogeneity associated to international activities, showing how they differ from firms oriented exclusively towards the domestic market and the impact of trade flows along several dimensions: trade status, product and country extensive margins of exports and imports, and trade with different type of partners (developed vs. less developed countries). These first descriptive approaches are complemented with regressions by ordinary least squares and fixed effects (controlling for industrial sector, year, foreign ownership, and firm size), allowing the comparison of the results obtained to the findings for other countries for which there are similar works. To this end we use detailed national customs and manufacturing firm survey data of Uruguay for the period 1997-2006. In line with previous works we find that among firms trade is more concentrated than employment and sales, and that two-way traders (firms that both export and import) perform better than only exporters, only importers and domestic firms. Furthermore, we find that the product extensive margin of imports and the country extensive margin of exports have positive effects on two key variables: total factor productivity and employment. Finally, the results are also supportive that firms trading only with high income countries exhibit a better performance than firms trading only with Mercosur partners, but the best performing firms are those that trade with both types of markets.

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1. Introduction

From the mid-90s, the analysis of the microeconomic evidence shows that exporting firms are more productive, more capital intensive and pay higher wages than non-exporters, indicating a high heterogeneity in the performance of firms even within the same industry. These empirical findings hold for developed countries (Bernard et al. 1995 and Bernard and Jensen for the United States 1999) as well as for developing ones (Aw et al. 2000 for Taiwan; De Loecker 2007 for Slovenia; Clerides et al. 1998 for Morocco, Mexico and Colombia; Álvarez and López 2005 for Chile).

The high association between exports and productivity within the same narrowly defined industry could not be explained assuming representative firms as in previous trade models, leading to the development of the so called 'new – new' trade models that incorporate heterogeneity in firms' productivity (Melitz 2003; Bernard et al. 2003; Yeaple 2005; Bernardet al. 2007b; Melitz and Ottaviano 2008). These models predict that a movement to free trade would lead to an increase in the productivity and the size of the firms, reducing the margins of profit (Melitz and Ottaviano 2008) and the number of firms. Melitz (2003) was the first to develop a theoretical model introducing explicitly firm heterogeneity which helps explaining the empirical findings. This author shows that in presence of firm heterogeneity trade opening leads to important distributive effects within industries. Thus, in these new models, trade opening can generate not only the traditional reallocation of resources from industries without comparative advantages towards those with comparative advantages, but also from less productive firms towards more productive ones within the same industry. In these models free trade allows the expansion of the most productive firms that will demand more work and this greater demand pushes the price of wages up, and the least productive firms shrink or exit the market. Since in order to export firms must incur in sunk costs, only firms with high productivity levels can make positive profits in international markets. Moreover, assuming that sunk costs are specific to individual products and destination markets, could explain why most exporters would sell only few products to few countries (Chaney 2008; Helpman et al. 2008). Following the pioneer work by Melitz, new theoretical models introducing extensions in several dimensions, were developed. For instance: Yeaple (2005) allows firms to use two different types of technologies with different fixed costs, Melitz and Ottaviano (2008) introduce asymmetries between trading countries, Kasahara and Rodrigue (2008), Kasahara and Lapham (2013)and Amiti and Davis (2012) introduce imports of intermediate inputs, and Costantini and Melitz (2008) activities of R&D making productivity endogenous. While Bernard et al. (2006,2011) analyse the multi-product and multi-destination character and/or multi-origin of the exporting and importing firms respectively. In summary, most of the recent developments aim at making endogenous the heterogeneity between firms, incorporating decisions of vertical integration (outsourcing), and investments in new technologies, adjustments in the productive mix and in the qualification of the workforce.

Nevertheless, recently some authors have pointed out that exports are only one part of the story, and that import activities also must be analysed to understand the nature of the heterogeneity between different firms (Halpern et al. 2006;[1] Bernard et al. 2009; Kasahara and Lapham 2013; Vogel and Wagner 2010). Thanks to the availability of detailed transaction

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[1]Halpern et al (2006) developed an empirical model that suggests that importers have to face fixed costs to establish business relationship with foreign suppliers. In this model firms would buy foreign inputs into the extent that these goods would determine productivity gains to cover the fixed costs of importing.

data, researchers started to analyse the role of imports, combining information on both the import and export sides (Bernard et al. 2009; Muûls and Pisú 2009; Andersson et al. 2008; Tucci 2005). These studies find a positive association between imports and firms' productivity. The better performance of importing firms may be due to the higher quality of imported inputs or to the transfer of knowledge embodied in imported inputs and capital goods. As in the case of exporters, prior to importing, firms may need to incur in sunk costs related to the search of foreign markets and learning of the customs procedures. These search and learning processes requires the accumulation of technological capabilities, hence the association between imports and productivity could be the result of a self-selection mechanism. Moreover, there could be gains in productivity due to the transfer of knowledge embodied in intermediate inputs and capital goods.

On the other hand there is some evidence on the concentration of exports and imports in a few firms, as well as on their geographical concentration/diversification (Eaton et al. 2004, 2007; Bernard et al. 2007a, 2011; Mayer and Ottaviano 2008; Muûls and Pisú 2009). These works show that export volumes are accounted by a handful of firms which export many products to many countries, while the large majority of firms sell only few products in a limited number of foreign countries. These studies suggest that to understand the heterogeneity between firms and the impact on the levels of productivity it would be necessary to explore the characteristics of the exporting/importing firms ('traders') and different combinations of their trade status as well as their geographical and product/sectoral concentration/diversification, i.e. the extensive margins of trade.

This work contributes to the flourishing literature by providing a detailed picture of internationalized manufacturing Uruguayan firms and their characteristics over the period 1997-2006. Firstly, we describe the pattern of concentration of imports and exports across firms and compare our results with studies for other economies. Then we analyse the country and product extensive margin of trade for both exports and imports, i.e. the diversification in terms of products and geographical markets. This is complemented with information on the level of development (high income countries, Latin American countries and in particular Mercosur's partners) of origin and destination markets, analysing whether the performance premia differ across markets.

Eaton et al. (2004, 2007) have shown that firm heterogeneity translates into substantial differences in exporting participation and the number of markets to which the firm sells. In this work we present some statistics showing the number of main origin/destination countries, and the share of trade flows to the region and to developed countries.

This work sets out a portrait of firm heterogeneity associated with international activities, showing how they differ from firms oriented exclusively towards the domestic market and the impact of trade flows along several dimensions: trade status, product and country extensive margins of exports and imports, and trade with different partners/developed countries. These first descriptive approaches are complemented with regressions by ordinary least squares and fixed effects (controlling for industrial sector, year, foreign ownership, and firm size), allowing the comparison of the results obtained with the findings for other countries for which there are similar works (Altamonte et al. 2013 for Taiwan; Muûls and Pisú 2009 for Belgium; Vogel and Wagner 2010 for Germany, Castellani et al. 2010, for Italy, among others).

Data at the firm level comes from the Encuesta de Actividad Económica from the Instituto Nacional de Estadística. Furthermore, we combine firm level data with trade data from the Dirección Nacional de Aduanas, which records data on the entire population of trade flows

by firm, value and trading partner. Thus, we have a panel for the period 1997-2006 with information of firms' characteristics, exports and imports by country, product and value.

Our results are in line with evidence for developed countries showing that exports and imports are more concentrated that employment and sales, and that most international firms trade only a few products with a small number of countries, but a small number of diversified firms account for most of the trade flows. Furthermore, firms engaged in international activities are more productive, larger in terms of employment and sales, and more capital intensive than firms oriented exclusively towards the domestic market (non-traders), while results for skilled labour are inconclusive. The results for pooled OLS controlling for foreign ownership of capital, size, sector and time) give larger estimates, while when we introduce firm-specific time-invariant effects (fixed effect model) the magnitude of the estimates reduce considerably but are still significant for productivity and total employment.

Additionally, we observe a hierarchy among traders: firms engaged in both import and export activities (two-way traders) are the best performing firms. They outperform both only exporters and only importers. Regarding to country and product extensive margins of trade the most relevant variables from a policy-maker perspective seem to be the product extensive margin of imports and the country extensive margin of exports, with a positive effect on productivity and total employment.

Finally, when we consider trade flows only with high income markets and only with Mercosur' markets we find that firms trading with high income countries exhibit better performance, in particular they are more productive and bigger. Nevertheless, firms that trade with both regions show the highest performance premia.

This work structure as follows: after this introduction, in Section 2 we present the data. In Section 3 we provide evidence of the degree of concentration along country and product extensive margin of imports and exports. In Section 4 we report the results on the association of firms' performance with their internationalization status, along the country and product extensive margins and different markets. Finally, we present some concluding remarks.

2. Data description

2.1 Database

This work relies upon a dataset consisting on a panel of firms and their trade activity over the period 1997-2006 by combining two different sources of data, firm level data and national customs data.

The firm level data comes from the Economic Activity Survey, which is carried out by the National Institute of Statistics of Uruguay (INE) for the years 1997 to 2006. The surveys cover manufacturing firms with more than 5 workers. Each firm has a unique identification number which allows following firms over time. For each firm, the INE collects data on production, value added, sales, employment, wages, exports, investments, capital, depreciation, energy usage, foreign ownership of capital among other variables. In addition, each firm is classified according to its main activity at the 4 digit ISIC level. All variables were deflated by specific price indexes with base year 1997.[2]

Secondly, we use data from the Dirección Nacional de Aduanas [National Direction of Customs] which records exports by the firm in value and country of destination, and we merge these data to the INE database. Export and import data are recorded by the Dirección Nacional de Aduanas at the year-firm –product-country level, i.e. they provide information of trade flows at the 10 digits of the NCM (equivalent to HS) product classification–which we classify in 8 and 6 digits in order to make international comparison-. The countries of destination of exports and origin of imports were classified according to the level of development and the geo-economic region according to the World Bank classification[3] for each year.

We have an unbalanced panel for the period 1997-2006 with 6,767 total observations and 1,014 manufacturing firms,[4] of which 674 had export activity in the period and 875 have imported at least once according to data from the Customs Direction.[5]

We estimate total factor productivity (TFP) using Ackerberg et al. (2006)and Levinsohn and Petrin (2003) methodology, assuming a Cobb-Douglas production function. While for the estimation of TFP using Ackerberg et al. (2006)–henceforth ACF- technique we use gross output, for the Levinsohn and Petrin (2003) methodology -LP- we use value added. We note that in the productivity literature there is an ongoing debate about the appropriate method to estimate TFP. Moreover some authors (Gandhi et al. 2011; Rivers 2009) argue that by using value added as dependent variable could magnify the internalization premium. Labour productivity is defined as value added over total employment and to proxy skilled labour we use two measures: as the share of white collars over total employment and as the share of professionals and technicians in total employment.

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[2] The specific Price indexes were estimated and provided by Susana Picardo, Department of Economics, University of the Republic, Uruguay.

[3] Over the period Uruguay belongs to the medium-high income countries.

[4] The number is lower in 2006 since only those firms with more than 50 workers and/or sales greater than 120 million of pesos per year were surveyed (compulsory stratum). For this reason we use year 2005 to make comparisons in the period.

[5] There is a difference in exporting firms of 7.3 % less firms if we take data from the INE.

2.2. Some stylized facts

As showed in Table A1.1, 56 % of the firms in the sample are exporting firms and 84 % are importers in the year 1997. Thus, like Italy and Sweden, manufacturing Uruguayan firms seem to be much more internationalized than U.S. ones and they tend to import more. The small share of trading firms in U.S. may be explained by its large internal market as well as to the sampling method. Regarding to the sampling method in the case of US all firms are considered while as can be observed in Table A1.1 for Italy the sample includes firms with 20OR more workers. For Sweden the sample includes firms with 10 workers or more and for Uruguay with 5 or more. Thus, the inclusion of smaller firms may reduce the share of firms with international activity due to the sunk costs related to international trade activities. The country most similar to Uruguay in terms of higher openness seems to be Sweden.

Furthermore, our results regarding to concentration are similar to the empirical works for developed countries: trade is more concentrated than employment and sales. Nevertheless, while there seems not to be important differences in the concentration of exports and imports for the US and Belgium, there is a higher concentration of imports in the case of Italy. For Uruguay exports are slightly more concentrated than imports, which could point out that fixed exports costs are higher for exports than for imports. Finally, we note that Uruguay exhibits the lowest concentration indices in relation to previous studies.

In Table A1.2 we present the share of firms according to their internationalization status. We break down the sample into four categories: 1) non-trading firms (domestic), 2) firms that import and export (two-way traders), 3) firms that export but do not import (only exporters) and 4) firms that import but do not export (only importers).

We observe that an important share of firms are engaged in both export and import activities (more than 50 % in both years). Furthermore, one third of firms import but do not export (33 and 27 % in 1997 and 2005 respectively), and only 2 to 4 % of firms export but do not undertake imports in 1997 and 2005 respectively). Thus, most exporters are also importers. Also, we note that the share of importers is higher than the share of exporters for manufacturing firms which also could be pointing out that sunk costs for imports may be smaller than for exports.

Since the Annual Survey of Economic Activities record the amount of imported inputs used by firms we can also distinguish importers of intermediate inputs. As expected we find that this figure is lower than for importers, which can be importers of intermediates, capital or final goods.

Finally, we find a slight reduction in only importing and two-way traders and a slight increase in domestic firms over the period 1997-2005. Nevertheless, since in 2005 the Uruguayan economy was just starting the path of growth after the economic and financial crisis of 2002, so a longer period would be needed to capture accurately the evolution of the internationalization of firms.

In TableA1.3 we present the various trade statuses for each year of the sample period. We note that in 2002 imported intermediates are missing as they were not recorded by the INE, and in 2006 only the compulsory stratum of manufacturing firms were surveyed, biasing the sample in this year towards bigger firms.

The distribution of the various traders varies between sectors. In TablesA1.4.1 and A1.4.2 we present the share of firms according to their trade status by industry at the two-digit ISIC code from 1997 and 2005 respectively. We can observe a high heterogeneity in status

between the various sectors. For instance, if we take 1997 even in the food and beverage industry, a sector in which the country has traditional comparative advantages, nearly half of the firms are two-way traders, 24 % only importers and 25 % domestic oriented. Meanwhile in the Electrical Machinery sector 65 % of the firms are two-way traders, 35 % are only importers and there are no only exporters or exclusively oriented domestic firms.

3. Concentration of international trade activities

The empirical evidence on firms in international trade document that a few firms account for a large volume of aggregate trade (Bernard et al. 2007a for US, Mayer and Ottaviano 2008 for six European countries).[6] Also as Table A1.1 shows, in line with previous empirical works for developed countries international trade of Uruguayan firms is more concentrated than employment and sales, measured by the Gini index.[7] In particular, Uruguayan exports are slightly more concentrated than imports at the firm level, which could point out that fixed export costs are higher than fixed import costs. We note that Uruguay exhibits the lowest concentration indices in relation to studies for other countries.

In Figure A1.1 and A1.2 we also present the Lorenz curve for 1997 and 2005. The Lorenz curve plots the shares in the cumulated value of a given quantity (which in this case is employment, sales, imports, and exports) accounted for the cumulated proportion of firms. The closer the Lorenz curve is to the equidistribution line, the lower the degree of concentration.

For both years trade is more concentrated than sales and employment, while exports are more concentrated than imports. For instance, if we take Figure A1.2, we find that 80 % of firms account for 40 % of employment and less than 20 % of exports.

3.1 Concentration within and between industries

Trade concentration may reflect both a between industry effect (exports and imports are concentrated in few sectors) or a within industry effect (some firms within a sector account for the bulk of trade). The first effect reflects the traditional comparative advantage theory while the second reflects Melitz's model of trade in presence of firm heterogeneity.

In Table A1.5.1 we present the Gini and Theil coefficients of exports, imports, sales and employment for Uruguayan manufacturing firms in 1997 and 2005, in Table A1.5.2 for the whole period by sector, and in Table A1.5.3 we present the decomposition of the Theil index in between sectors and within sector. We observe an increasing concentration over the period for the four variables analysed, though exports and imports are much more concentrated than sales, and employment exhibits the lowest concentration.

We exploit the property of the Theil index, which can be decomposed in between sectors and within sectors components to answer whether concentration of trade is due to sectoral trade specialization or it is a feature that holds for each sector. We find that within inequality explains much more than between inequality between sectors, confirming so that firms' heterogeneity is more important than sector differences, i.e. confirming the new-new trade theories.

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[6] Mayer and Ottaviano (2008) report that the top five percent of exporters account form more than 70 percent of exports in five out of six countries analysed.

[7] The Gini index is a measure of statistical dispersion and is commonly used to represent income distribution of a nation's residents. A Gini index of zero expresses perfect equality, where all values are the same, while a Gini index of one expresses maximal inequality among values.

3.2. Concentration along the extensive margin

It has been observed that international trade is not only concentrated across firms (i.e. small number of firms accounting for most exports and imports) but also along the product and country extensive margins of trade.[8] These results were confirmed in several countries, such as in Slovenia (Damijan et al. 2004), Belgium (Muûls and Pisú2009), Sweden (Andersson et al. 2008) and the US (Bernard et al. 2007a). The three latter studies also analyse imports and find a negative relationship between the number of countries from which firms import (country extensive margin of imports) and the number of firms that imports from those markets. Similar results have been found along the product extensive margin: many firms export (import) few products, and a small number of firms trade in several different products. These stylized facts are also found in the case of Uruguayan manufacturing trading firms.

In Figure A1.3 we depict the number of export destinations (NCE) by firm in 1997, while in Figure A1.4 we present the number of source countries (NCI). Similarly, in Figure A1.6 and A1.7 we present the NCE and NCI for 2005. In other words these figures depict the country extensive margins of exports and imports. In FiguresA1.5 and A1.8 we present the share of firms for both the number of destinations and origin countries for 1997 and 2005 respectively. As can be observed from these figures the frequency of firms declines as the number of trading countries increase, i.e. a lower number of firms trade with several countries while most firms trade with very few ones. In 1997, nearly 27 % of exporting firms serve only one country, while approximately 10 % of importing firms sourced from one country. These figures are 25% for exporters to only one country and 10 % of importers from only one country in 2005.

Moreover, we have already noted that the percentage of importing firms is higher than the percentage of exporting ones. For instance, when we consider eleven countries we find that for both years there are approximately 1 % of exporting firms and 3-4 % of importing ones. The average number of exporting countries in 1997 is 5, with a median of 3, and the average number of importing countries is 7, with a median of 6. Thus, again this could be pointing out to lower sunk costs for imports than for exports.

Finally, in 1997 the support for country extensive margin of exports is [0, 40], while for the country extensive margin of imports is [0, 30] in the same year. In 2005 the support is [0, 39] for the country extensive margin of imports and [0, 49] in the case of exports.

Now we consider the product extensive margins, defined according to the Nomenclatura Común del Mercosur[9] (NCM) at the ten, eight and six digits. For brevity reasons in this work we present the results at eight digits. The picture that emerges is that exports are much less diversified than imports.In FiguresA1.9and A1.12 we depict the number of products exported (NPE) by firm in 1997 and 2005, while in FiguresA1.10and A1.13 we present the number of productsimported (NPI) for the same years. In FiguresA1.11 and A1.14 we present the share of firms for both the number of destinations and origin countries for 1997 and 2005 respectively.

We find that the average number of products exported in 1997 is 6.7 with a median of 4 products, while the percentage of firms that exported only one product is 24 %. On the importing side we find that the average number of imported products is 36 with a median of 19, and only 5 % of the firms imported only one product. Hence, imports are more diversified than

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[8]The extensive margin of export (import) refers to the number of firms involved in exporting (importing) activities, while the product and country extensive margins refer to the number of products and countries in/with which a firm trades goods, and can be thought as a measure of geographical and product diversification. Mayer and Ottaviano (2008) discuss this definition.

[9] The NCM is equivalent to the Harmonised System to classify traded products.

exports. The maximum number of products exported by a firm is 53, while the maximum number of products imported is 415 in 1997.

In 2005 the average number of exported products is 6 with a median of 4, and the average number of imported products is 34 with a median of 18. The maximum number of products exported per firm is 54, and the maximum number of products imported is of 318. Thus, the figures are similar in 1999 and 2005 for exports and imports.

Comparing with the international literature for Belgium the average number of products trade by firm was 12 exported and 34 imported products (Muûls and Pisú 2009), while for US Bernard et al. (2006) report an average of 8.9 products exported and 10 imported products.

Thus, the product extensive margin of exports in Uruguay is lower than for Belgium and US and higher than for France (Eaton et al. 2004). Regarding the product extensive margin of imports results for Uruguay are lower than for Belgium and higher than for the US.

4. Firm heterogeneity and international trade activities

4.1. Firms' characteristics and internationalization status

As commented before, most empirical analysis on the characteristics of internationalized firms focus on exporting firms, and it has been shown that they outperform non-exporters. The empirical evidence shows that in most cases this could be the result of a self-selection effect, which allows the best performing firms to bear the sunk costs associated to exporting. More recently, some studies also show evidence of learning by exporting (Van Biesebroeck 2005; Isgut and Fernandes 2007; Lileeva and Trefler 2010).

Less explored has been import behaviour and firms' characteristics. Some authors (Castellani et al. 2010; Muûls and Pisú 2009; Bernard et al. 2011) have shown that importers exhibit similar characteristics as those observed for exporters. The positive association between importing activities and firms' performance lead to consider the existence of fixed costs to enter into the import market. As in the case of exports, this could be a self-selection process according to which only the most efficient firms can afford to enterthe import market.

Halpern et al. (2006) has developed an empirical model through which imports are associated with productivity improvements through two main channels: the higher quality of imported goods and imperfect substitution among foreign and domestic inputs. In this model importers have to pay a fixed cost every time they buy a new foreign variety of intermediates, so they would buy those varieties into the extent that the gains in productivity out-weight the fixed cost of importing.

Table A1.6 provides some descriptive statistics according to the internationalization status of the firms. In line with previous studies we find that domestic firms are smaller in terms of employment and sales, are less capital intensive and exhibit lower productivity than internationalized firms. Among the group of traders, two-way traders outperform firms engaged only in exporting and only importing activities. Thus, increasing global involvement is associated with better performance. Furthermore, we observe that only exporters are more productive, bigger and more capital intense than only importers. Only importers are in between only exporters and domestic oriented firms: they are bigger in terms of employment and sales, and present higher capital intensity, and total factor productivity, but do not exhibit higher labour productivity than domestic firms. This may be explained by the fact that only importers are firms that sell domestically and import mostly from the region, and to a lower number of source markets (Table A1.6.1). Regarding to skilled labour we observe that only importers and domestic firms have a higher demand for white collars, while two-way traders followed by only importers have the higher share of professional and technicians.

Moreover, it can be observed that two-way traders have a higher presence of multinational firms as expected, followed by only importers. In order to further illustrate these features we present the kernel density distribution for selected variables in Figures A1.15 to A1.19.

4.2. Performance premium and trading status

Now we turn to the estimation of the association between the trading status and firm heterogeneity in performance, i.e. the performance premium by trading status. To this end we estimate the following equation:

$$y_{it} = \alpha_A + \beta_A D_{it}^{TW} + \Upsilon_A D_{it}^{IO} + \Phi_A D_{it}^{EO} + \Theta_A C_{it} + v_{it} \qquad (1)$$

where y_{it} denotes the natural logarithm of sales, employment, TFP measured through Ackerberg et al.(2006) and Levinsohn and Petrin(2003) methodology, labour, and capital intensity. The dummy variables denote the internationalization status of firms, i.e. D^{TW} is a dummy equal one for two-way traders, D^{IO} stands for only importers, and D^{EO} for only exporters. C stands for Controls and denotes a vector of firm characteristics: industry and year dummies and binary variables indicating whether the firms are multinational firms, medium size or big.

In Table A1.7 we present the results for the pooled Ordinary Least Squares estimation, while in Table A1.8 we control for fixed effects by firm. The coefficients β_A, Υ_A and $\Phi_A \Theta$tell us the average premium of the three categories of internationalized firms with respect to domestic ones. We note that these are just associations and they do not have a causal interpretation.

The results for pooled OLS regressions show significant heterogeneity in productivity, size and capital intensity between firms with different degree of internationalization. International firms are more productive, larger and capital intensive than domestic oriented firms. Furthermore, there is a hierarchy among traders: two-way traders are the firms with the highest premia, followed by importers and exporters. These results contradicts the descriptive figures presented before, but may be the result of controlling for size and foreign ownership of capital. Two-ways traders are 17.4 % more productive using ACF techniques, exhibit 47 % higher labour productivity, 98 % higher sales, 90 % higher employment, and are 105 % more capital intensive than domestic firms. Regarding to skilled labour we observe mixed evidence. On one hand there is a negative association between two-way traders and the share of white collars in total employment (SL1), but on the other hand there is a positive association of two-ways traders with the share of professionals and technicians in total employment (SL2). We also observe that importers show higher premium in terms of productivity, size, and capital intensity and white collars in total employment than exporters once we introduce controls. Moreover we should recall that only exporters are very rare: only 2 or 4 % of the firms each year, so most exporters are also importers and this also may drive the results.

When we consider the regressions with fixed effects by firm, which eliminates time invariant heterogeneity –though time variant due to non-observables may be still an issue- the differences between internationalized firms and domestic ones are reduced. Nevertheless, two-way traders continue to show the highest premia in terms of productivity, employment and sales.

Thus we have shown that a few firms account for the vast majority of trade, and that they are larger, more productive and capital intensive. While two-way traders are the best performers and exhibit the highest performance premia, both importers and exporters have a better performance than domestic firms, and there is some evidence than export entry costs are higher than import entry costs: on the one hand there is a small share of exporters but on the other hand the regressions show that importers seem to have a higher productivity premium. Nevertheless, the higher productivity could also be the result of learning by importing. More research is needed on this issue.

4.3. Performance premia and the extensive margins of trade

Now we analyse firm heterogeneity along the extensive country and product margins of trade. We focus on two-way traders in order to determine the relative importance of the link between firm characteristics and the extensive margins, both on the export and import side. To this aim we estimate the following equation:

$$y_{it} = \alpha + \lambda_1 x_{it}^{NPE} + \lambda_2 x_{it}^{NPI} + \lambda_3 x_{it}^{NCE} + \lambda_4 x_{it}^{NCI} + \phi C_{it} + v_{it} \qquad (2)$$

Where y_{it} is a measure of productivity, size or capital intensity in natural logarithm, the x denote logarithm of number of products exported (NPE), number of products imported (NPI), number of destination countries (NCE), number of source countries (NCI). C is a vector of controls that includes foreign ownership of capital, size of the firm, industry and time dummies. When we express our dependent and explanatory variables in logarithms the estimates are the elasticities, which as Castellani et al. (2010)we named "diversification premium of internationalized firms".[10] While λ_1 can be interpreted as the average percentage premium associated with an increase in the number of products exported, λ_2 is the premium of an increase in the number of products imported, λ_3 as the premium associated with an increase in the number of destination countries, and λ_4 the premium associatied with the number of source/origin countries.

In Table A1.9 we report the results for pooled OLS. Even after controlling for firm size, foreign ownership of capital, industry and year effects we observe a positive premia on ACF TFP, employment and sales of the number of products imported (NPI) and the number of destination countries (NCE). Surprisingly, the number of products exported has a not significant effect on most performance variables, a negative effect on capital intensity, and a positive effectt on sales. The number of origin countries (NCI) has a positive and significant effect on capital intensity, which would be consistent with imports of other origins than the region when buying capital goods with a higher technological content. Furthermore, the country extensive margin of imports has a positive effect on sales and the demand for professionals and technicians. For the product extensive margin of imports we find a positive and significant effect of 7 % on ACF TFP, 18 % on labour productivity, 42.6 % on sales, 15 % in employment, and 13 % in capital intensity and a positive significant effect on the share of white collars but not significant on the share of professionals and technicians. We also observe a positive effect of the country extensive margin of exports on ACF TFP, sales, employment and capital intensity, and not significant effect on LP TFP, and labour productivity. Regarding to skilled labour we find a negative effect on white collars over total employment and not significant effect on the share of professionals and technicians of NCE.

In Table A1.10 we present the results when we control for fixed effects by firm, i.e. controlling for unobserved time invariant heterogeneity. We observe that the within estimation reduces the estimated premia but we still find positive and significant effects of the number of products imported on ACF TFP, sales, and employment. The number of products exported has a positive significant impact on sales, employment and on the share of white collars and professionals and technicians.

The country extensive margin of exports - number of destination countries- has also a positive effect on ACF TFP, sales and employment and a negative impact on the share of white collars.

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[10] For skilled labour (SL1 and SL2) to obtain the elasticity we have to calculate: $(1 - exp^{\alpha})$.

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Finally, the country extensive margin of imports has a positive and significant impact on ACF TFP, labour productivity, sales and the share of professionals and technicians.

Thus, the number of products imported, and the number of export countries have a positive effect on two key variables: productivity and employment.

4.4. Performance premia and geo-economic regions

Recent empirical analysis have estimated gravity equations for the aggregate value of exports to a destination, distinguishing between the contribution of the number of firms (extensive margin) and the average value of exports per firm (intensive margin).[11] These studies have shown that the effect of distance on income and bilateral trade flows operate mainly through adjustments on the extensive margin rather than on the intensive margin.

In what follows we analyse the performance premium across markets. To this end we define exporters to high income countries only, exporters to Mercosur partners only, exporters to the region only, and exporters to both high income countries and less developed countries. For imports we perform the same exercise defining importers fromhigh income countries only, importers fromMercosur only, importers fromthe region only and importers fromboth high income and less developed countries (Mercosur and the region). In Annex 4 we report the share of exports and imports by geo-economic areas.

We estimate the following equation:

$$y_{it} = \alpha + \gamma_1 E_{it}^{HI} + \gamma_2 E_{it}^{LD} + \gamma_3 E_{it}^{BOTH} + \gamma_4 I_{it}^{HI} + \gamma_5 I_{it}^{LD} + \gamma_6 I_{it}^{BOTH} + \theta C_{it} + \varepsilon_{it} \quad (3)$$

Where y_{it} are the performance variables: productivity, size, capital intensity, share of skilled labour, E stands for exports and I for imports. HI stands for high income countries only, LD stands for less developed country, i.e. the region and the Mercosur, both stands for firms that export and import both from high income and less developed countries (Mercosur and the region). Again C is a vector of controls that includes foreign ownership of capital, size of the firm, industry and time dummies. Industry dummies are defined at the 3-digit ISIC level.

Developed countries may require higher levels of productivity since product differentiation and market competition are stronger and consumer requirements are higher. Nevertheless, less developed neighbouring countries can be important to gain experience in trading and reaching scale economies, or in other words for "learning to trade". In this regard in previous works, Barboni et al. (2015) find that for the Uruguayan case there is a trajectory where firms first export to neighbouring countries and once they have gained experienced they start exporting to more distant and developed countries.

We present the results for Pooled OLS in Table A1.11. Since trade flows to Mercosur' partners account for most of the trade with the region we report the results for Mercosur' partners. We observe that firms exporting only to high income countries exhibit a higher premium in labour productivity, size (in terms of sales and employment), capital intensity and share of professionals and technicians than firms that export exclusively to Mercosur' countries. Furthermore, we find that the best performing firms are those that export to and import from both high income and Mercosur countries. For exporters to and importers from both high income and Mercosur countries we find that they present the highest premium in terms of

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[11]See Bernard et al. (2007a); Andersson et. al (2008); Mayer and Ottaviano (2008).

productivity, size –in terms of workers and sales-, are more capital intensive and hire a higher share of professionals and technicians. Exporters to both regions present a higher ACF TFP than importers to both markets, higher sales and employment but lower capital intensity and labour productivity. Exporters to both regions also show a higher share of professionals of technicians but a negative association with the share of white collars compared to importers to both regions. The share of white collars has a negative and significant sign for exporters to both types of markets while is positive and significant for importers from both markets.

In Table A1.12 we report the results for fixed effects by firm. As expected we find that some variables lose significance once we control for constant unobserved effects by firm. Again exporters and importers only to the Mercosur are smaller in terms of employment and sales than those firms that export and import exclusively to high income countries. For exporters exclusively to high income countries employment and sales is positive and significant, while importers only from high income countries show higher productivity (ACF) and size (sales and employment).

Furthermore, we find that productivity and size in terms of employment and sales are positive and significant for exporters and importers to both markets. Thus, for exports and imports firms trading with both types of markets outperform firms trading with only one type of country, though imports from high income countries have a positive impact on productivity, sales and employment, while exports to high income countries have only a positive impact on ACF TFP, employment and sales. The impact on skilled labour is negative for exporters to both regions,positive for exports to the Mercosur,or not significant for the rest.

In our agenda is to investigate causal relations, for instance performing instrumental variable estimation, which could be done with Uruguayan own devaluation, or Brazilian devaluation in 1999.

5. Concluding remarks

We present a portrait of Uruguayan manufacturing firms, using a rich data base that combines information on firms' structural characteristics with customs data on exporting and importing activities. We find evidence in line with the new-new trade models that incorporates firm's heterogeneity.

Firstly, we analyse trade (exports and imports), sales and employment concentration. In line with previous works we find that trade is more concentrated than employment and sales.

Then we analyse firms' performance premia for various international statuses (two-ways traders, only exporters, only importers) and we find that two-ways traders are the best performing firms. Thus, firms more engaged in international trade have a better performance. Furthermore, for the Uruguayan case it seems that export trade costs are higher than import entry costs. Further, research is needed in this case since this also has to do with the share of firms importing from neighbouring countries.

Then, we retain the subsample of two-ways traders and we analyse performance premia along the product and country extensive margins. We find that the product extensive margin of imports and the country extensive margin of exports have a positive significant effect on two key variables: total factor productivity (ACF estimates) and the level of employment.

Finally, when we estimate performance premia for firms that trade exclusively with high income countries, with Mercosur countries and with both markets we find that traders to the Mercosur are smaller in terms of sales and employment than those that trade exclusively with high income countries. We note that importers obtain higher premium than exporters. Furthermore, firms that trade with both markets have the highest premium.

Thus, two-way traders, importing several products and exporting to many countries, as well as to various geo-economic markets, make a successful trader in international markets.

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Annex 1: Stylized facts and estimations

Table A1.1: Participation in international trade and concentration

	Uruguay	Italy	United States	Sweden	Belgium
% Exporters	56	71	27	71	41.2
% Importers	83.7	69	14	60	43.2
Gini Exports	0.82	0.825	0.972	---	0.959
Gini Imports	0.78	0.899	0.965	---	0.956
Gini Sales	0.73	0.807	0.916	---	0.873 (value added)
Source	this paper	Castellani et al. (2010)	Bernard et al. (2007a)	Andersson et al. (2008)	Muûls and Pisú (2009)
	Firm level, 1997	Firm-level, 1997	Plant-level, 2002	Firm-level, 2004	Firm-level, 1996
	5 workers or more	20 workers or more	All firms	10 workers or more	all firms
	manufacturing	manufacturing	manufacturing	Manufacturing	manufacturing
Gini Added Value	0.898				
Gini Employment	0.549				

Source: Own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.2: Percentage of firms per status, years 1997 and 2005

	1997	2005
Exporters	56.4	55.1
Imp. intermediates	55.12	50.28
Two-way traders1	38.69	34.57
Two-way traders2	54.11	50.99
Importers	83.68	78,01
Only exporters	2.23	4.11
Only importers	32.52	27.02
Domestic	14.01	17.88
No. Of observations	778	755

Notes: Imp. intermediates: importers of intermediates; Two-way traders1: exporters and importers of intermediates only; Two-way traders2: exporters and importers of intermediates, capital and other final goods; Importers: importers of intermediates, capital and other final goods; Domestic: non-traders firms.

Source: Own elaboration based on data from the National Customs Direction [Dirección Nacional de Aduanas]

Table A1.3: Share of firms according to their internationalization status for the period 1997-2006

Year	Exporters	Imp. intermediates.	Two-way traders1	Two-way traders2	Importers	Only exporters	Only importers	Domestic
1997	0.56	0.55	0.39	0.54	0.84	0.02	0.30	0.14
1998	0.56	0.58	0.39	0.55	0.86	0.02	0.31	0.12
1999	0.58	0.57	0.41	0.56	0.85	0.02	0.29	0.13
2000	0.59	0.56	0.40	0.57	0.85	0.02	0.28	0.13
2001	0.55	0.55	0.37	0.51	0.81	0.03	0.29	0.16
2002	0.52	.	.	0.48	0.77	0.04	0.29	0.19
2003	0.55	0.09	0.08	0.50	0.79	0.04	0.29	0.16
2004	0.54	0.52	0.34	0.51	0.79	0.03	0.29	0.18
2005	0.55	0.50	0.34	0.51	0.78	0.04	0.27	0.18
2006	0.69	0.56	0.43	0.67	0.89	0.02	0.22	0.09
Total	0.56	0.50	0.31	0.53	0.82	0.03	0.29	0.15

Notes: Imp. intermediates: importers of intermediates inputs; Two-way traders1: exporters and importers of intermediates only; Two-way traders2: exporters and importersof intermediates, capital and other final goods; Importers: importers of intermediates, capital and other final goods; Domestic: non-traders firms.

Source: Own elaboration based on data from the National Customs Direction [Dirección Nacional de Aduanas]

Table A1.4.1: Trade status by sector, 1997

Sectors	ISIC rev. 3	Two-way Traders	Only Exporter	Only Importer	Exporters	Importers	Domestic	Foreign owned firms	Number of firms
Food, Beverages	15	48.62	2.75	23.85	51.38	72.48	24.77	10.55	218
Tobacco	16	100.00	0.00	0.00	100.00	100.00	0.00	50.00	2
Textiles	17	72.86	1.43	21.43	74.29	94.29	4.29	8.57	70
Wearing, Apparel	18	69.35	0.00	25.81	69.35	95.16	4.84	4.84	62
Leather, Allied Products	19	71.43	9.52	19.05	80.95	90.48	0.00	14.29	21
Wood Manufacturing	20	19.05	0.00	57.14	19.05	76.19	23.81	0.00	21
Paper, Allied Products	21	66.67	0.00	33.33	66.67	100.00	0.00	16.67	12
Printing, Publishing	22	35.14	2.70	40.54	37.84	75.68	21.62	10.81	37
Coke and Refining	23	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1
Chemical Products	24	68.63	0.98	25.49	69.61	94.12	4.90	26.47	102
Rubber, Plastics	25	56.10	2.44	29.27	58.54	85.37	12.20	4.88	41
Non-Metallic Mineral Products	26	40.00	14.29	34.29	54.29	74.29	11.43	14.29	35
Basic Metals	27	66.67	0.00	22.22	66.67	88.89	11.11	11.11	9
Metal Products	28	32.43	0.00	43.24	32.43	75.68	24.32	5.41	37
Industrial Machinery	29	45.83	0.00	41.67	45.83	87.50	12.50	16.67	24
Office Machinery	30	0.00	0.00	100.00	0.00	100.00	0.00	0.00	1
Electrical Machinery	31	64.71	0.00	35.29	64.71	100.00	0.00	5.88	17
Radio, TV, etc.	32	66.67	0.00	33.33	66.67	100.00	0.00	33.33	3
Medical, Prec., Optical Instruments	33	38.46	0.00	46.15	38.46	84.62	15.38	23.08	13
Motor Vehicles	34	64.71	0.00	23.53	64.71	88.24	11.76	29.41	17
Other Transport Equipment	35	57.14	0.00	28.57	57.14	85.71	14.29	0.00	7
Furniture Manufacturing	36	35.71	3.57	46.43	39.29	82.14	14.29	7.14	28
Total		54.11	2.31	29.56	56.43	83.68	14.01	12.21	778

Notes: Two-way traders: exporters and importers of intermediates, capital and other final goods; Importers: importers of intermediates, capital and other final goods; Domestic: non-traders firms.

Source: Own elaboration based on data from the National Customs Direction [Dirección Nacional de Aduanas]

Table A1.4.2: Trade status by sector, 2005

Sectors	ISIC rev. 3	Two-way traders	Only Exporter	Only Importer	Exporters	Importers	Domestic	Foreign owned firms	Number of firms
Food, Beverages	15	45.83	6.25	20.42	52.08	66.25	27.5	15.17	240
Tobacco	16	100	0	0	100	100	0	50.00	2
Textiles	17	69.64	1.79	25	71.43	94.64	3.57	3.85	56
Wearing, Apparel	18	52	2	30	54	82	16	4.44	50
Leather, Allied Products	19	64	4	16	68	80	16	15.79	25
Wood Manufacturing	20	47.83	13.04	17.39	60.87	65.22	21.74	13.64	23
Paper, Allied Products	21	53.85	0	38.46	53.85	92.31	7.69	23.08	13
Printing, Publishing	22	42.11	2.63	31.58	44.74	73.68	23.68	8.11	38
Chemical Products	24	61.86	1.03	25.77	62.89	87.63	11.34	25.88	97
Rubber, Plastics	25	48.78	4.88	29.27	53.66	78.05	17.07	11.76	41
Non-Metallic Mineral Products	26	27.59	10.34	37.93	37.93	65.52	24.14	7.41	29
Basic Metals	27	88.89	0	11.11	88.89	100	0	25.00	9
Metal Products	28	36.84	2.63	39.47	39.47	76.32	21.05	11.76	38
Industrial Machinery	29	56.25	0	31.25	56.25	87.5	12.5	18.18	16
Office Machinery	30	66.67	0	33.33	66.67	100	0	33.33	3
Electrical Machinery	31	37.5	0	50	37.5	87.5	12.5	6.67	16
Radio, TV, etc.	32	0	0	100	0	100	0	0	2
Medical, Prec., Optical Instruments	33	53.85	0	30.77	53.85	84.62	15.38	8.33	13
Motor Vehicles	34	68.75	0	31.25	68.75	100	0	18.75	16
Other Transport Equipment	35	66.67	0	16.67	66.67	83.33	16.67	16.67	6
Furniture Manufacturing	36	45	5	45	50	90	5	5.88	20
Recycling	37	100	0	0	100	100	0	0	2
Total		51.26	3.97	26.75	55.23	78.01	18.01	13.82	755

Notes: Two-way traders: exporters and importers of intermediates, capital and other final goods; Importers: importers of intermediates, capital and other final goods; Domestic: non-traders firms.

Source: Own elaboration based on data from the National Customs Direction [Dirección Nacional de Aduanas]
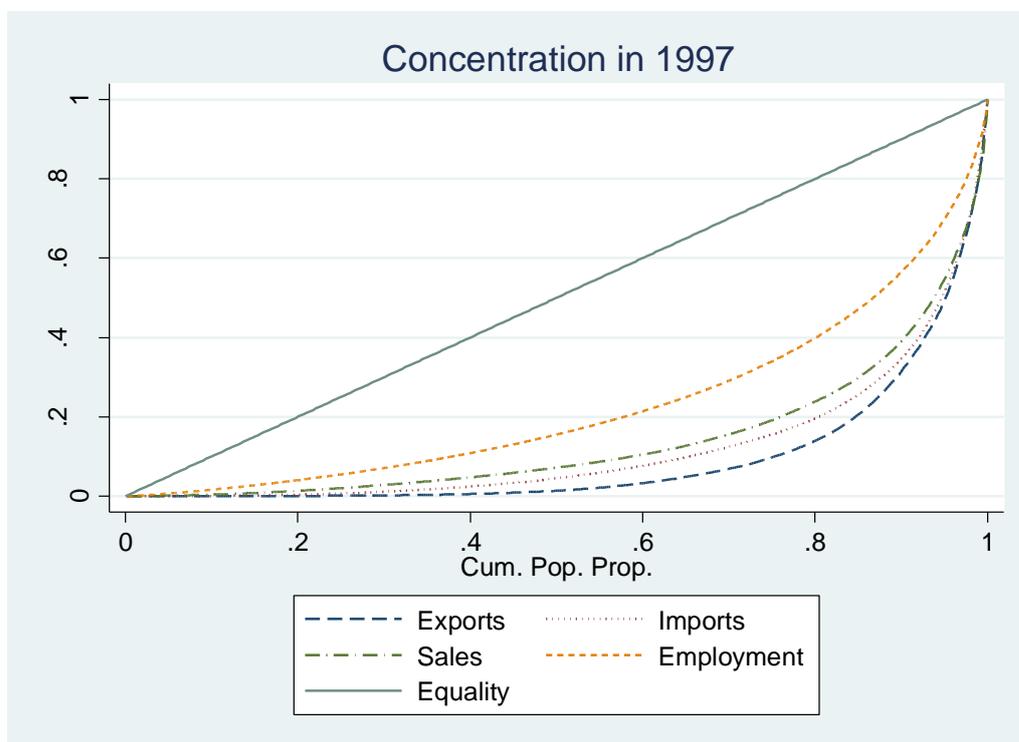
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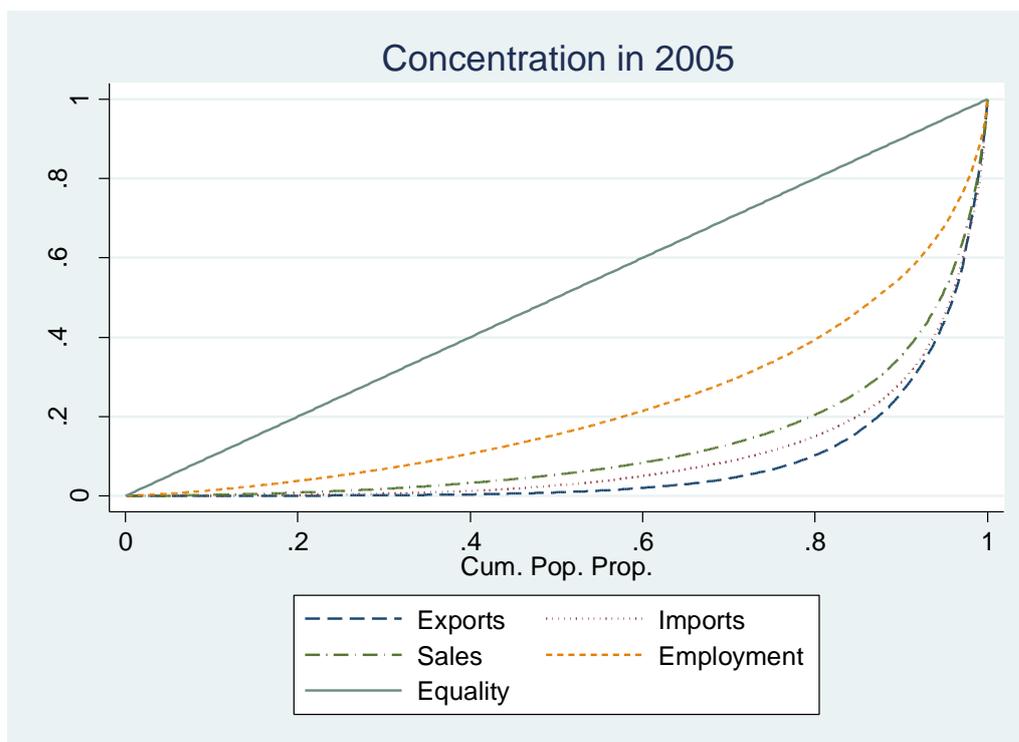**Figure A1.1: Lorenz curve for exports, imports, employment and sales, 1997**

Concentration in 1997

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.2: Lorenz curve for exports, imports, total trade, employment and sales, 2005

Concentration in 2005

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.5.1: Concentration of Uruguayan trade, employment and sales, for the years 1997 and 2005

	1997		2005		Whole period	
Variable	Gini	Theil	Gini	Theil	Gini	Theil
Exports	0.81328	1.44081	0.84257	1.60294	0.82085	1.47077
Imports	0.76104	1.24099	0.80675	1.46864	0.78738	1.36530
Employment	0.54440	0.58589	0.55058	0.61708	0.54830	0.59889
Sales	0.71558	1.12974	0.75008	1.21567	0.73079	1.14934

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.5.2: Concentration of Uruguayan trade for the period 1997-2005

Average Theil 1997-2005	Exports	Imports	Employees	Sales
Food, Beverages	1.278	1.409	0.674	1.103
Tobacco	0.622	0.527	0.349	0.493
Textiles	0.925	0.890	0.493	1.026
Wearing, Apparel	0.827	0.840	0.333	0.535
Leather, Allied Products	1.128	1.324	0.573	1.116
Wood Manufacturing	0.928	1.057	0.289	1.399
Paper, Allied Product	1.026	0.851	0.646	0.840
Printing, Publishing	1.265	0.996	0.523	0.728
Chemicals Products	1.322	1.020	0.299	0.662
Rubber, Plastics	1.533	1.244	0.540	0.946
Non Met. Min. Products	1.236	1.080	0.786	0.984
Basic Metals	0.759	0.707	0.288	0.567
Metal Product	1.902	1.448	0.312	0.669
Industrial Machinery	1.235	1.142	0.269	0.648
Office Machinery	0.210	0.928	0.230	0.383
Electrical Machinery	0.942	0.738	0.413	0.585
Radio, TV, etc.	0.364	1.134	0.226	0.913
Med., Prec., Opt. Instr.	1.017	0.684	0.271	0.363
Motor Vehicles	1.091	1.243	0.298	1.108
Other Transp. Equip.	1.035	0.954	0.586	0.715
Furniture Manufacturing	1.631	1.572	0.565	1.074
Recycling	0.998	0.126	0.419	1.101

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.5.3: Decomposition of the Theil index in between and within sector variation

	Theil		% Between Sectors		% Within Sectors	
	1997	2005	1997	2005	1997	2005
Exports	1.441	1.603	21.2	18.9	78.8	81.1
Imports	1.241	1.469	14.2	18.2	85.8	81.8
Employees	0.586	0.617	7.5	11.7	92.5	88.3
Sales	1.130	1.216	18.5	16.4	81.5	83.6

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.3: Country extensive margins of exports, 1997
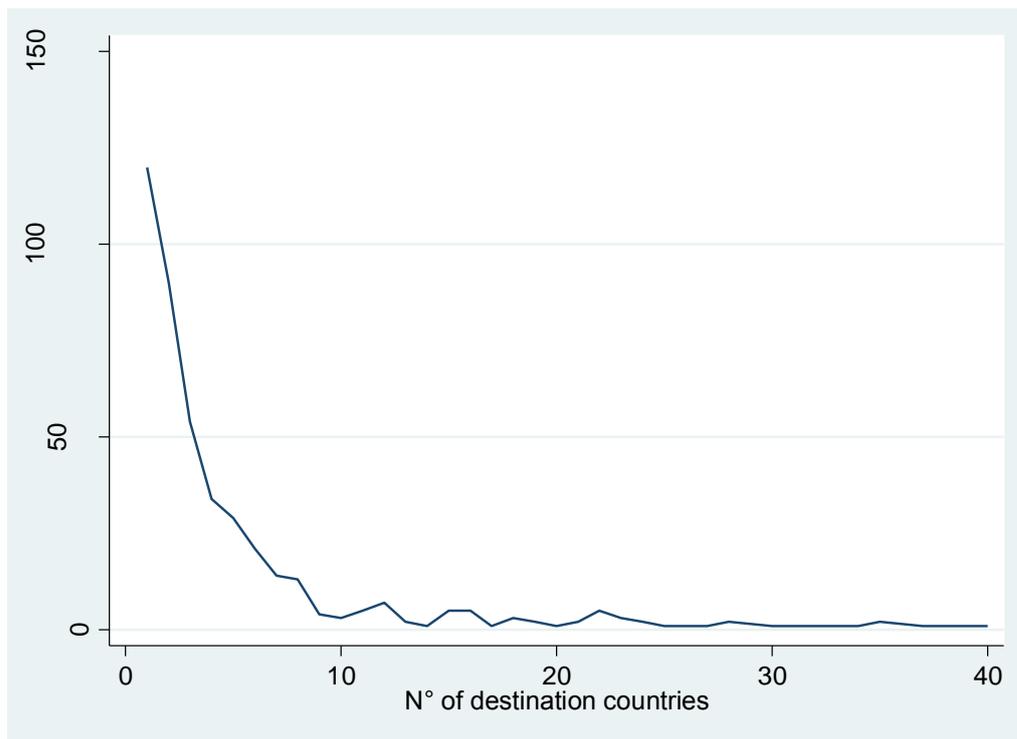
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.4: Country extensive margins of imports, 1997
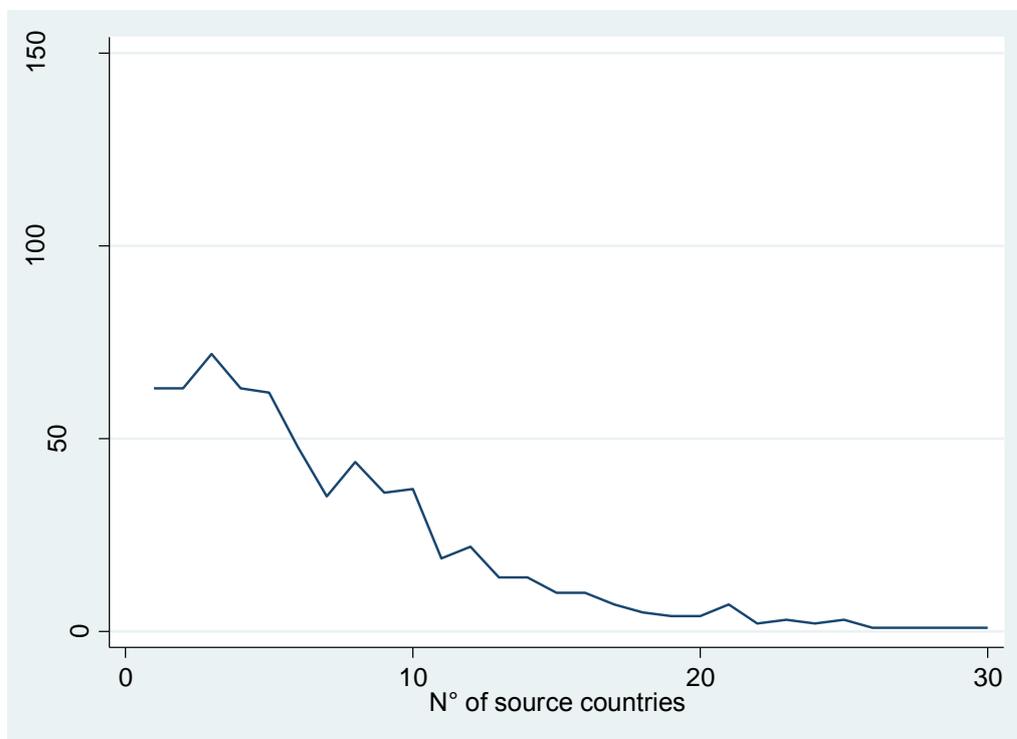
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.5: Country extensive margins of exports and imports, 1997

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.6: Country extensive margins of exports, 2005

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.7: Country extensive margins of imports, 2005

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.8: Country extensive margins of exports and imports, 2005

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.9: Product extensive margin of exports (NCM 8 digits), 1997

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.10: Product extensive margin of imports (NCM 8 digits), 1997

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.11: Product extensive margins of exports and imports (NCM 8 digits), 1997

N° of exported and imported products

- - - - Source ——— Destination

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.12: Product extensive margin of exports (NCM 8 digits), 2005
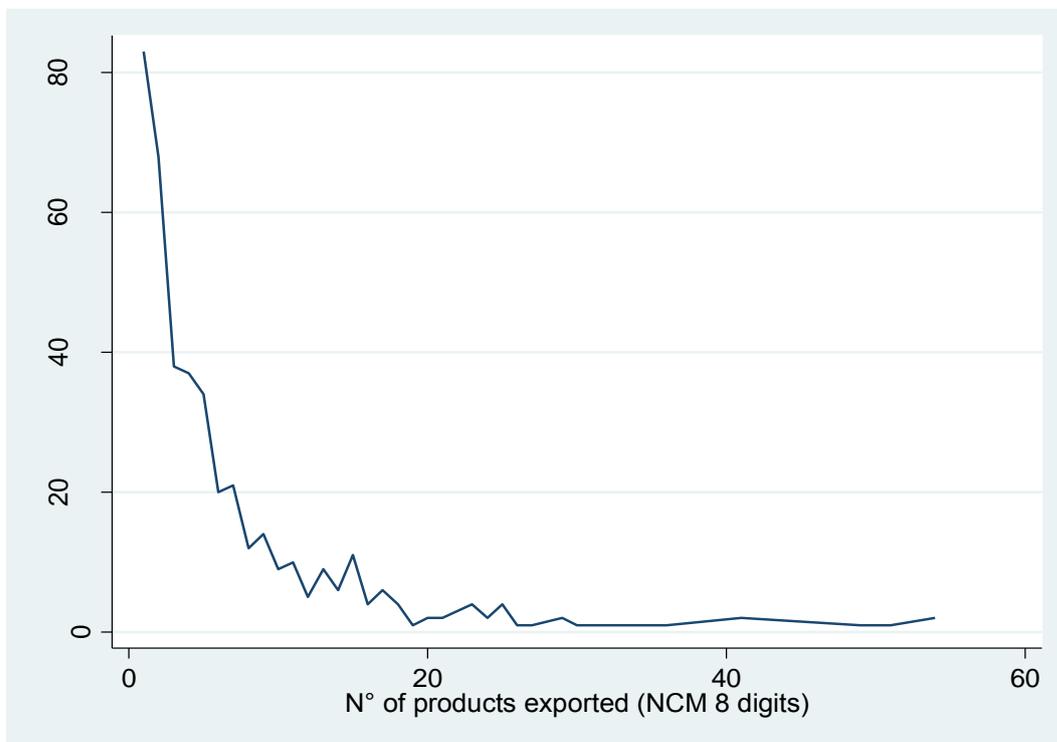
N° of products exported (NCM 8 digits)

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.13: Product extensive margin of imports (NCM 8 digits), 2005
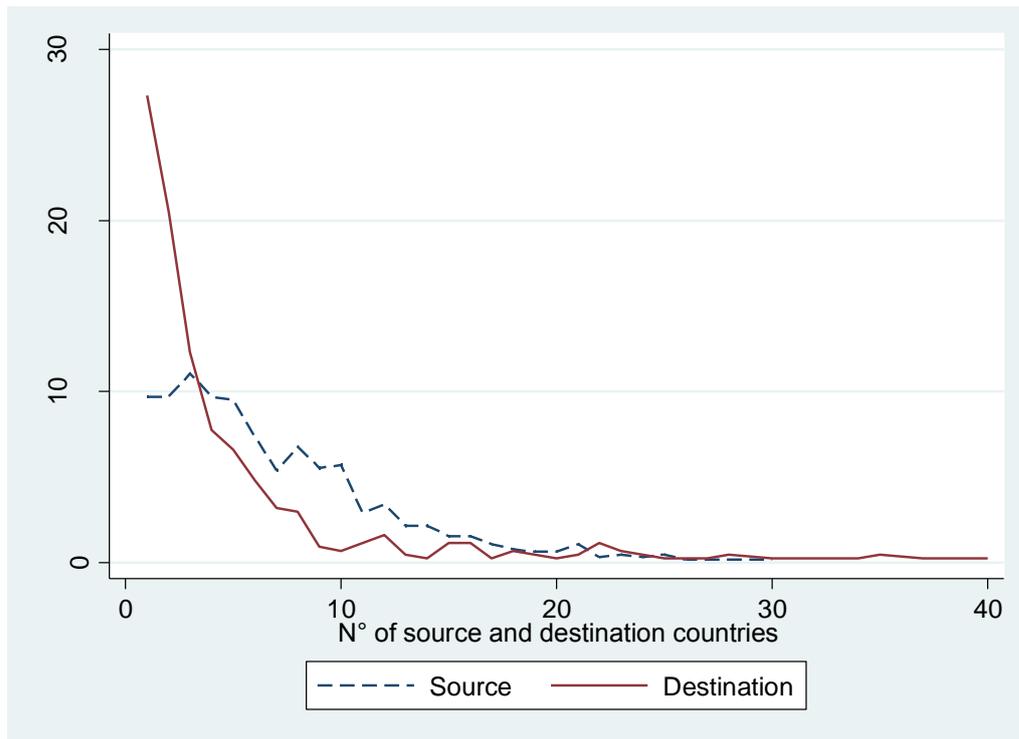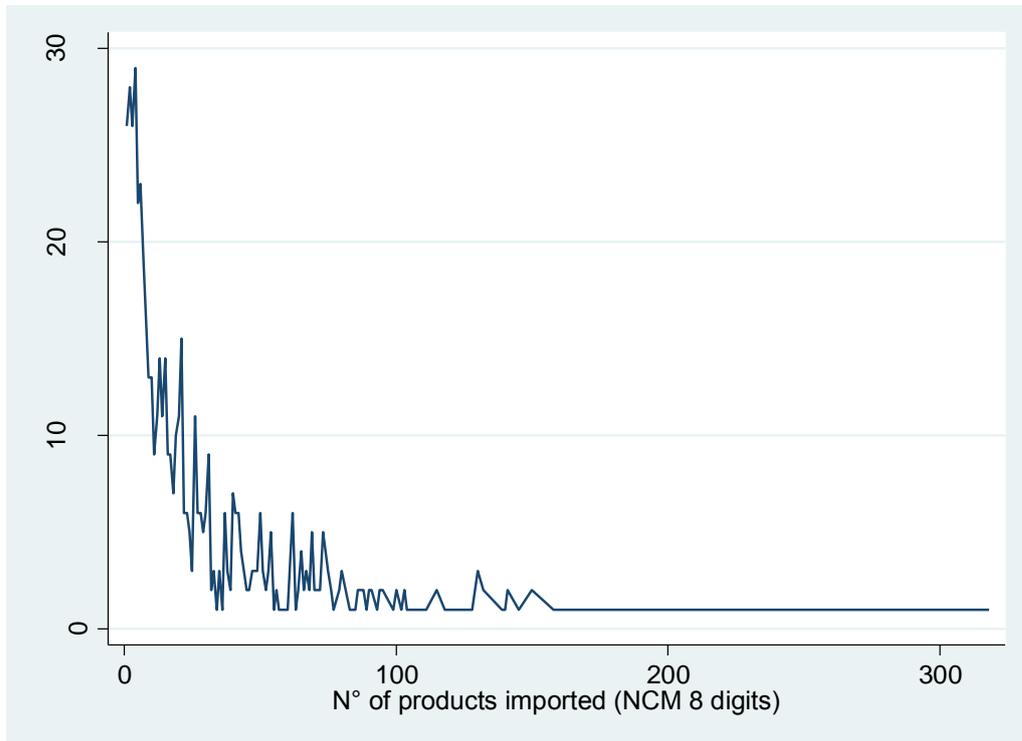

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.14: Product extensive margins of exports and imports (NCM 8 digits), 2005
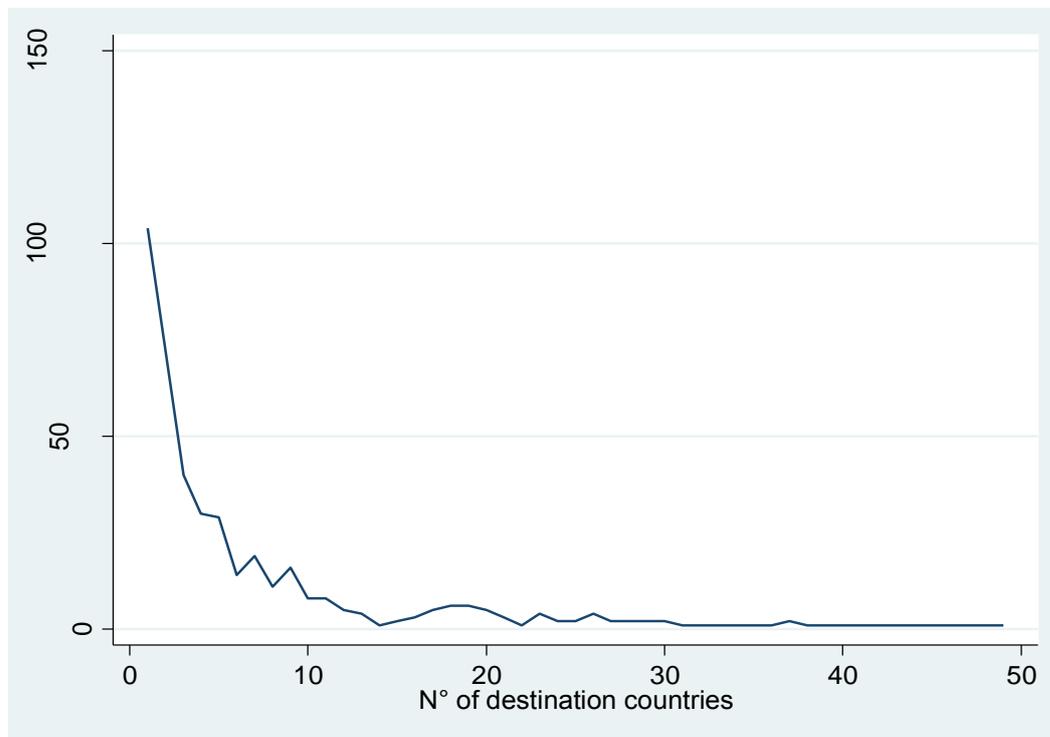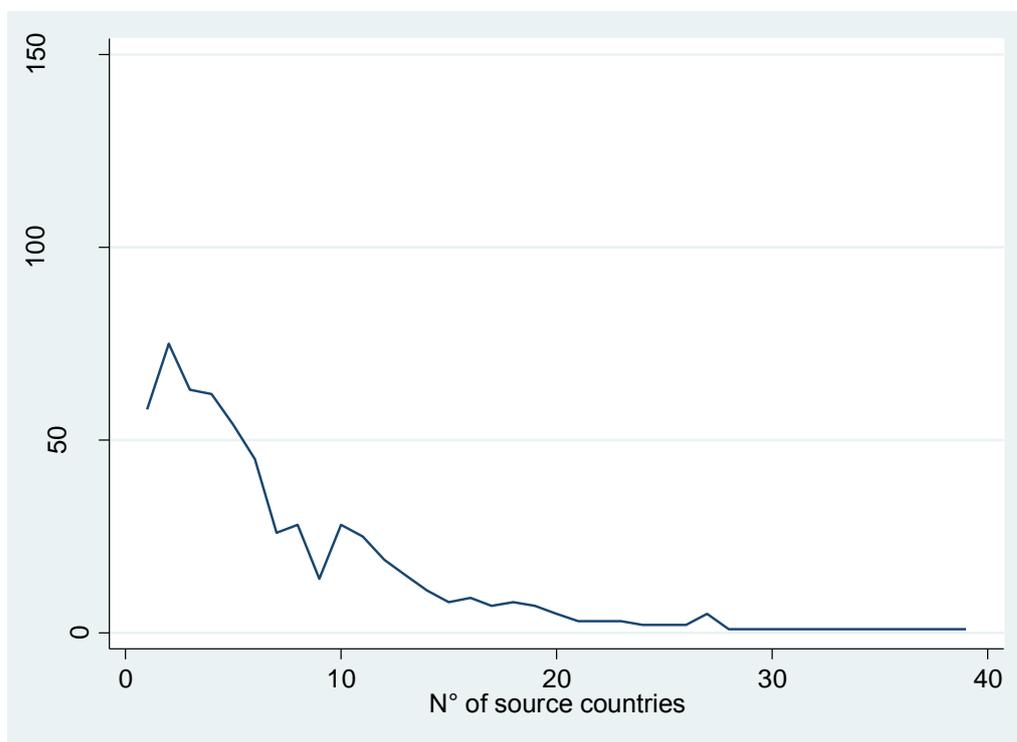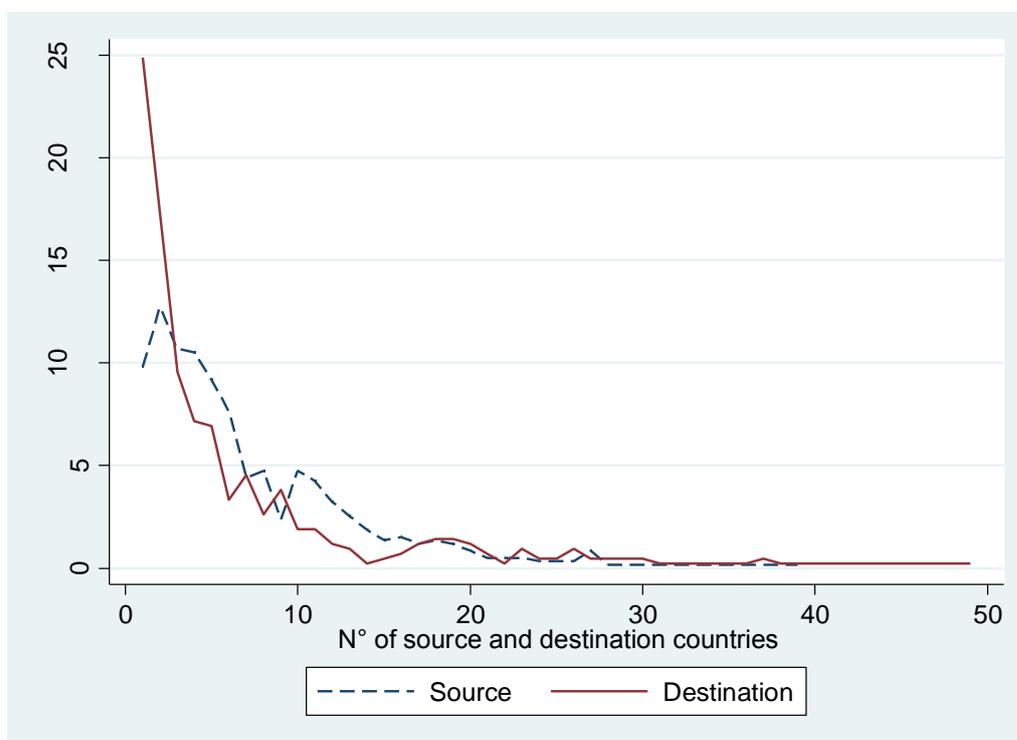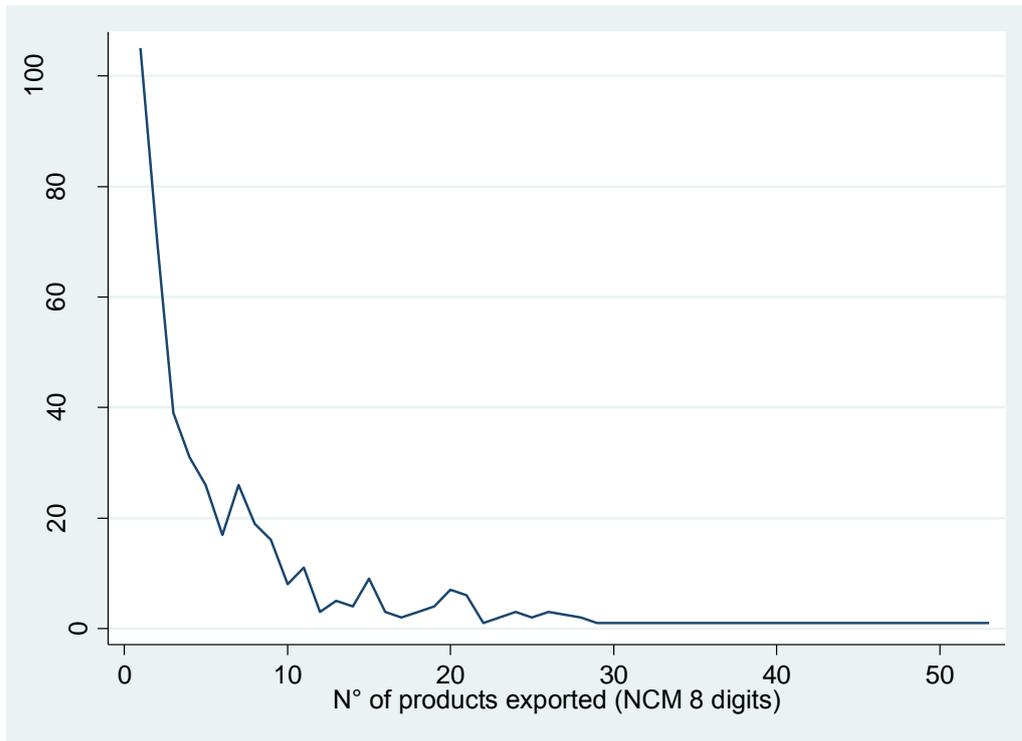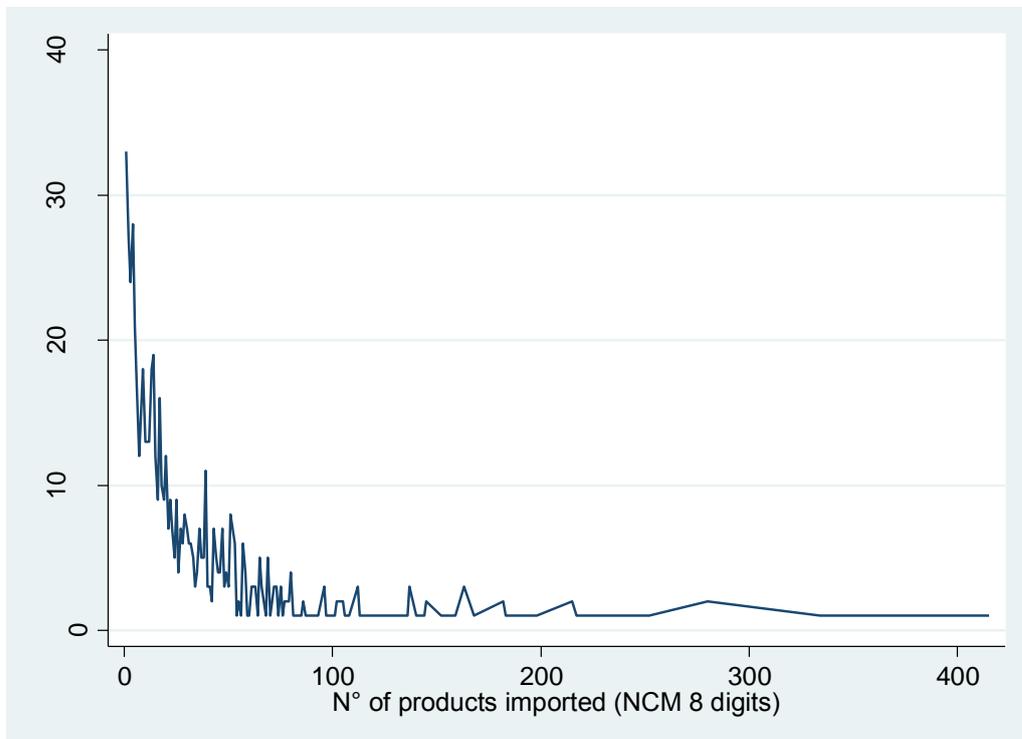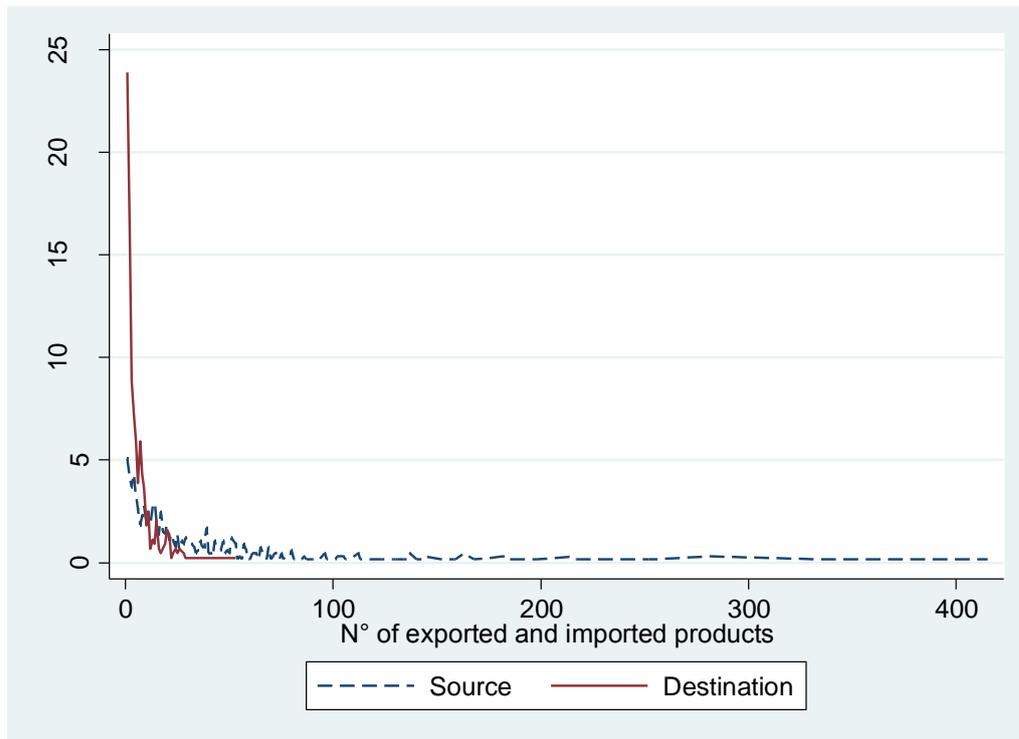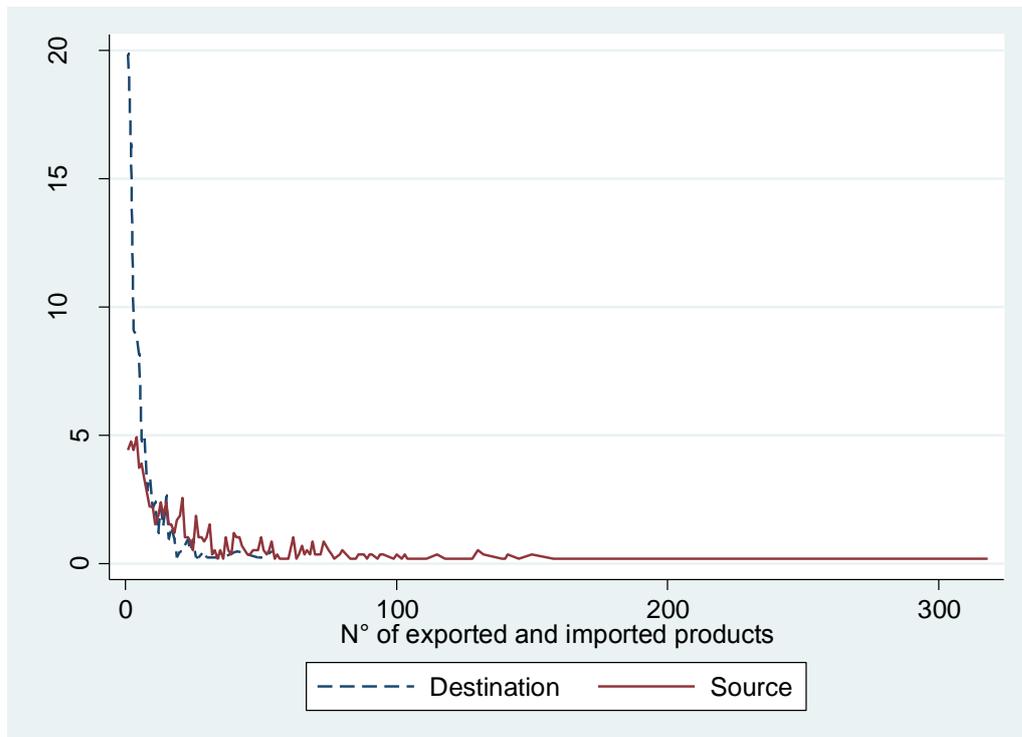

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

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Table A1.6: Descriptive statistics according to the internalization status of the firms, period 1997-2006

	Two-ways	Only Exporter	Only Importer	Domestic	Total
Employment	138	129	58	44	99
Sales (a)	143.00	107.00	28.10	19.90	89.60
Ln TFP ACF	8.14	8.05	7.88	7.80	8.02
Ln TFP LP	10.84	10.83	10.56	10.35	10.68
Capital intensity(b)	315.80	218.53	157.15	111.96	239.82
Labour productivity(b)	276.20	265.17	177.77	193.54	234.12
Multinational Firms	0.2056	0.1696	0.0518	0.0293	0.1308
Skilled labour (c)	0.2407	0.2286	0.2996	0.2887	0.2628
Skilled labour (d)	0.0771	0.0657	0.0679	0.0592	0.0706

Notes: (a) Millions of constant pesos; (b) thousands of constant pesos; (c) skilled labour defined as number of white collars over total employment; (d) skilled labour defined as number of professionals and technicians over total employment. Ln TFP ACF: total factor productivity estimated using (Ackerberg et al., 2006) methodology in natural logarithms; Ln TFP LP: total factor productivity estimated using Levinsohn and Petrin methodology in natural logarithms.
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.6.1: Some features of only importers

Importers only	ACF TFP	Employment	NPI8	NCI	pm_Merc	pm_HIOECD
0	8,071	115	45	9	0.4686	0.3716
1	7,876	58	16	4	0.5429	0.3279
Total	8,016	99	35	7	0.4945	0.3564

Notes: TFP ACF: total factor productivity estimated using (Ackerberg et al., 2006) methodology; Employment: number of workers per firm; NPI8: number of products imported at 8 digit HS; NCI: number of countries of origin of imports; pm_Merc: share of imports from Mercosur partners; pm_HIOECD: share of imports from high income OECD partners.
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.15: Kernel distribution of Total Factor Productivity, Ackerberg et al. methodology, period 1997-2006
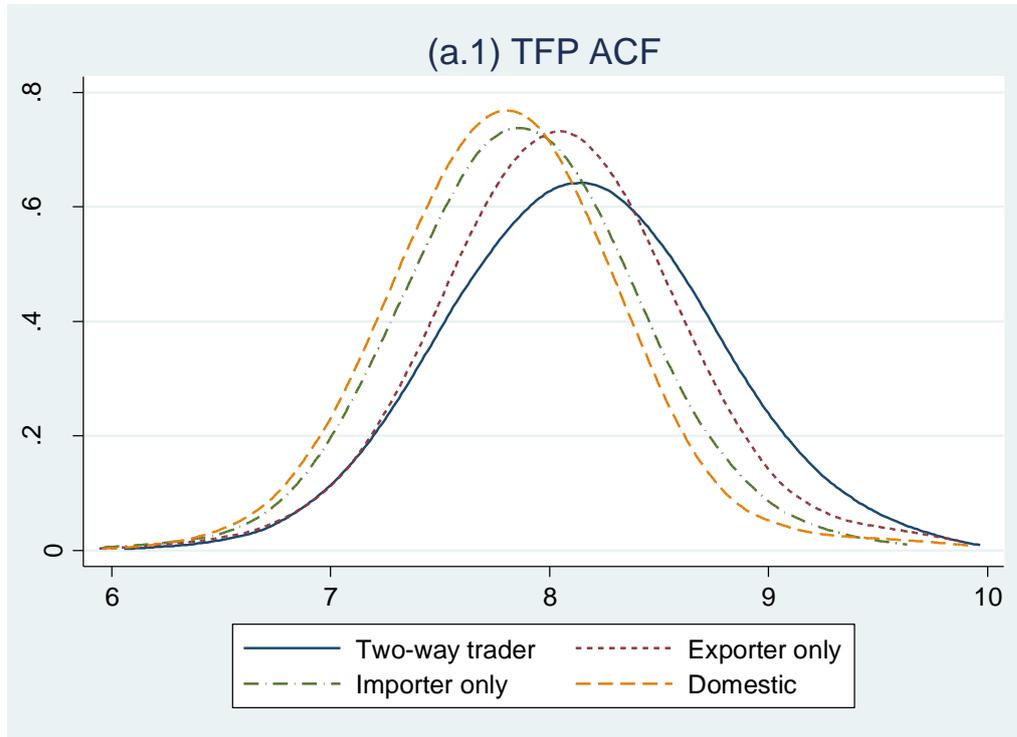
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.16: Kernel distribution of Total Factor Productivity, Levinsohn and Petrin (2003) methodology, period 1997-2006
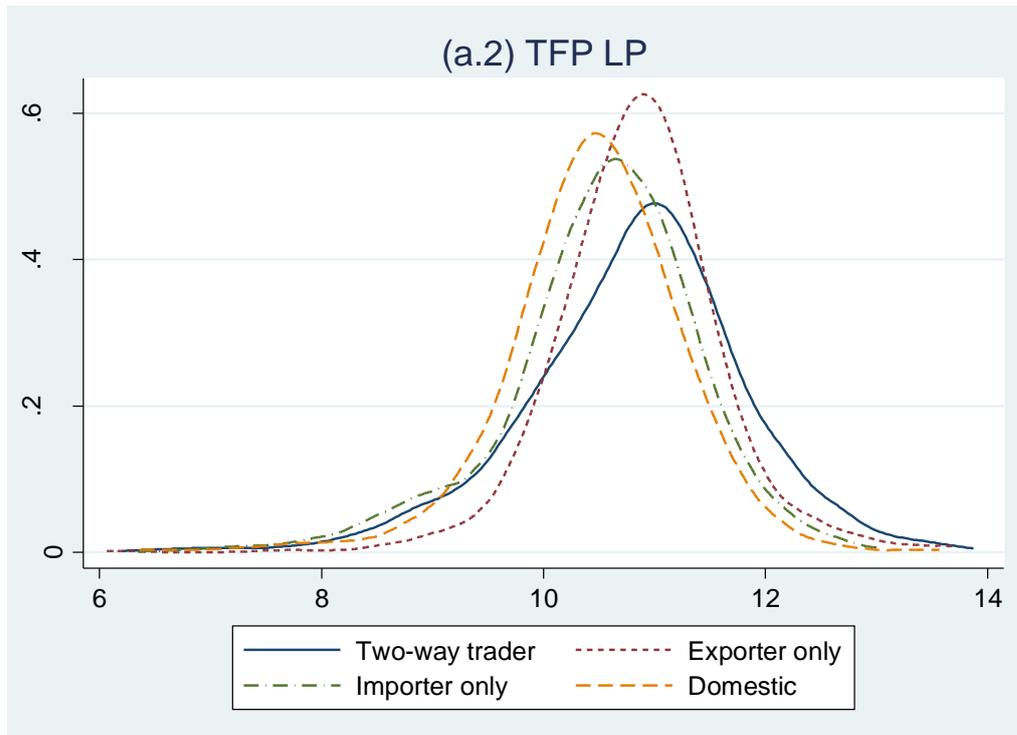
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

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Figure A1.17: Kernel distribution of capital intensity by internationalization status, period 1997-2006
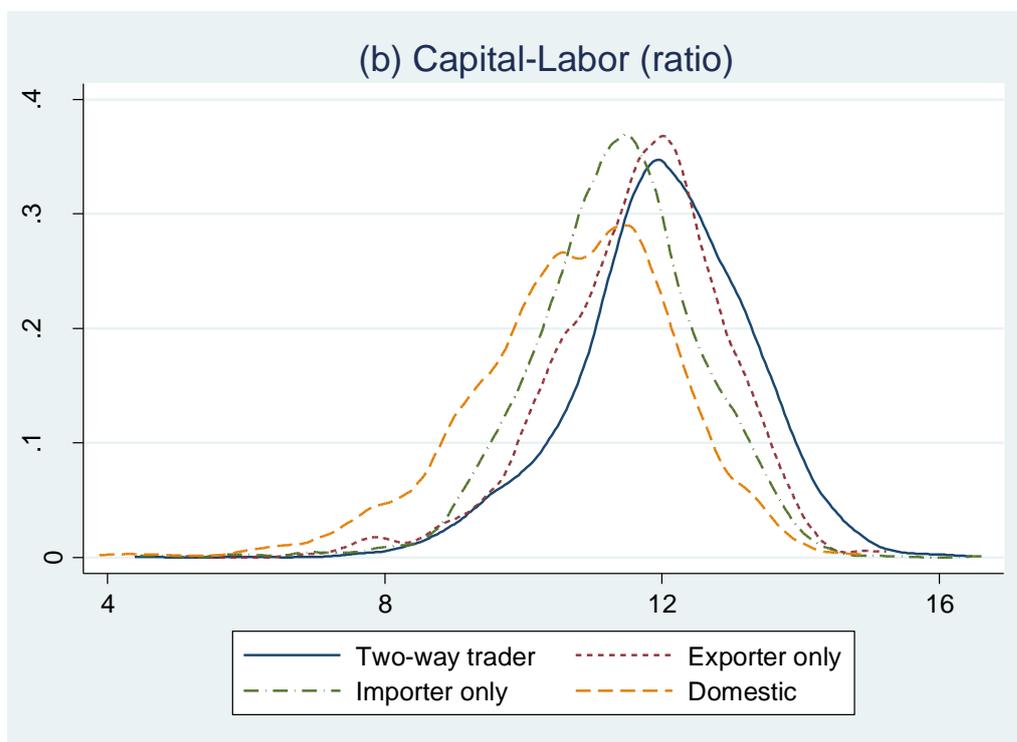
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.18: Kernel distribution of labour productivity by internationalization status, period 1997-2006
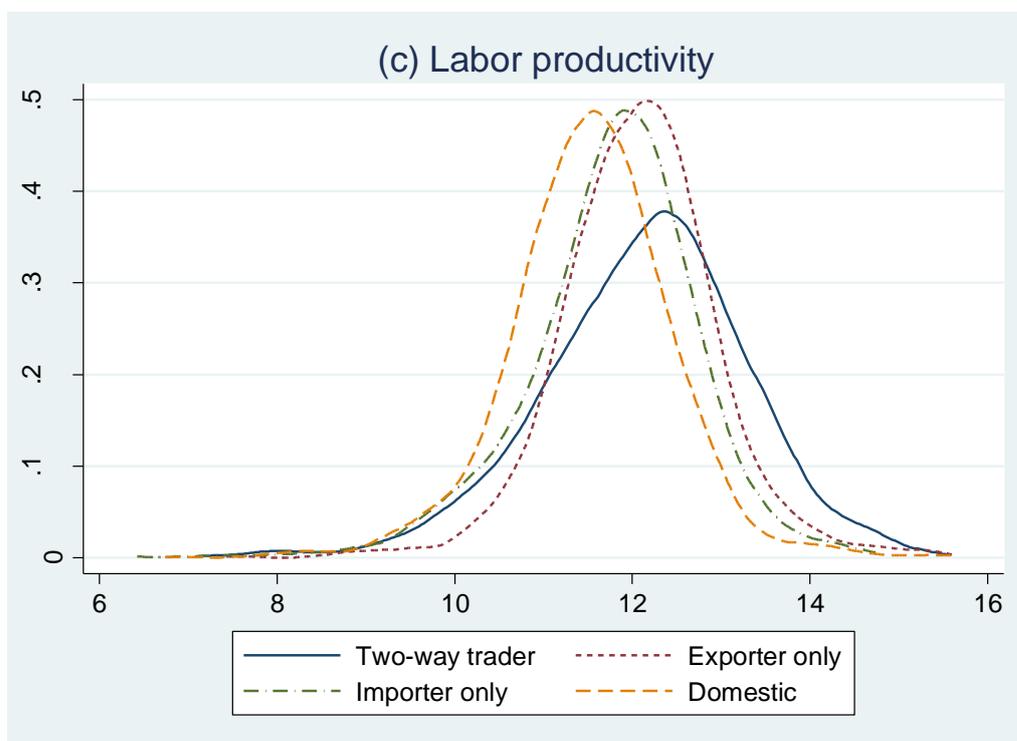
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Figure A1.19: Kernel distribution of employment by internationalization status, period 1997-2006

(d) Employment

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.7: Performance premia by trade statuses, pooled OLS estimation

VARIABLES	(1) Ln TFP ACF	(2) Ln TFP LP	(3) Ln LP	(4) Ln Sales	(5) Ln EMP	(6) Ln KINT	(7) SL1	(8) SL2
Two-ways traders	0.174***	0.232***	0.472***	0.980***	0.898***	1.048***	-0.0149*	0.0164***
	(0.0267)	(0.0362)	(0.0362)	(0.0436)	(0.0291)	(0.0548)	(0.00806)	(0.00287)
Importers only	0.0201	0.145***	0.298***	0.496***	0.291***	0.622***	0.0317***	0.00240
	(0.0255)	(0.0335)	(0.0333)	(0.0425)	(0.0296)	(0.0559)	(0.00893)	(0.00309)
Exporters only	-0.0503*	0.0463	0.117***	0.0513	0.0650*	0.254***	-0.0192**	-0.00313
	(0.0268)	(0.0406)	(0.0419)	(0.0475)	(0.0383)	(0.0565)	(0.00913)	(0.00312)
Multinational firms	0.280***	0.374***	0.526***	0.616***	0.298***	0.533***	0.0357***	0.0377***
	(0.0260)	(0.0393)	(0.0406)	(0.0418)	(0.0335)	(0.0454)	(0.00702)	(0.00424)
Medium	0.0240	0.150***	0.0202			0.0696*	-0.0281***	-0.0266***
	(0.0193)	(0.0289)	(0.0290)			(0.0380)	(0.00641)	(0.00245)
Big	0.116***	0.288***	0.0892***			0.230***	-0.0490***	-0.0335***
	(0.0213)	(0.0312)	(0.0329)			(0.0402)	(0.00668)	(0.00316)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	7.938***	9.974***	10.92***	15.80***	3.993***	10.31***	0.185***	0.0506***
	(0.0411)	(0.0567)	(0.0566)	(0.0701)	(0.0530)	(0.0843)	(0.0133)	(0.00420)
Observations	4,910	5,323	5,989	5,876	6,503	6,123	6,484	5,889
R-squared	0.260	0.300	0.374	0.620	0.299	0.343	0.175	0.227

Notes: Ln TFP ACF: total factor productivity estimated using (Ackerberg et al., 2006)methodology in natural logarithms; Ln TFP LP: total factor productivity estimated using Levinsohn and Petrin methodology in natural logarithms; Ln LP: natural logarithm of labour productivity; Ln Sales: natural logarithm of total sales per firm; Ln EMP: natural logarithm of total number of workers per firm; ln KINT: natural logarithm of capital intensity; SL1: number of white collars over total number of workers; SL2: number of professionals and technicians over total number of workers. Robust standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.8: Performance premia by trade status, Fixed Effects by firm estimation

VARIABLES	(1) Ln TFP ACF	(2) Ln TFP LP	(3) Ln LP	(4) Ln Sales	(5) Ln EMP	(6) Ln KINT	(7) SL1	(8) SL2
Two-ways traders	0.142***	0.105**	0.104**	0.397***	0.238***	0.0104	-0.00684	-0.000545
	(0.0223)	(0.0457)	(0.0428)	(0.0322)	(0.0212)	(0.0374)	(0.00672)	(0.00331)
Importers only	0.111***	0.0810*	0.0768*	0.148***	0.111***	-0.0107	-0.00984	0.00487
	(0.0221)	(0.0442)	(0.0409)	(0.0316)	(0.0207)	(0.0364)	(0.00652)	(0.00323)
Exporters only	-0.00883	0.0586	0.0866**	-0.0293	-0.000710	-0.0456	-0.00185	-0.00414
	(0.0189)	(0.0390)	(0.0374)	(0.0281)	(0.0188)	(0.0323)	(0.00593)	(0.00287)
Multinational firms	0.0439	0.0117	-0.00622	0.0201	0.000404	-0.0179	-0.0131	-0.00860*
	(0.0318)	(0.0681)	(0.0638)	(0.0477)	(0.0317)	(0.0538)	(0.00998)	(0.00489)
Medium	0.0109	0.0406	-0.177***			-0.291***	-0.0338***	-0.0194***
	(0.0192)	(0.0387)	(0.0357)			(0.0306)	(0.00554)	(0.00279)
Big	0.0426	0.122**	-0.332***			-0.567***	-0.0794***	-0.0329***
	(0.0281)	(0.0584)	(0.0541)			(0.0457)	(0.00829)	(0.00414)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	8.114***	10.44***	11.58***	17.11***	3.911***	11.90***	0.262***	0.0671***
	(0.136)	(0.606)	(0.479)	(0.198)	(0.134)	(0.226)	(0.0422)	(0.0203)
Observations	4,910	5,323	5,989	5,876	6,503	6,123	6,484	5,889
R-squared	0.043	0.098	0.071	0.191	0.178	0.107	0.061	0.028
Number of firms	869	913	957	968	971	956	970	970

Notes: Ln TFP ACF: total factor productivity estimated using (Ackerberg et al., 2006)methodology in natural logarithms; Ln TFP LP: total factor productivity estimated using Levinsohn and Petrin methodology in natural logarithms; Ln LP: natural logarithm of labour productivity; Ln Sales: natural logarithm of total sales per firm; Ln EMP: natural logarithm of total number of workers per firm; ln KINT: natural logarithm of capital intensity; SL1: number of white collars over total number of workers; SL2: number of professionals and technicians over total number of workers. Standard errors in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.9: Performance premia along the extensive margins, pooled OLS estimation

VARIABLES	(1) Ln TFP ACF	(2) Ln TFP LP	(3) Ln LP	(4) Ln Sales	(5) Ln EMP	(6) Ln KINT	(7) SL1	(8) SL2
lnNPI8d	0.0668***	0.149***	0.180***	0.426***	0.149***	0.128***	0.0236***	0.00117
	(0.0199)	(0.0338)	(0.0331)	(0.0331)	(0.0139)	(0.0368)	(0.00594)	(0.00267)
lnNPE8d	0.0172	-0.00470	0.00362	0.0766***	0.00664	-0.0602*	0.0114**	-0.00199
	(0.0166)	(0.0260)	(0.0268)	(0.0297)	(0.0112)	(0.0307)	(0.00542)	(0.00238)
lnNCE	0.0789***	-0.00642	-0.0249	0.323***	0.105***	0.122***	-0.0346***	0.00196
	(0.0176)	(0.0278)	(0.0293)	(0.0307)	(0.0127)	(0.0340)	(0.00538)	(0.00251)
lnNCI	-0.0140	-0.0150	0.0328	0.134**	0.00671	0.157***	0.0110	0.0112**
	(0.0321)	(0.0540)	(0.0549)	(0.0567)	(0.0210)	(0.0592)	(0.00891)	(0.00461)
Multinational firms	0.209***	0.236***	0.349***	0.415***	-0.0304	0.431***	0.0122	0.0378***
	(0.0298)	(0.0494)	(0.0491)	(0.0510)	(0.0210)	(0.0540)	(0.00811)	(0.00535)
Medium	-0.0635**	0.0366	-0.0903*			0.708***	-0.0336***	-0.0373***
	(0.0323)	(0.0513)	(0.0519)			(0.0196)	(0.00937)	(0.00456)
Big	-0.0313	0.102*	-0.168***			1.576***	-0.0809***	-0.0523***
	(0.0357)	(0.0579)	(0.0598)			(0.0258)	(0.0111)	(0.00593)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	7.941***	9.354***	10.65***	16.29***	3.299***	11.02***	0.202***	0.0509***
	(0.0587)	(0.120)	(0.117)	(0.0951)	(0.0476)	(0.120)	(0.0163)	(0.00778)
Observations	2,146	2,190	2,385	2,442	2,750	2,622	2,747	2,446
R-squared	0.306	0.366	0.453	0.612	0.821	0.390	0.287	0.306

Notes: Ln TFP ACF: total factor productivity estimated using (Ackerberg et al., 2006)methodology in natural logarithms; Ln TFP LP: total factor productivity estimated using Levinsohn and Petrin methodology in natural logarithms; Ln LP: natural logarithm of labour productivity; Ln Sales: natural logarithm of total sales per firm; Ln EMP: natural logarithm of total number of workers per firm; ln KINT: natural logarithm of capital intensity; SL1: number of white collars over total number of workers; SL2: number of professionals and technicians over total number of workers. Robust standard errors in parentheses, ***p<0.01, **p<0.05, * p<0.1
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.10: Performance premia along the extensive margin, Fixed Effects by firm estimation

VARIABLES	(1) Ln TFP ACF	(2) Ln TFP LP	(3) Ln LP	(4) Ln Sales	(5) Ln EMP	(6) Ln KINT	(7) SL1	(8) SL2
lnNPI8d	0.0423**	-0.0100	-0.0672	0.144***	0.171***	-0.0360	-0.00663	0.00811***
	(0.0178)	(0.0446)	(0.0429)	(0.0237)	(0.0153)	(0.0296)	(0.00530)	(0.00290)
lnNPE8d	0.00255	0.00532	0.0354	0.0649***	0.0431***	0.0325	0.0165***	0.00670***
	(0.0155)	(0.0391)	(0.0379)	(0.0212)	(0.0138)	(0.0259)	(0.00474)	(0.00257)
lnNCE	0.0338*	0.0439	0.00427	0.0978***	0.0379**	-0.00812	-0.00932*	-0.00434
	(0.0186)	(0.0460)	(0.0443)	(0.0250)	(0.0163)	(0.0308)	(0.00558)	(0.00303)
lnNCI	0.0461*	0.102	0.114*	0.0932***	0.0284	0.0419	0.00100	0.00904**
	(0.0262)	(0.0646)	(0.0627)	(0.0354)	(0.0228)	(0.0431)	(0.00782)	(0.00428)
Multinational firms	0.0594	0.0967	0.108	0.0718	0.00561	0.0715	-0.00981	-0.00633
	(0.0376)	(0.0941)	(0.0903)	(0.0516)	(0.0338)	(0.0627)	(0.0116)	(0.00623)
Medium	-0.000158	0.162**	-0.0950			-0.331***	-0.0296***	-0.0176***
	(0.0313)	(0.0755)	(0.0698)			(0.0494)	(0.00872)	(0.00502)
Big	-0.0208	0.194*	-0.333***			-0.609***	-0.0899***	-0.0241***
	(0.0449)	(0.109)	(0.100)			(0.0707)	(0.0125)	(0.00712)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	7.852***	10.01***	11.80***	16.98***	3.553***	12.91***	0.313***	0.120***
	(0.0828)	(0.182)	(0.208)	(0.160)	(0.108)	(0.203)	(0.0369)	(0.0197)
Observations	2,146	2,190	2,385	2,442	2,750	2,622	2,747	2,446
R-squared	0.074	0.102	0.080	0.305	0.283	0.126	0.105	0.037
Number of firms	532	552	581	595	602	587	601	595

Notes: Ln TFP ACF: total factor productivity estimated using (Ackerberg et al., 2006)methodology in natural logarithms; Ln TFP LP: total factor productivity estimated using Levinsohn and Petrin methodology in natural logarithms; Ln LP: natural logarithm of labour productivity; Ln Sales: natural logarithm of total sales per firm; Ln EMP: natural logarithm of total number of workers per firm; ln KINT: natural logarithm of capital intensity; SL1: number of white collars over total number of workers; SL2: number of professionals and technicians over total number of workers. Standard errors in parenthesis; ***p<0.01, **p<0.05, * p<0.1
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.11: Performance premium by market, pooled OLS estimation

VARIABLES	(1) Ln TFP ACF	(2) Ln TFP LP	(3) Ln LP	(4) Ln Sales	(5) Ln EMP	(6) Ln KINT	(7) SL1	(8) SL2
Exporter_HI	0.0334	0.135**	0.168***	0.331***	0.176***	0.213***	-0.0522***	0.00897*
	(0.0430)	(0.0559)	(0.0639)	(0.0818)	(0.0489)	(0.0771)	(0.0126)	(0.00520)
Exporter_Mercosur	-0.132***	0.00461	0.0491	-0.502***	-0.361***	0.0234	0.0236***	-0.00775**
	(0.0216)	(0.0343)	(0.0346)	(0.0453)	(0.0322)	(0.0429)	(0.00659)	(0.00327)
Exporter_both	0.197***	0.0763**	0.162***	1.156***	0.714***	0.492***	-0.0660***	0.0135***
	(0.0219)	(0.0359)	(0.0360)	(0.0431)	(0.0297)	(0.0429)	(0.00726)	(0.00320)
Importer_HI	0.0272	0.101*	0.213***	0.381***	0.175***	0.589***	-0.00157	0.00600
	(0.0396)	(0.0517)	(0.0481)	(0.0712)	(0.0461)	(0.0832)	(0.0132)	(0.00438)
Importer_Mercosur	-0.0960**	-0.240***	0.288***	-0.884***	-0.662***	-0.187**	-0.0280	0.00388
	(0.0483)	(0.0852)	(0.0861)	(0.0892)	(0.0613)	(0.0927)	(0.0187)	(0.00579)
Importer_both	0.0950***	0.231***	0.416***	1.127***	0.556***	0.841***	0.0313***	0.00839***
	(0.0274)	(0.0358)	(0.0349)	(0.0452)	(0.0298)	(0.0551)	(0.00844)	(0.00293)
Multinational firms	0.285***	0.373***	0.522***	0.838***	0.301***	0.531***	0.0340***	0.0386***
	(0.0261)	(0.0391)	(0.0403)	(0.0485)	(0.0325)	(0.0450)	(0.00701)	(0.00424)
Medium	0.0206	0.140***	0.00179			0.0418	-0.0291***	-0.0262***
	(0.0194)	(0.0290)	(0.0289)			(0.0378)	(0.00640)	(0.00247)
Big	0.0966***	0.273***	0.0683**			0.193***	-0.0509***	-0.0331***
	(0.0213)	(0.0318)	(0.0334)			(0.0406)	(0.00677)	(0.00321)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	7.861***	9.975***	10.94***	16.11***	3.886***	10.29***	0.190***	0.0443***
	(0.0392)	(0.0534)	(0.0519)	(0.0701)	(0.0491)	(0.0752)	(0.0113)	(0.00399)
Observations	4,910	5,323	5,989	5,876	6,503	6,123	6,484	5,889
R-squared	0.265	0.303	0.380	0.478	0.326	0.355	0.178	0.226

Notes: Ln TFP ACF: total factor productivity estimated using (Ackerberg et al., 2006)methodology in natural logarithms; Ln TFP LP: total factor productivity estimated using Levinsohn and Petrin methodology in natural logarithms; Ln LP: natural logarithm of labour productivity; Ln Sales: natural logarithm of total sales per firm; Ln EMP: natural logarithm of total number of workers per firm; ln KINT: natural logarithm of capital intensity; SL1: number of white collars over total number of workers; SL2: number of professionals and technicians over total number of workers. Robust standard errors in parentheses; ***p<0.01, **p<0.05, * p<0.1
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A1.12: Performance premium by market, Fixed Effects by firm estimation

VARIABLES	(1) Ln TFP ACF	(2) Ln TFP LP	(3) Ln LP	(4) Ln Sales	(5) Ln EMP	(6) Ln KINT	(7) SL1	(8) SL2
Exporter_HI	0.0196	0.0552	0.0846	0.134***	0.0777***	0.0748	0.00447	-2.26e-05
	(0.0298)	(0.0608)	(0.0575)	(0.0434)	(0.0284)	(0.0493)	(0.00896)	(0.00447)
Exporter_Mercosur	-0.0218	0.0380	0.0529	-0.0840***	-0.0631***	-0.0429	0.0127**	-0.00156
	(0.0169)	(0.0359)	(0.0347)	(0.0259)	(0.0171)	(0.0294)	(0.00541)	(0.00266)
Exporter_both	0.0582***	0.0269	0.0187	0.278***	0.164***	0.0517	-0.00988*	-0.00500*
	(0.0192)	(0.0398)	(0.0382)	(0.0286)	(0.0189)	(0.0326)	(0.00598)	(0.00295)
Importer_HI	0.121***	0.0629	0.0566	0.186***	0.124***	0.0254	-0.000823	0.00207
	(0.0312)	(0.0608)	(0.0561)	(0.0441)	(0.0280)	(0.0498)	(0.00889)	(0.00452)
Importer_Mercosur	0.0134	0.00346	0.0318	-0.103*	-0.103***	-0.00798	0.000460	-4.01e-05
	(0.0355)	(0.0750)	(0.0727)	(0.0536)	(0.0369)	(0.0624)	(0.0117)	(0.00552)
Importer_both	0.147***	0.113**	0.0868**	0.369***	0.216***	0.0217	-0.00778	0.00528
	(0.0235)	(0.0480)	(0.0438)	(0.0333)	(0.0216)	(0.0389)	(0.00689)	(0.00343)
Multinational firms	0.0496	0.0155	-0.00111	0.0231	0.00256	-0.0192	-0.0133	-0.00864*
	(0.0318)	(0.0681)	(0.0639)	(0.0474)	(0.0315)	(0.0538)	(0.00998)	(0.00490)
Medium	0.0101	0.0372	0.181***			-0.292***	-0.0338***	-0.0194***
	(0.0191)	(0.0386)	(0.0357)			(0.0306)	(0.00554)	(0.00279)
Big	0.0398	0.123**	0.330***			-0.572***	-0.0786***	-0.0333***
	(0.0281)	(0.0583)	(0.0540)			(0.0457)	(0.00828)	(0.00414)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	8.072***	10.44***	11.59***	16.91***	3.821***	11.85***	0.264***	0.0660***
	(0.135)	(0.606)	(0.479)	(0.197)	(0.133)	(0.226)	(0.0421)	(0.0203)
Observations	4,910	5,323	5,989	5,876	6,503	6,123	6,484	5,889
R-squared	0.045	0.099	0.071	0.202	0.186	0.107	0.062	0.028
Number of firms	869	913	957	968	971	956	970	970

Notes: Ln TFP ACF: total factor productivity estimated using (Ackerberg et al., 2006)methodology in natural logarithms; Ln TFP LP: total factor productivity estimated using Levinsohn and Petrin methodology in natural logarithms; Ln LP: natural logarithm of labour productivity; Ln Sales: natural logarithm of total sales per firm; Ln EMP: natural logarithm of total number of workers per firm; ln KINT: natural logarithm of capital intensity; SL1: number of white collars over total number of workers; SL2: number of professionals and technicians over total number of workers. Standard errors in parentheses; ***p<0.01, **p<0.05, * p<0.
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Annex 2: Number of matched firms (EAE and Customs data)

Year	Freq.	Percent	Cum.
1997	778	11.5	11.5
1998	696	10.29	21.78
1999	682	10.08	31.86
2000	642	9.49	41.35
2001	675	9.97	51.32
2002	672	9.93	61.25
2003	706	10.43	71.69
2004	724	10.7	82.39
2005	755	11.16	93.54
2006	437	6.46	100
Total	6,767	100	

Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Annex 3: Share of exports and imports by economic blocs

Table A3.1: Share of exports by economic blocs

Year	px_Merc	px_Arg	px_Bra	px_Py	px_lac	px_row	px_ZF	px_UCa	px_euro	px_asia	vx_total
1997	0.6691	0.3100	0.3121	0.0457	0.0805	0.0189	0.0393	0.0609	0.0939	0.0387	5061164
1998	0.6716	0.3045	0.3207	0.0465	0.0913	0.0226	0.0309	0.0543	0.0934	0.0359	6085836
1999	0.6372	0.3274	0.2519	0.0572	0.1040	0.0394	0.0337	0.0769	0.0886	0.0210	4523841
2000	0.6417	0.3542	0.2345	0.0533	0.1098	0.0314	0.0407	0.0735	0.0790	0.0234	4822496
2001	0.5725	0.3001	0.2075	0.0630	0.1351	0.0362	0.0500	0.1040	0.0825	0.0216	4290734
2002	0.4435	0.1692	0.2009	0.0734	0.1836	0.0625	0.0425	0.1117	0.1188	0.0376	4255088
2003	0.4454	0.1999	0.1952	0.0533	0.1891	0.0599	0.0448	0.1294	0.0977	0.0305	4589461
2004	0.4307	0.2177	0.1604	0.0504	0.1876	0.0587	0.0724	0.1202	0.0939	0.0388	5804737
2005	0.4223	0.2245	0.1518	0.0453	0.1837	0.0772	0.0742	0.1159	0.0843	0.0430	6212239
2006	0.4104	0.1913	0.1640	0.0568	0.1817	0.1234	0.0586	0.0918	0.0857	0.0467	10400000
Total	0.5395	0.2625	0.2223	0.0540	0.1429	0.0511	0.0486	0.0934	0.0917	0.0336	5515333

Notes: Px_Merc: share of exports to Mercosur partners; px_Arg: exports to Argentina; px_Bra: share of exports to Brazil; px_Py: share of exports to Paraguay; px_lac: share of exports to Latin American and Caribbean countries; px_row: share of exports to the rest of the world; px_ZF: share of exports by Free Processing Areas; px_UCa: share of exports to US and Canada; px_euro: share of exports to Western Europe; px_asia: share of exports to Asian countries; vx_total: total exports in thousands of American dollars. Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Table A3.2: Share of imports by economic bloc

Year	pm_Merc	pm_Arg	pm_Bra	pm_Py	pm_lac	pm_row	pm_ZF	pm_UCa	pm_euro	pm_asia	vm_total
1997	0.4849	0.2457	0.2351	0.0042	0.0469	0.0154	0.0031	0.1078	0.2652	0.0763	1785977
1998	0.4523	0.2440	0.2045	0.0038	0.0427	0.0192	0.0027	0.1010	0.2886	0.0934	2134994
1999	0.4782	0.2372	0.2368	0.0041	0.0459	0.0413	0.0022	0.0891	0.2738	0.0695	1754575
2000	0.4751	0.2322	0.2349	0.0080	0.0486	0.0452	0.0050	0.0778	0.2771	0.0712	1933744
2001	0.4863	0.2324	0.2456	0.0082	0.0534	0.0423	0.0028	0.0886	0.2513	0.0753	1746568
2002	0.4808	0.2357	0.2359	0.0092	0.0608	0.0460	0.0011	0.0811	0.2604	0.0699	1285075
2003	0.5021	0.2512	0.2456	0.0054	0.0636	0.0466	0.0027	0.0784	0.2306	0.0760	1384773
2004	0.5340	0.2648	0.2651	0.0040	0.0568	0.0408	0.0012	0.0727	0.2136	0.0809	1747876
2005	0.5315	0.2736	0.2525	0.0054	0.0568	0.0406	0.0020	0.0719	0.2035	0.0937	1945903
2006	0.5313	0.2825	0.2426	0.0061	0.0559	0.0507	0.0004	0.0712	0.1861	0.1045	3314083
Total	0.4945	0.2491	0.2396	0.0057	0.0528	0.0379	0.0024	0.0848	0.2471	0.0805	1863299

Notes: Pm_Merc: share of imports from Mercosur partners; pm_Arg: share of imports from Argentina; pm_Bra: share of imports from Brazil; pm_Py: share of imports from Paraguay; pm_lac: share of imports from Latin American and Caribbean countries; pm_row: share of imports from the rest of the world; pm_ZF: share of imports by Free Processing Areas; pm_UCa: share of imports from US and Canada; pm_euro: share of imports from Western Europe; pm_asia: share of imports from Asian countries; vm_total: total imports in thousands of American dollars.
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Annex 4: Exports and imports by geo-economic region

Year	exp_HI	exp_region	exp_Merc	exp_both	imp_HI	imp_region	imp_Merc	imp_both
1997	0.0347	0.3342	0.3226	0.3573	0.0591	0.09	0.0913	0.1504
1998	0.0402	0.3534	0.3391	0.3793	0.0647	0.0733	0.0733	0.138
1999	0.0396	0.305	0.2947	0.3343	0.0674	0.0806	0.085	0.1524
2000	0.0265	0.3069	0.2975	0.324	0.0639	0.0919	0.095	0.1589
2001	0.0415	0.28	0.2681	0.3096	0.0696	0.0919	0.0948	0.1644
2002	0.0491	0.2143	0.189	0.2381	0.0714	0.1116	0.1146	0.186
2003	0.0439	0.2295	0.1983	0.2422	0.0652	0.1275	0.1346	0.1998
2004	0.0525	0.2169	0.1865	0.239	0.0497	0.1229	0.1243	0.174
2005	0.0623	0.2238	0.1934	0.2557	0.0464	0.1139	0.1166	0.163
2006	0.0412	0.2265	0.2014	0.2426	0.0229	0.0961	0.1007	0.1236
Total	0.0434	0.2706	0.2506	0.294	0.0591	0.1003	0.1033	0.1624

Note: Exp_HI: share of exports to high income countries; exp_region: share of exports to LACs countries; exp_both: share of exports to High Income countries and to Mercosur partners; imp_HI: imports from High Income countries; imp_region: imports from LACs countries; imp_Mercosur: imports from Mercosur partners; imp_both: imports from High Income countries and from Mercosur partners.
Source: own elaboration based on data of the INE and Dirección Nacional de Aduanas.

Annex 5. Country classification

MERCOSUR	Western Europe	Asia	Rest of the world
Argentina	Austria	Afghanistan	Albania
Brazil	Belgium	Azerbaijan	Algeria
Paraguay	Denmark	Bangladesh	Angola
	Faroe Islands	Bhutan	Australia
	Finland	Brunei Darussalam	Bahrain
Rest of LAC	France	Cambodia	Belarus
Antigua and Barbuda	Germany	China	Bosnia-Herzegovina
Aruba	Greece	Eritrea	Botswana
Bahamas	Iceland	Hong Kong, SAR	Bulgaria
Barbados	Ireland	India	Cameroon
Belize	Italy	Indonesia	Cape Verde
Bermuda	Malta	Iran	Central African Rep.
Bolivia	Monaco	Iraq	Congo, Rep.
British Virgin Islands	Netherlands	Israel	Côte d'Ivoire
Chile	Norway	Japan	Croatia
Colombia	Portugal	Jordan	Cyprus
Costa Rica	San Marino	Kazakhstan	Czech Republic
Cuba	Spain	Kirghizstan	Egypt
Curaçao	Sweden	Korea, Dem. Rep. of	Equatorial Guinea
Dominican Republic	Switzerland	Korea, Rep. of	Estonia
Ecuador	United Kingdom	Kuwait	Fiji
El Salvador		Lebanon	Gabon
French Guyana		Macao, SAR China	Gambia
Grenada	**US and Canada**	Mauritius	Ghana
Guadeloupe	Canada	Nepal	Hungary
Guatemala	United States	Oman	Kenya
Haiti		Pakistan	Latvia
Honduras		Philippines	Liberia
Jamaica	**Free Zones**	Qatar	Libya
Martinique	Colonia FZ	Russian Federation	Lithuania
Mexico	Florida FZ	Saint Helena	Macedonia, FYR
Nicaragua	Montevideo FZ	Saudi Arabia	Madagascar
Panama	Nueva Helvecia FZ	Singapore	Midway Islands
Peru	Nueva Palmira FZ	Sri Lanka	Morocco
Puerto Rico	Rivera FZ	Syria	Namibia
Surinam		Taiwan, Province of	New Zealand
Trinidad and Tobago		Thailand	Nigeria
US Virgin Islands		Turkey	Not reported
Venezuela		United Arab Emirates	Palau
		Uzbekistan	Palestine
		Viet Nam	Poland
		Yemen	Rumania
			Rwanda
			Senegal
			Serbia and Montenegro
			Sierra Leone
			Slovakia
			Slovenia
			South Africa
			Togo
			Tunisia
			Ukraine
			Zaire
			Zimbabwe

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