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Imported inputs and export performance

Evidence from Chilean manufacturing industries

Dayna Zaclicever

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Abstract

Integration into global value chains (GVCs) offers opportunities for export diversification and upgrading, enabling countries to exploit finer comparative advantage niches. These competitiveness-related benefits of GVC participation are inextricably linked to the efficient sourcing of intermediate inputs. Particularly, accessing more differentiated, competitively priced and higher-quality imported intermediates can play an important role in enhancing export competitiveness.

This document examines Chilean manufacturing industries' backward participation in international production networks, evaluating the relationship between the use of foreign intermediate inputs and export performance (in terms of products and destination countries). The analysis is based on an original dataset that allows addressing within-industry heterogeneity across size classes.

The data show that Chilean manufacturing small and medium-sized enterprises' (SMEs) engagement in export and import activities is more limited than that of large firms. The analysis also reveals a positive association between the use of imported intermediate inputs and export performance at the sector-size level, both in terms of the number of products exported and the number of markets served.

Findings in this document provide evidence on a connection between the patterns of import sourcing and export activity, suggesting that policies aimed at facilitating firms' access to foreign intermediates —particularly for SMEs— could contribute to enhance Chile's export performance.

Introduction

Integration into global value chains (GVCs)[1] offers opportunities for export diversification and upgrading (i.e., shifting toward more sophisticated, higher value, products), enabling countries to exploit finer comparative advantage niches. These competitiveness-related benefits of GVC participation are inextricably linked to the efficient sourcing of intermediate inputs (OECD, 2013; Kowalski et al., 2015; Lopez Gonzalez, 2016). Particularly, accessing more differentiated, competitively priced and higher-quality imported intermediates can play an important role in enhancing export competitiveness, by increasing firm productivity, reducing production costs or improving product quality (Ethier, 1979, 1982; Eaton and Kortum, 1999; Halpern et al., 2015).

A growing body of literature assesses the relationship between the use of foreign intermediate inputs and export performance, revealing the importance of backward GVC linkages.[2] For a sample of 40 Organisation for Economic Co-operation and Development (OECD) and non-OECD economies, OECD (2013) provides evidence of a positive effect of the international sourcing of intermediates on export specialisation and competitiveness (as measured by revealed comparative advantage (RCA) indices in gross and value-added terms).[3] Kowalski et al. (2015) analyse more extensive country-level data on trade in value added, finding that a growing backward participation in GVCs and the use of more sophisticated imported intermediates are

[1] The term GVC refers in this document to any international production network, including those of a regional character.

[2] Countries' backward participation in international production networks —the demand side of GVCs— is reflected in the foreign intermediate inputs used by domestic firms in the production of exports. Forward participation captures the supply side of GVCs, reflecting the extent to which a country's exports are used by firms in other countries for further export generation.

[3] An analysis based on gross data considers the cumulated value embodied in traded products, while measures based on trade in value added quantify the actual contribution of each exporting country to the value generated in the production chain.

positively associated with the diversification and sophistication of export bundles (although there is large heterogeneity across levels of economic development). Lopez Gonzalez (2016) uses sector-level data on developed and emerging economies, showing that a growing use of foreign value added in the production of exports plays an important role in enhancing domestic export performance (in terms of the domestic value added and employment content of exports).

Among firm-level studies, Feng et al. (2016) show that the increased use of imported intermediate inputs helped Chinese manufacturing firms to improve their export participation and performance. Lopez Gonzalez (2017) analyses cross-country data on small and medium-sized enterprises (SMEs), showing that those firms that source a higher proportion of their intermediates from abroad have a higher propensity to export (as well as higher labour productivity, even if they do not export). Other firm-level studies on the relationship between the international sourcing of intermediates and export performance include Bas and Strauss-Kahn (2014), Damijan et al. (2014) and Damijan and Kostevc (2015), who provide evidence for France, Slovenia and Spain, respectively.

An important policy implication of the empirical studies cited above is that improving firms' access to foreign intermediates may help boosting export performance. In this context, Chile provides an interesting setting to evaluate the role of backward GVC linkages on international specialisation and competitiveness. This country is considered a pioneer of trade liberalisation in Latin America and the Caribbean, having engaged in unilateral trade openness and numerous preferential trade agreements (PTAs) over the last three decades (including those signed with the United States, the European Union and several Asian countries). As a result, Chile's average effective tariff rate reduced to less than 2% in the early 2000s, remaining under 1% in the last five years.[4] Also, the share of exports under PTAs increased from around 20% in 2000 to over 90% since 2007. However, Chilean exports remain highly concentrated in primary products and natural resource-based manufactures (mostly copper and agro-food products), large firms and a few destination countries (mainly, China and the United States) (World Bank, 2017; OECD, 2018).

This document offers new insights into Chilean manufacturing industries' backward participation in international production networks. The analysis is based on an original dataset that allows addressing within-industry heterogeneity across size classes. Along with characterising the patterns of firms' backward GVC activities over the period 2005-2015, the document evaluates the relationship between the use of foreign intermediate inputs and industries' export performance (in terms of products and destination countries).

The remainder of the document is organised as follows. Section I describes the data used. Section II presents the characterisation of Chilean manufacturing firms' export and import activities, with a focus on the comparison between SMEs and large enterprises. Section III describes the empirical strategy adopted for evaluating the relationship between imported intermediates and export performance and discusses the estimation results. Section IV presents some conclusions.

[4] Chile's Most Favoured Nation (MFN) tariff, set at a uniform rate in the late 1970s, has remained at 6% since 2003. However, the extensive network of PTAs has led to significantly lower effective tariffs.

I. Data

The analysis performed in this document is based on a unique panel dataset that combines information for the period 2005-2015 from three sources: 1) the *Encuesta Nacional Industrial Anual* (ENIA), an annual plant-level manufacturing survey conducted by Chile's National Statistical Institute (*Instituto Nacional de Estadísticas*, INE); 2) firm-level export and import data from Chile's national customs office (*Servicio Nacional de Aduanas*); and 3) administrative data from Chile's tax administration agency (*Servicio de Impuestos Internos*, SII). The ENIA survey covers all formal manufacturing plants with ten or more employees, providing information on main industry of activity, total sales, export sales, value added, employment, intermediate input purchases (total and imported), and foreign ownership, among other variables. Customs data provide information on the value of exported and imported products (at the 10-digit national tariff line level), by destination and origin country, respectively. Data from SII contain annual information on a set of firm characteristics, including sales range and main industry of activity.

An important limitation of the above data sources is that, due to statistical confidentiality regulations, firms in the manufacturing survey cannot be matched with those in the customs datasets.[5] As a result, the analysis on the relationship between imported intermediates and export performance is carried out here at the industry level. However, the available data do allow classifying firms within each industry by sales range, which enables working at the more disaggregated industry-size level. This reduces the potential aggregation bias inherent in industry-level analysis, addressing within-industry heterogeneity across size classes.

[5] Although plant-level data from ENIA can be aggregated at the firm level, the use of different firm identifiers prevents from matching ENIA and customs datasets.

Using information from SII, firms in the customs datasets are classified by size (SME or large) and main industry of activity.[6] Then, firm export and import transactions are aggregated by sector-size (see table 1).[7] For example, for firms in ISIC division 15 (Food products and beverages), export data are aggregated at the product-destination country level into two groups (subsectors): 15-SM (corresponding to those firms classified as SMEs), and 15-L (corresponding to those firms classified as large). Data from ENIA are aggregated at the same sector-size level.[8]

Table 1
List of sector-size groups

Code	Sector description	Size
15-SM	Food products and beverages	Small and medium
17T19-SM	Textiles, wearing apparel, leather and footwear	Small and medium
20T22-SM	Wood products; paper and paper products; printing and publishing	Small and medium
24-SM	Chemicals and chemical products	Small and medium
25T26-SM	Rubber and plastics products; other non-metallic mineral products	Small and medium
27T28-SM	Basic metals and fabricated metal products	Small and medium
29-SM	Machinery and equipment, n.e.c.	Small and medium
30T33-SM	Electrical, electronic and optical machinery and equipment	Small and medium
15-L	Food products and beverages	Large
17T19-L	Textiles, wearing apparel, leather and footwear	Large
20T22-L	Wood products; paper and paper products; printing and publishing	Large
24-L	Chemicals and chemical products	Large
25T26-L	Rubber and plastics products; other non-metallic mineral products	Large
27T28-L	Basic metals and fabricated metal products	Large
29-L	Machinery and equipment, n.e.c.	Large
30T33-L	Electrical, electronic and optical machinery and equipment	Large

Source: Author's elaboration.

In order to reduce sector composition changes, a fixed classification is considered for each firm (defined on the basis of firms' most frequent main industry of activity and size class along the sample period). However, composition changes do arise due to firms that entry or exit the manufacturing survey.[9]

The variables used in sections II and III for characterising Chilean manufacturing firms' backward GVC activities and evaluating the relationship between imported intermediates and export performance, respectively, are described in table 2.

[6] The size classification criterion considered in this document is that set by the Chilean government for manufacturing firms, according to which SMEs are those firms with total annual sales not exceeding 100,000 *unidades de fomento* (UF, for its Spanish acronym), currently equivalent to around 4 million US dollars.

[7] Sector classification is based on the 2-digit International Standard Industrial Classification (ISIC) revision 3 codes. Due to data availability issues, ISIC divisions 34 (Motor vehicles, trailers and semi-trailers) and 35 (Other transport equipment) are excluded from the analysis. Divisions 16 (Tobacco products), 23 (Coke, refined petroleum products and nuclear fuel), 36 (Furniture; manufacturing n.e.c.) and 37 (Recycling) are also excluded.

[8] Plant-level data from ENIA are first aggregated at the firm level. Then, firms are classified by size and main industry of activity. Finally, firm-level data are aggregated at the sector-size level.

[9] Firms can either exit the manufacturing survey because they go bankrupt or their number of employees falls below 10.

Table 2
Definitions of variables and data sources

Variable	Description	Data source
Number of products exported	Number of 6-digit Harmonised System (HS) products	Customs data
Number of destination countries	Number of countries	Customs data
Diversification of exported products	Herfindahl-Hirschman diversification index, computed as: $1-\sum_k(s_k)^2$ where $s_k=\frac{x_k}{\sum_k x_k}$ is the share of product *k* in total exports, and x_k is the value of exports of product *k*	Customs data
Diversification of destination countries	Herfindahl-Hirschman diversification index, computed as: $1-\sum_c(s_c)^2$ where $s_c=\frac{x_c}{\sum_c x_c}$ is the share of destination country *c* in total exports, and x_c is the value of exports to country *c*	Customs data
Import intensity	Share of imported intermediate inputs in total intermediates	ENIA
Number of imported inputs	Number of 6-digit HS intermediate products	Customs data
Number of origin countries	Number of countries	Customs data
Number of imported input varieties	Number of product-origin country pairs	Customs data
Labour productivity	Value added per worker	ENIA
Skill intensity	Share of skilled workers in total employees	ENIA
Foreign ownership	Share of foreign capital in total capital	ENIA
Firm size	Sales in UF	ENIA
Firm age	Number of years since the firm was established	SII
Within-industry competition	Number of firms	ENIA

Source: Author's elaboration.

II. The demand side of Chilean firms' GVC linkages: stylised facts

A. Backward engagement in GVCs

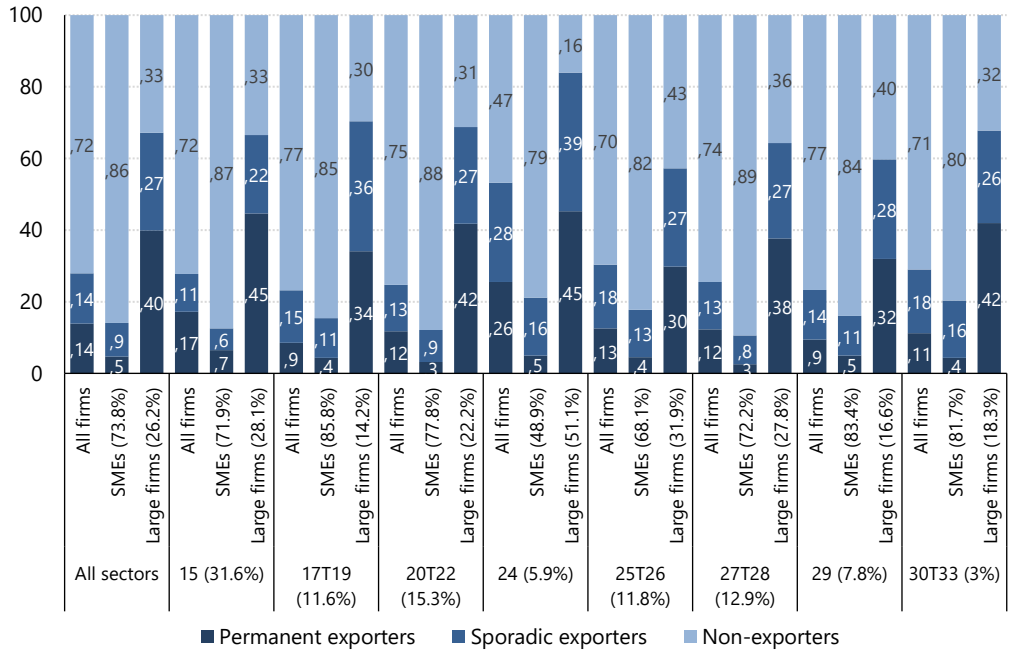
This section draws on data from ENIA to characterise Chilean manufacturing firms' backward participation in international value chains (i.e., firms' sourcing of foreign inputs for export production). As shown in figure 1, the share of firms that engage in export activities differs significantly between SMEs —nearly three quarters of the sample— and large enterprises. Only 14% of SMEs exported along the period 2005-2015, compared to 67% of large firms. The proportion of SMEs engaged in exporting is somewhat larger in sectors 24 (Chemicals and chemical products) —where over 80% of large firms export—, 30T33 (Electrical, electronic and optical machinery and equipment) and 25T26 (Rubber and plastics products; other non-metallic mineral products) (21%, 20% and around 18%, respectively). Among exporting firms, the share of permanent exporters is also considerably lower for SMEs: only one third of exporting SMEs (5% of all SMEs) maintained a continuous presence in export markets along the sample period, while nearly 60% of exporting large firms (40% of all large firms) were permanent exporters.[10]

The observed differences in export activity across size classes reflect the fact that SMEs are generally more resource-constrained than large enterprises (e.g., in terms of financial capital, technical and managerial capabilities). Larger firms are in a better position to absorb the cost of

[10] Sector 15 (Food products and beverages), the largest in sample size with nearly one third of the total, shows a higher proportion of permanent exporters among SMEs (52% of exporting firms, which account for only 13% of SMEs in this sector).

entry into foreign markets, related to the identification of business opportunities abroad, the gathering of information on foreign business practices and consumer preferences, the adaptation of products to foreign standards and regulations, and the establishment of distribution and marketing channels abroad (OECD, 2009; Volpe Martincus et al., 2012).

Figure 1
Firms by export status, 2005-2015[a,b]
(Percentages)

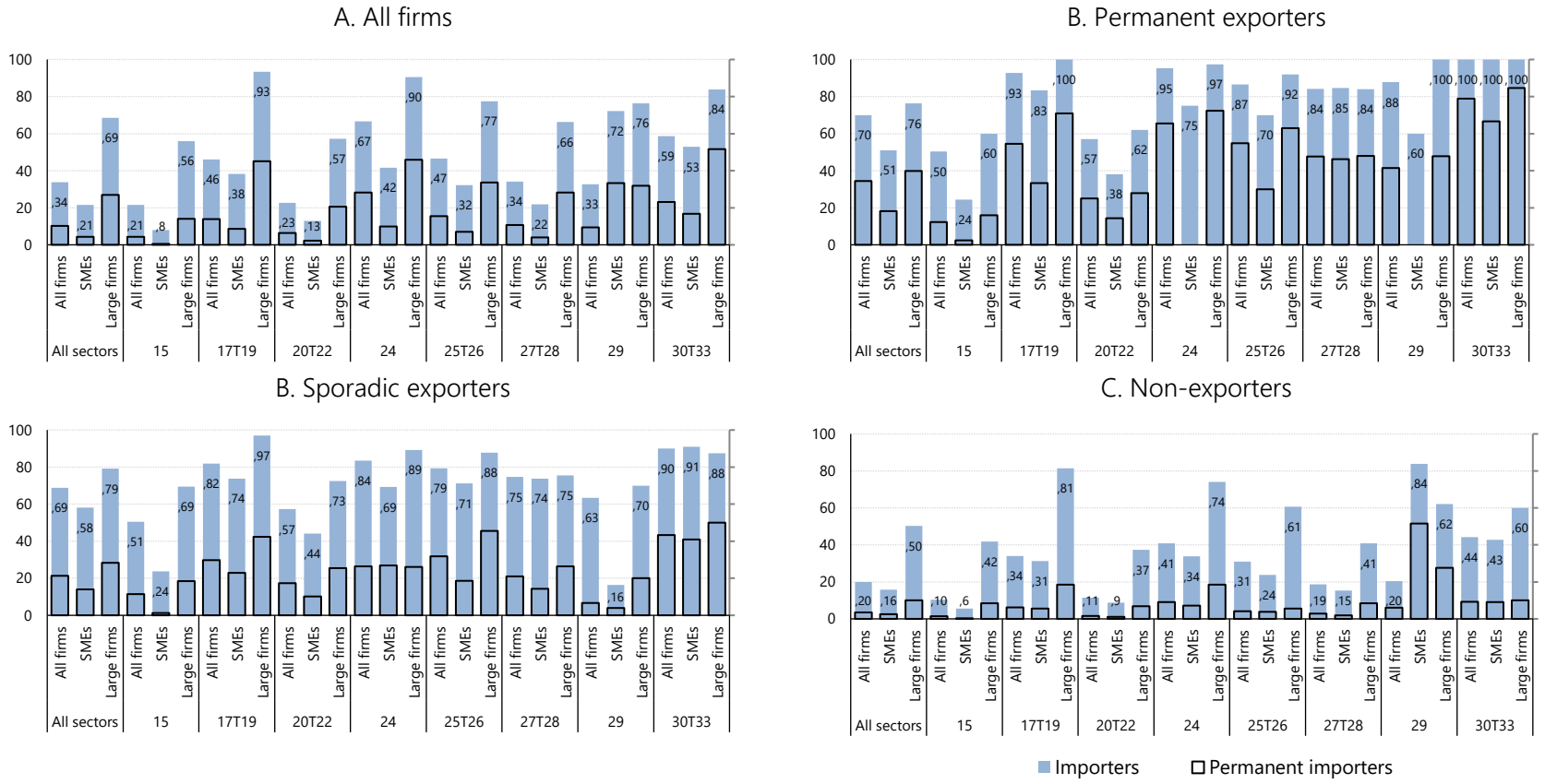


Source: Author's calculations on the basis of data from ENIA manufacturing survey.
[a] The percentages in brackets indicate the share of SMEs and large firms in each sector. The percentages next to the name of each sector indicate its share in the sample.
[b] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

Data on firms' import activity would indicate that Chilean SMEs also face more constraints than large firms in sourcing imported inputs. As shown in figure 2.A, 21% of all SMEs imported intermediates in 2005-2015 and only 4% were permanent importers, compared to 69% and 27%, respectively, for large firms. However, the share of input importers is significantly larger among exporting firms, with over 50% for SMEs and nearly 80% for large enterprises (see figures 2.B and 2.C).[11] This could be related to the existence of common sunk costs between import and export activities. Also, in both size classes, permanent importers account for a larger proportion of firms with a continuous presence in export markets (i.e., permanent exporters), relative to sporadic exporters.

[11] Among the eight manufacturing sectors considered, the proportion of exporting firms engaged in import activities is considerably higher in 17T19 (Textiles, wearing apparel, leather and footwear), 24 (Chemicals and chemical products), 25T26 (Rubber and plastics products; other non-metallic mineral products), 27T28 (Basic metals and fabricated metal products), and 30T33 (Electrical, electronic and optical machinery and equipment).

Figure 2
Share of importing firms, 2005-2015[a]
(Percentages)



Source: Author's calculations on the basis of data from ENIA manufacturing survey.
[a] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

On average, those SMEs engaged in international sourcing have similar levels of import intensity than large firms, with around 40% in 2014-2015 for the "all sectors" aggregate (see figure 3.A). However, some sectors show significant differences across size classes, as well as between exporting and non-exporting firms, although no clear pattern emerges from average firm-level import shares. SMEs have lower import intensities than large firms in sectors 17T19 (Textiles, wearing apparel, leather and footwear), 24 (Chemicals and chemical products) and 27T28 (Basic metals and fabricated metal products), while the opposite is observed in sector 20T22 (Wood products; paper and paper products; printing and publishing). The other four sectors show different patterns for exporting and non-exporting firms or, in some cases, for permanent and sporadic exporters.[12] In most sector-size groups, the average share of imported intermediates increased between 2005 and 2015, for both exporting and non-exporting firms.

When average import intensities are computed considering both importing and non-importing firms, differences between size classes intensify (as the proportion of input importers is significantly lower for SMEs). Thus, in all sector-size groups, both exporting and non-exporting SMEs show considerably smaller shares of imported intermediates than large enterprises (the exceptions are permanent exporters and non-exporters in sector 30T33) (see figure 3.B).

Also, import intensities computed from sector-level data —the ones considered in the analysis performed in section III— are, in general, substantially lower for SMEs (see figure A.1 in the annex). Among exporting SMEs, the largest shares of imported inputs are observed in sectors 17T19 (Textiles, wearing apparel, leather and footwear) and 30T33 (Electrical, electronic and optical machinery and equipment) (33% and 51%, respectively, in 2014-2015, as compared to 38% and 67%, respectively, for exporting large firms), while sectors 15 (Food products and beverages) and 29 (Machinery and equipment, n.e.c.) show the lowest values (under 10%). In most sectors, SMEs' aggregate import intensities experienced a decline between 2005 and 2015 (particularly, in sectors 24 and 25T26), in contrast to what is observed for large firms.

In terms of the scope of foreign intermediates, exporting SMEs are considerably less diversified than large firms. The average number of inputs imported by SMEs was 8 in 2014-2015, compared to 27 for large firms (around 9 and 35, respectively, for permanent exporters, and 8 and 20, respectively, for sporadic exporters) (see figure 4).[13] Also, the geographic scope of SMEs' backward linkages is significantly more limited than that of large enterprises, with an average of 3 and 9 origin countries, respectively, in 2014-2015 (3 and 11, respectively, for permanent exporters, and 3 and 7, respectively, for sporadic exporters) (see figure 5). SMEs' lower diversification is also reflected in the number of imported input varieties (see figure 6).[14] For both size classes, inputs imported from extraregional countries are significantly more diversified than those with an intraregional origin.[15] The same patterns are observed in sector-level data (see figures A.2 to A.4 in the annex).

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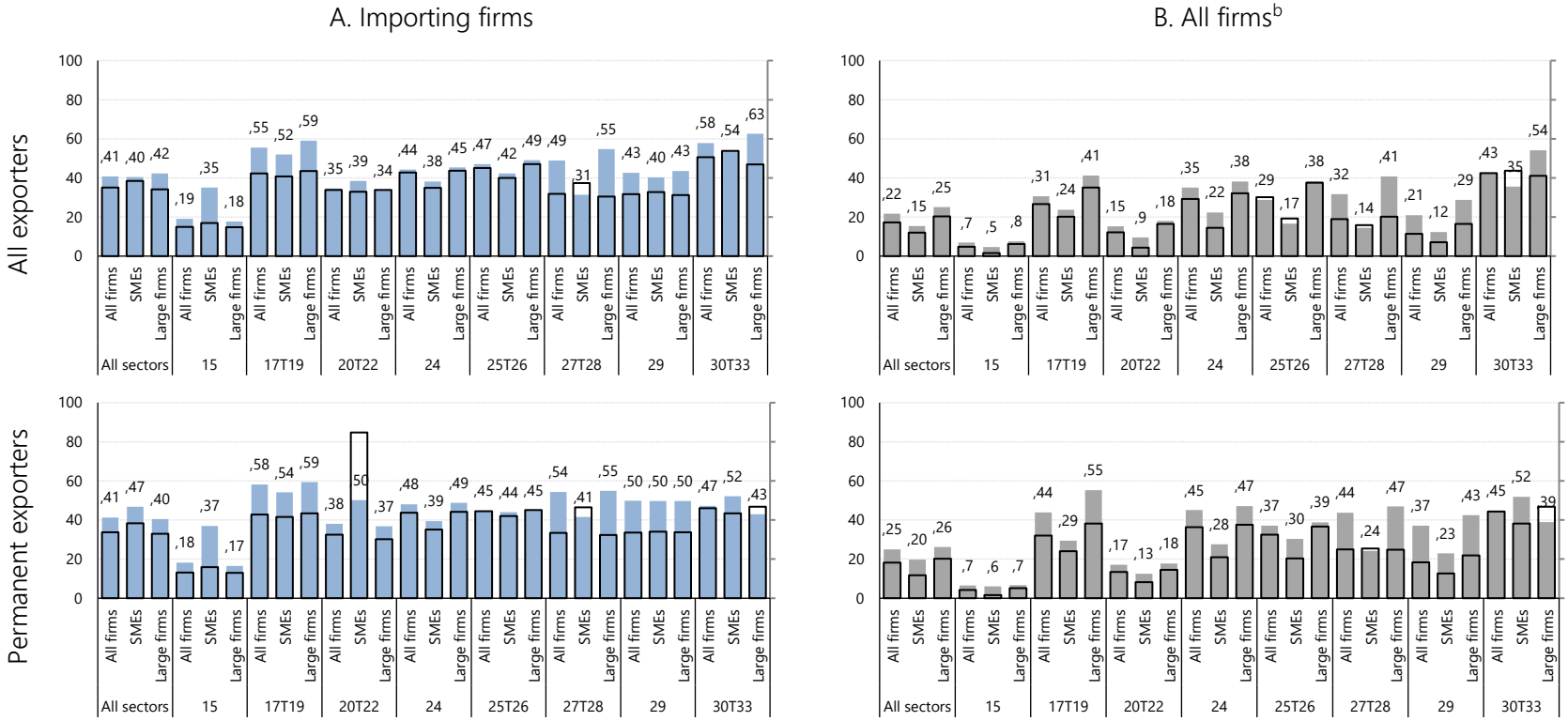
[12] Considerable heterogeneity across firms is also observed within sector-size groups, as reflected by the dispersion of firm-level import intensity values (see table A.1 in the annex).

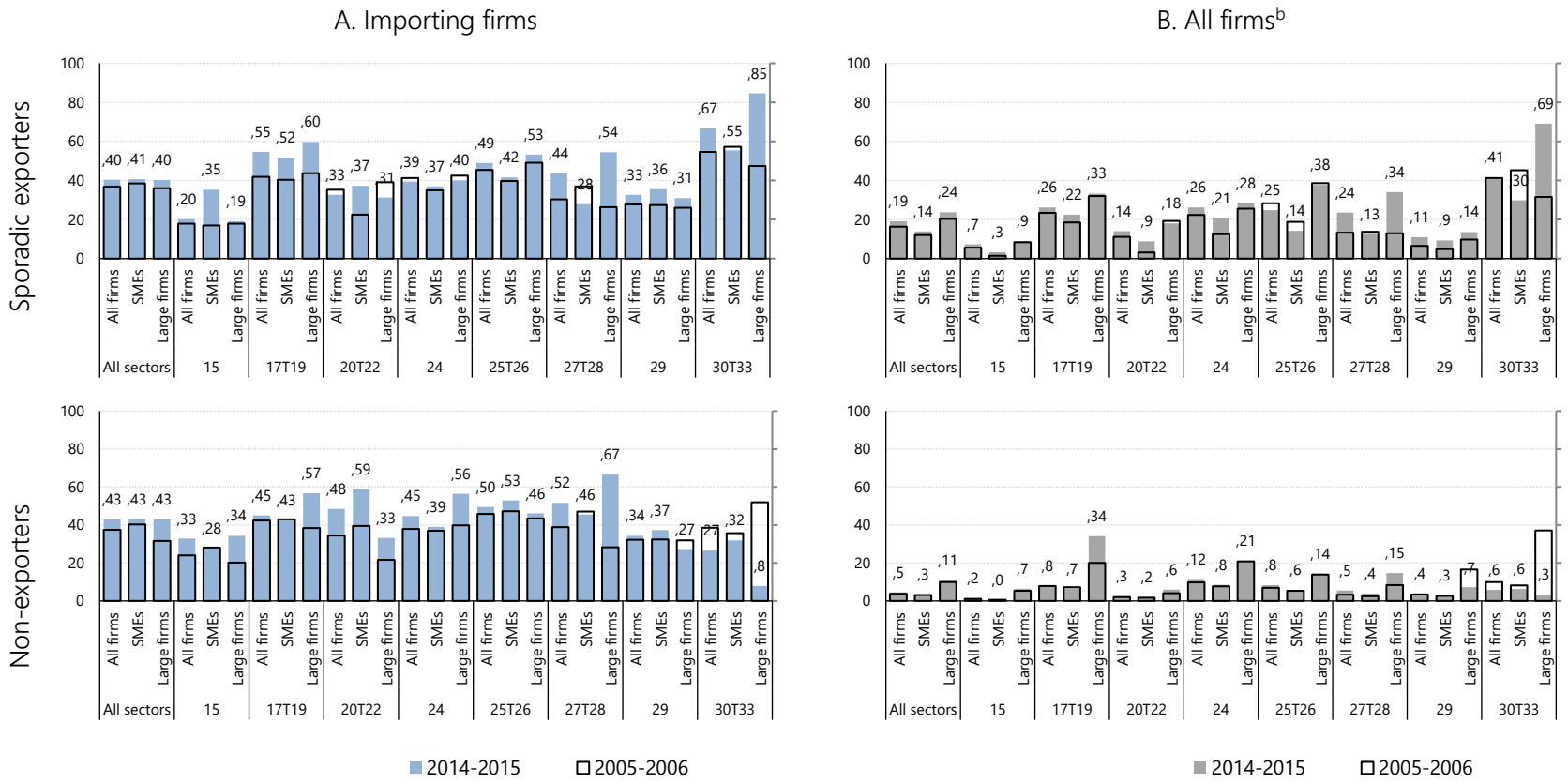
[13] The number of imported inputs, as well as that of exported products, are computed at the 6-digit level of the Harmonised System (HS) (1996 revision), to avoid variations resulting from changes in product classification over the studied period.

[14] A variety corresponds to a particular 6-digit HS intermediate product from a particular country.

[15] Additional summary statistics on the scope of firms' intermediate imports are provided in tables A.2 to A.4 in the annex, showing large heterogeneity between and within sector-size groups.

Figure 3
Average firm-level import intensity, 2005-2006 and 2014-2015[a]
(Percentages)



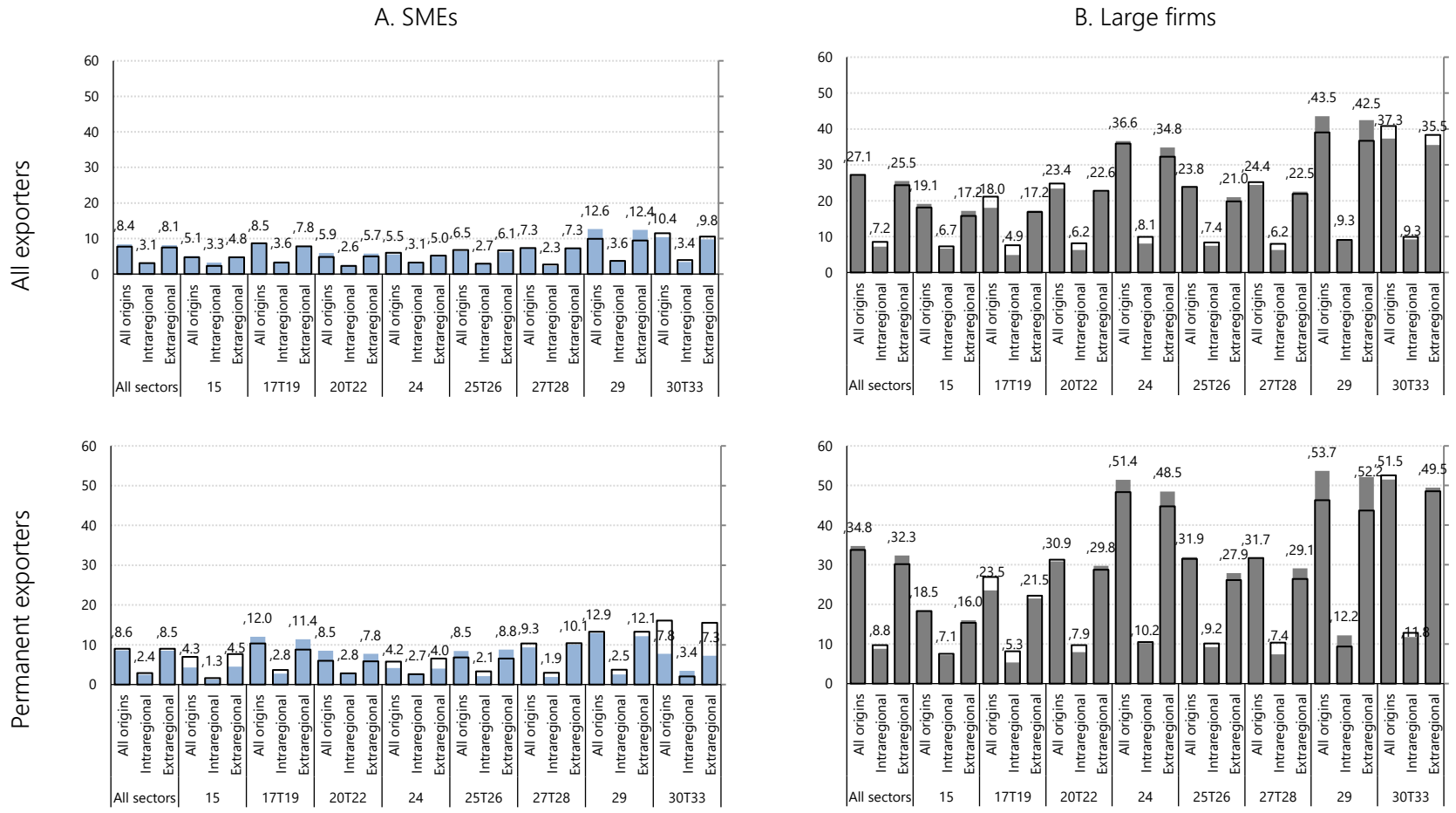


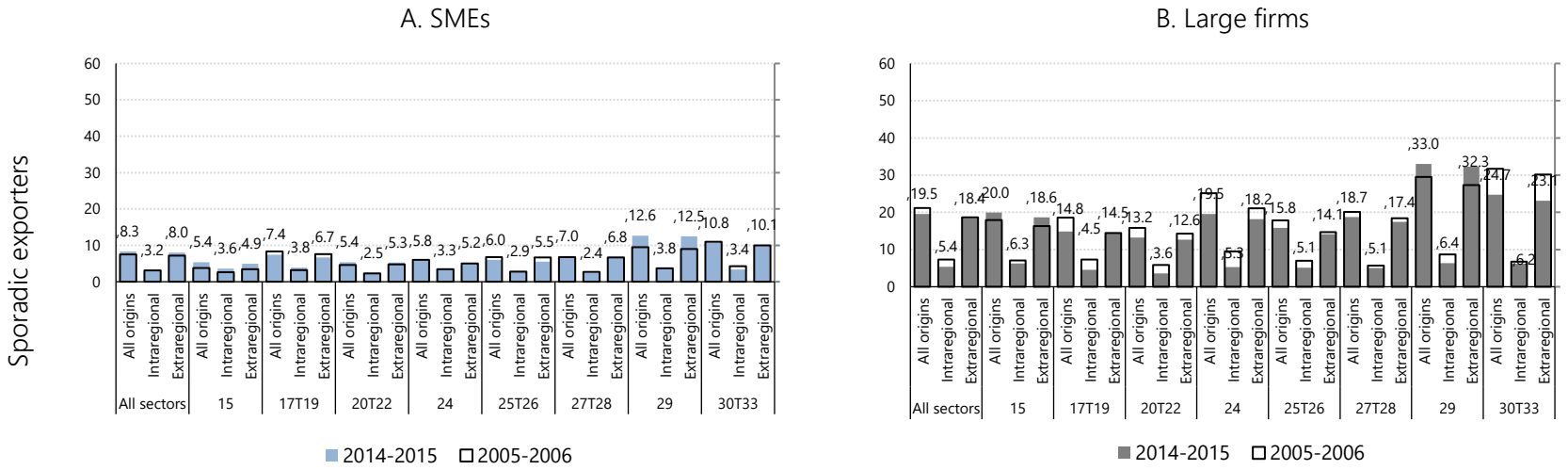
Source: Author's calculations on the basis of data from ENIA manufacturing survey.

[a] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

[b] Includes importing and non-importing firms.

Figure 4
Average firm-level number of imported inputs, 2005-2006 and 2014-2015[a]
(Number of products)

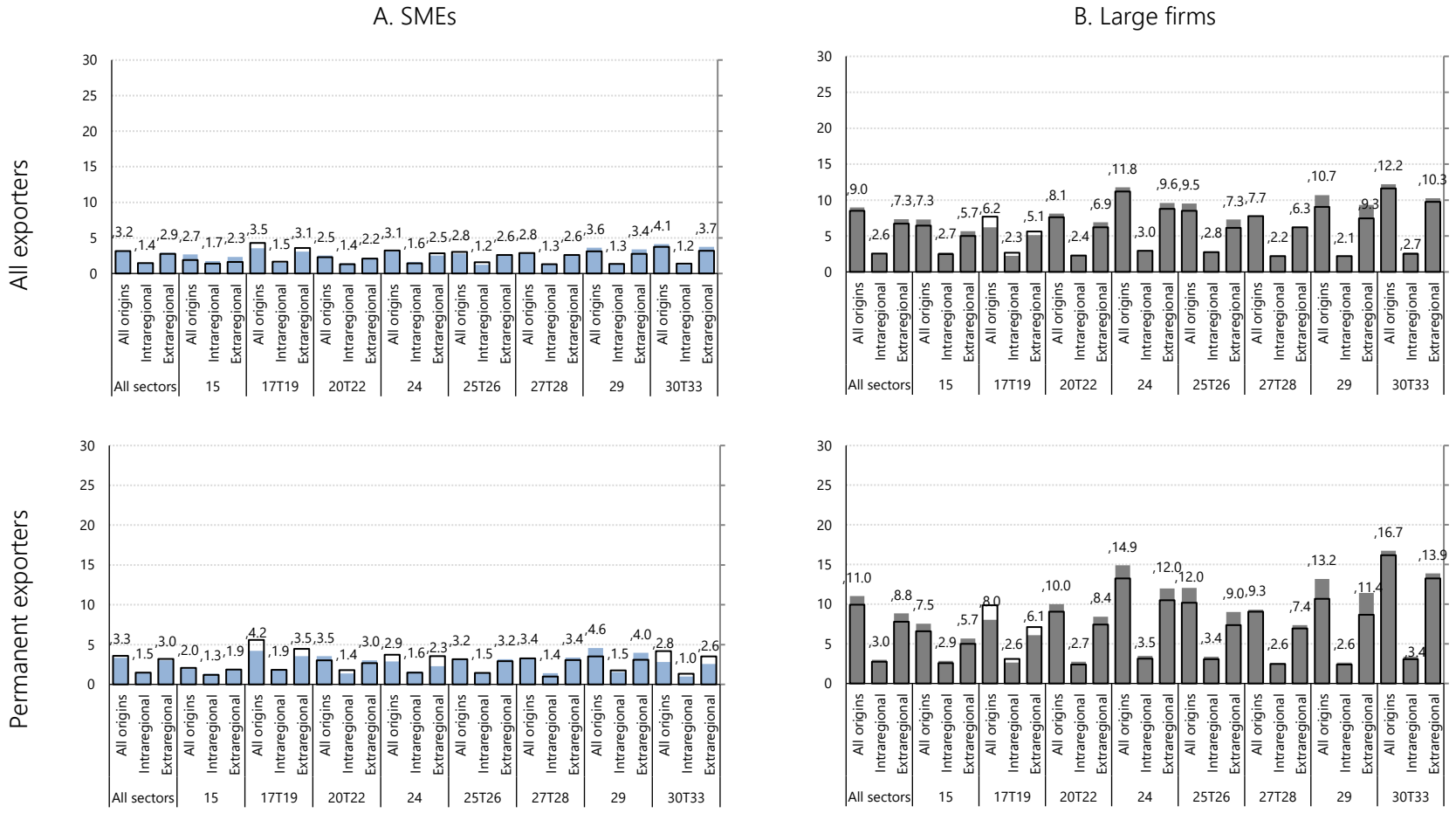


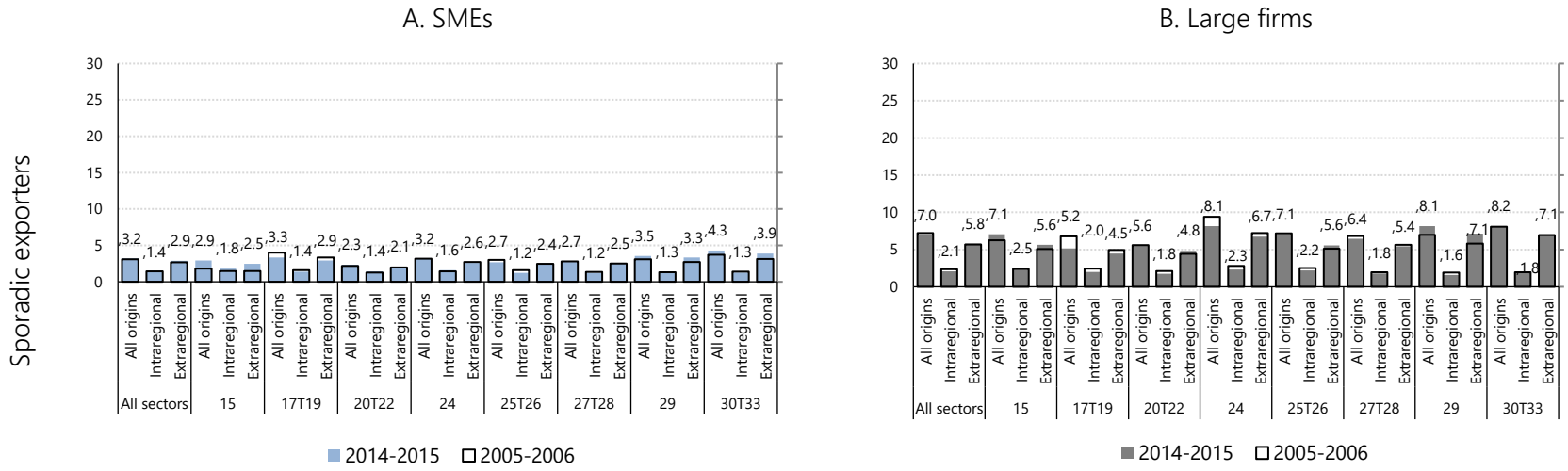


Source: Author's calculations on the basis of data from Chile's customs office.

[a] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

Figure 5
Average firm-level number of origin countries, 2005-2006 and 2014-2015[a]
(Number of countries)

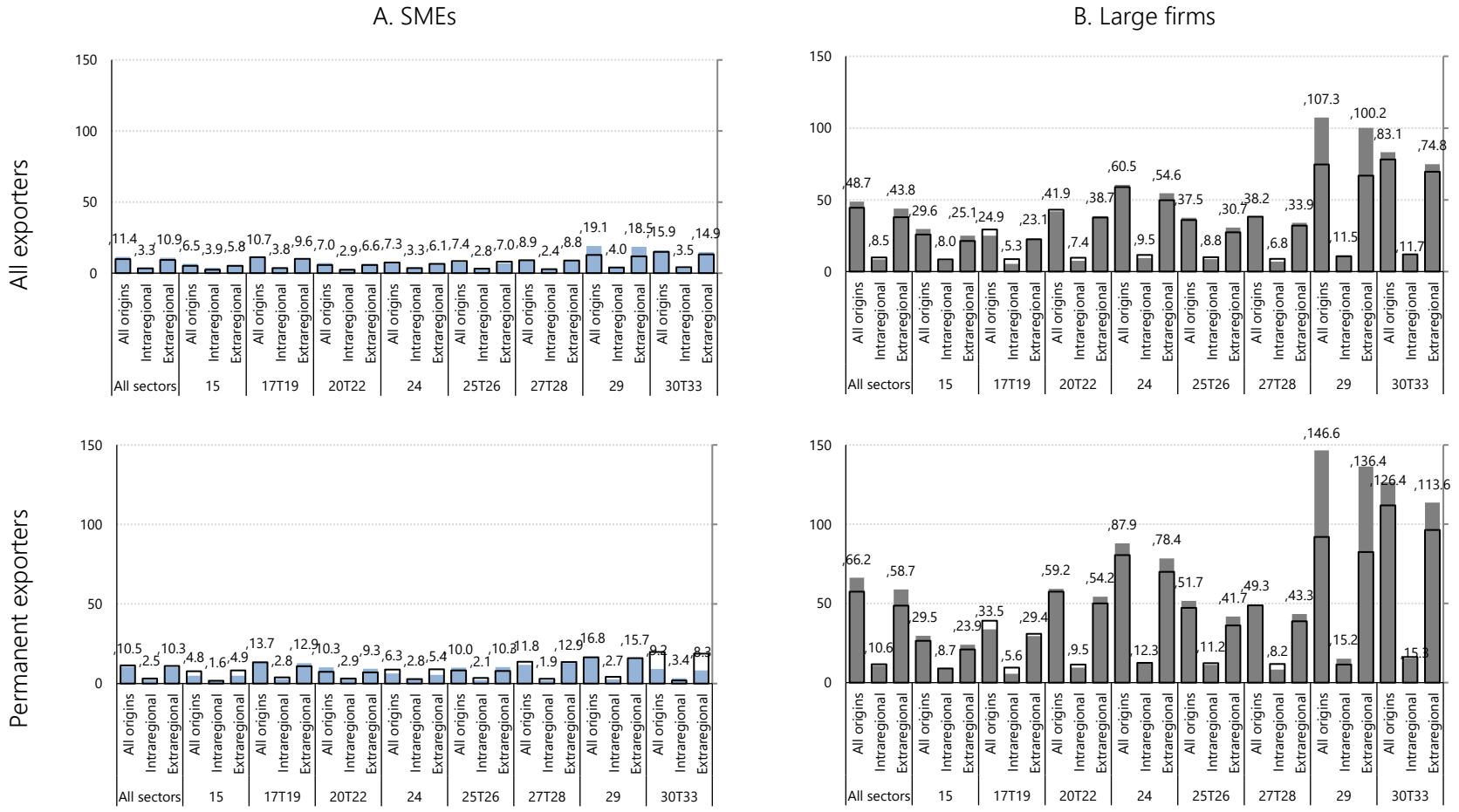


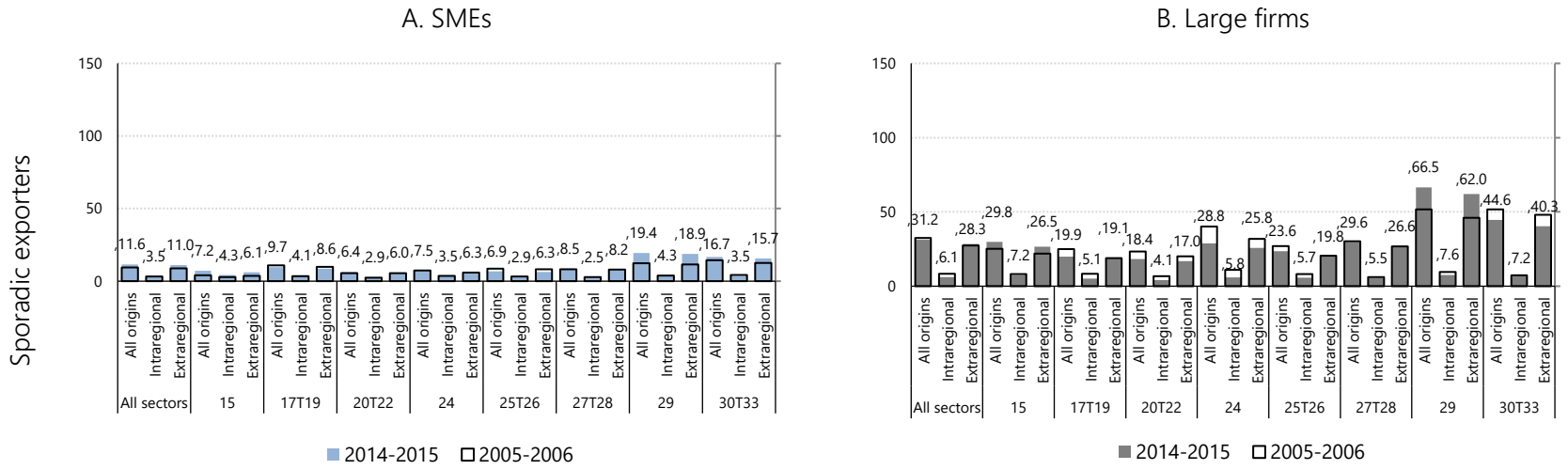


Source: Author's calculations on the basis of data from Chile's customs office.

[a] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

Figure 6
Average firm-level number of imported input varieties, 2005-2006 and 2014-2015[a]
(Number of product-origin country pairs)





Source: Author's calculations on the basis of data from Chile's customs office.

[a] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

B. Export performance

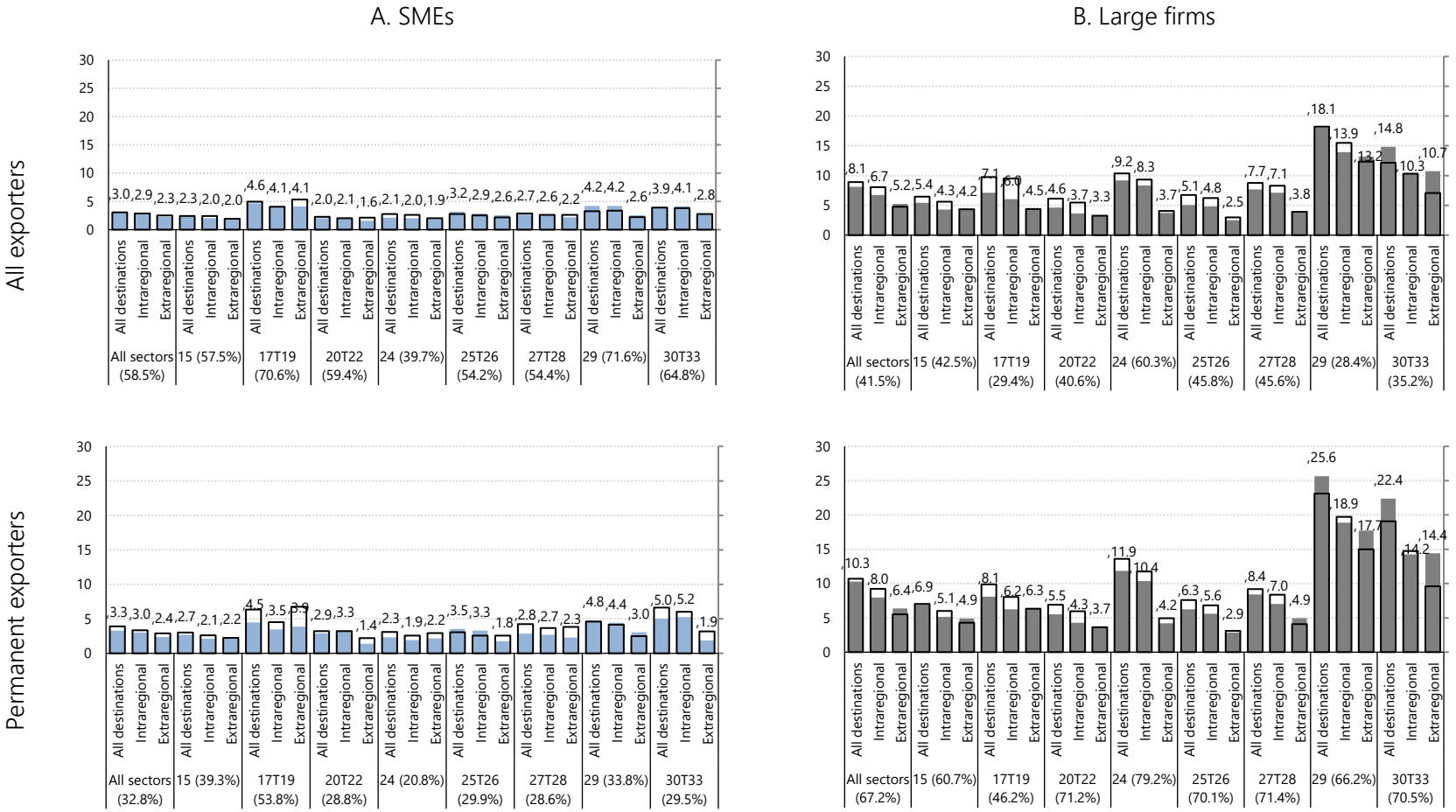
Customs data allow characterising Chilean firms' export performance in terms of products and markets served. As shown in figures 7 to 10, the extent of SMEs' export activity is more limited than that of large firms, in all the performance indicators considered (see also tables A.5 and A.6 in the annex for additional summary statistics). On average, the number of products exported by SMEs was 3 in 2014-2015, compared to 8 for large firms (3 and 10, respectively, for permanent exporters, and around 3 and 5, respectively, for sporadic exporters) (see figure 7). Also, the Herfindahl-Hirschman index shows a higher concentration of SMEs' export sales (see figure 9).[16] For both size classes, intraregional exports are generally more diversified than those oriented to extraregional markets.

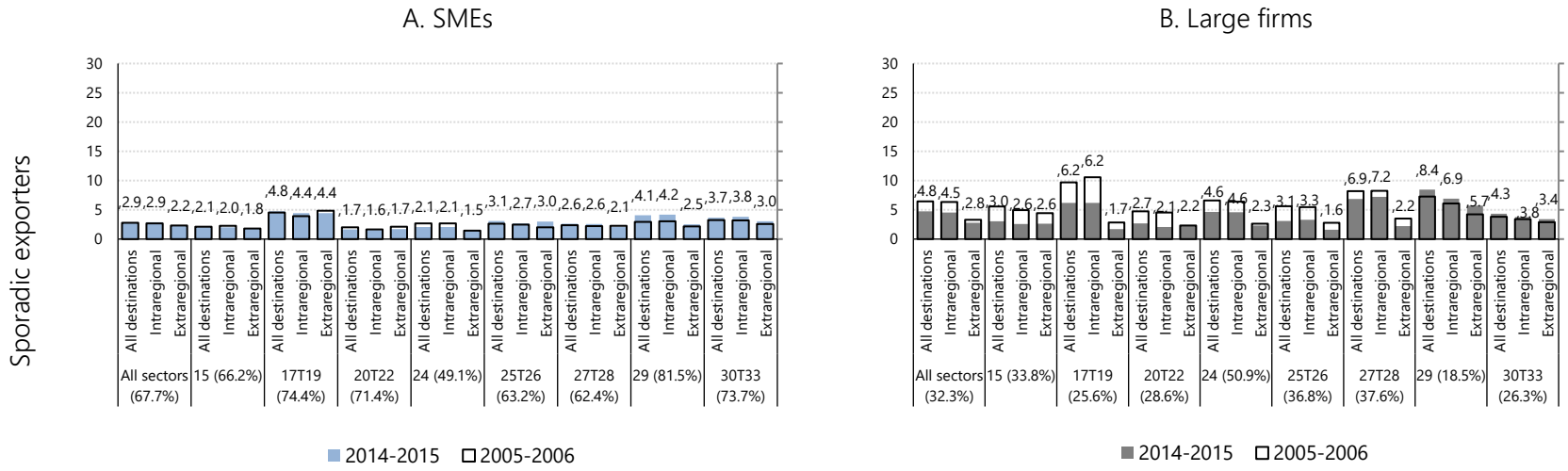
SMEs are also less diversified in terms of destination countries. As shown in figure 8, the average number of markets served by SMEs in 2014-2015 was around 3, compared to 7 for large firms (around 4 and 10, respectively, for permanent exporters, and around 2 and 3, respectively, for sporadic exporters). Also in this case, the Herfindahl-Hirschman index reveals a higher concentration of SMEs' exports (see figure 10).

In most sectors, the average number of products exported declined between 2005 and 2015. The main exception are the technology-intensive industries 29 (Machinery and equipment, n.e.c.) and 30T33 (Electrical, electronic and optical machinery and equipment), where large firms show the most diversified export bundles. In general, SMEs experienced a larger reduction than large enterprises in the case of permanent exporters, while the opposite is observed for sporadic exporters. The average number of destination countries also decreased in many sectors. The Herfindahl-Hirschman indices show as well a reduction in export diversification, particularly in terms of products.

[16] The Herfindahl-Hirschman index ranges between 0 and 1. The lower the index, the more concentrated exports are in a few products (or markets).

Figure 7
Average firm-level number of products exported, 2005-2006 and 2014-2015[a,b]
(Number of products)



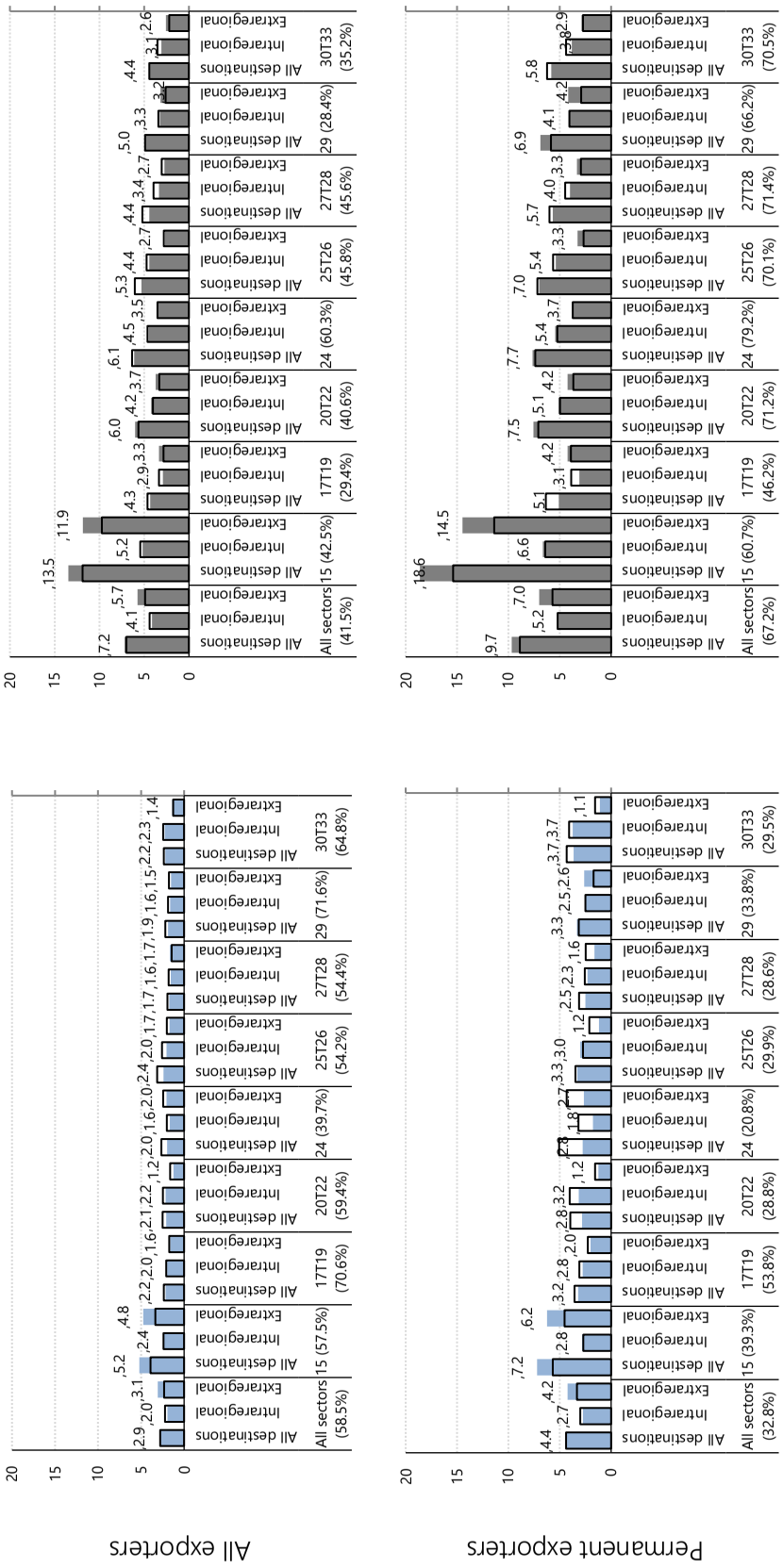


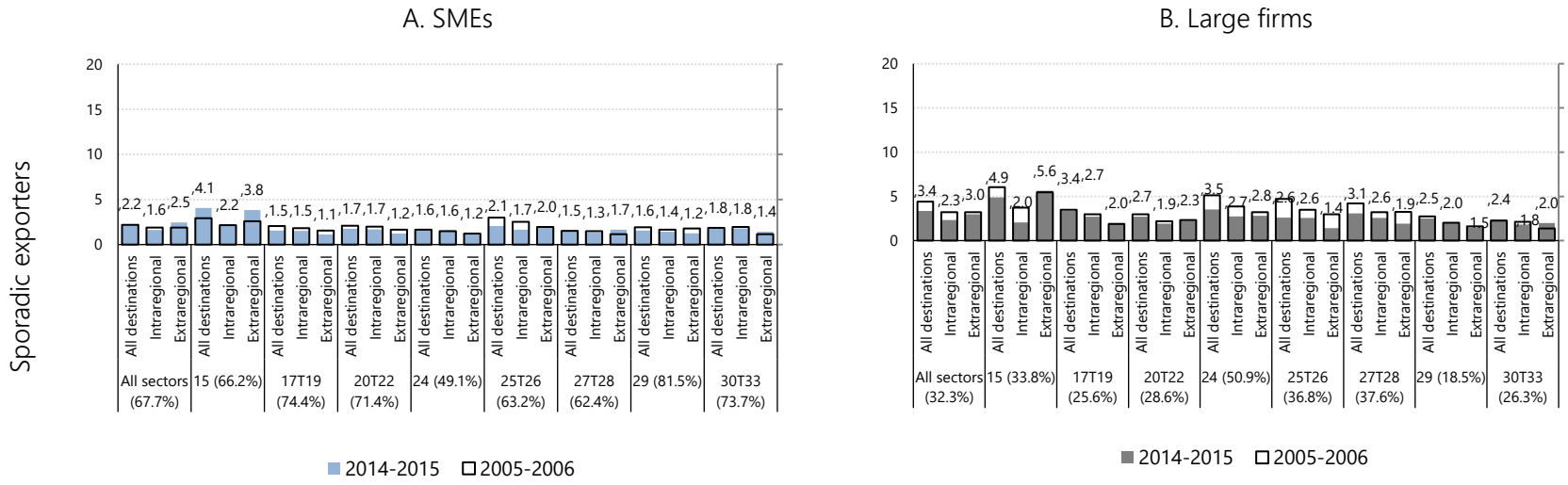
Source: Author's calculations on the basis of data from Chile's customs office.

[a] The percentages in brackets indicate the share of SMEs and large firms in each sector.

[b] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

Figure 8
Average firm-level number of destination countries, 2005-2006 and 2014-2015[a,b]
(Number of countries)



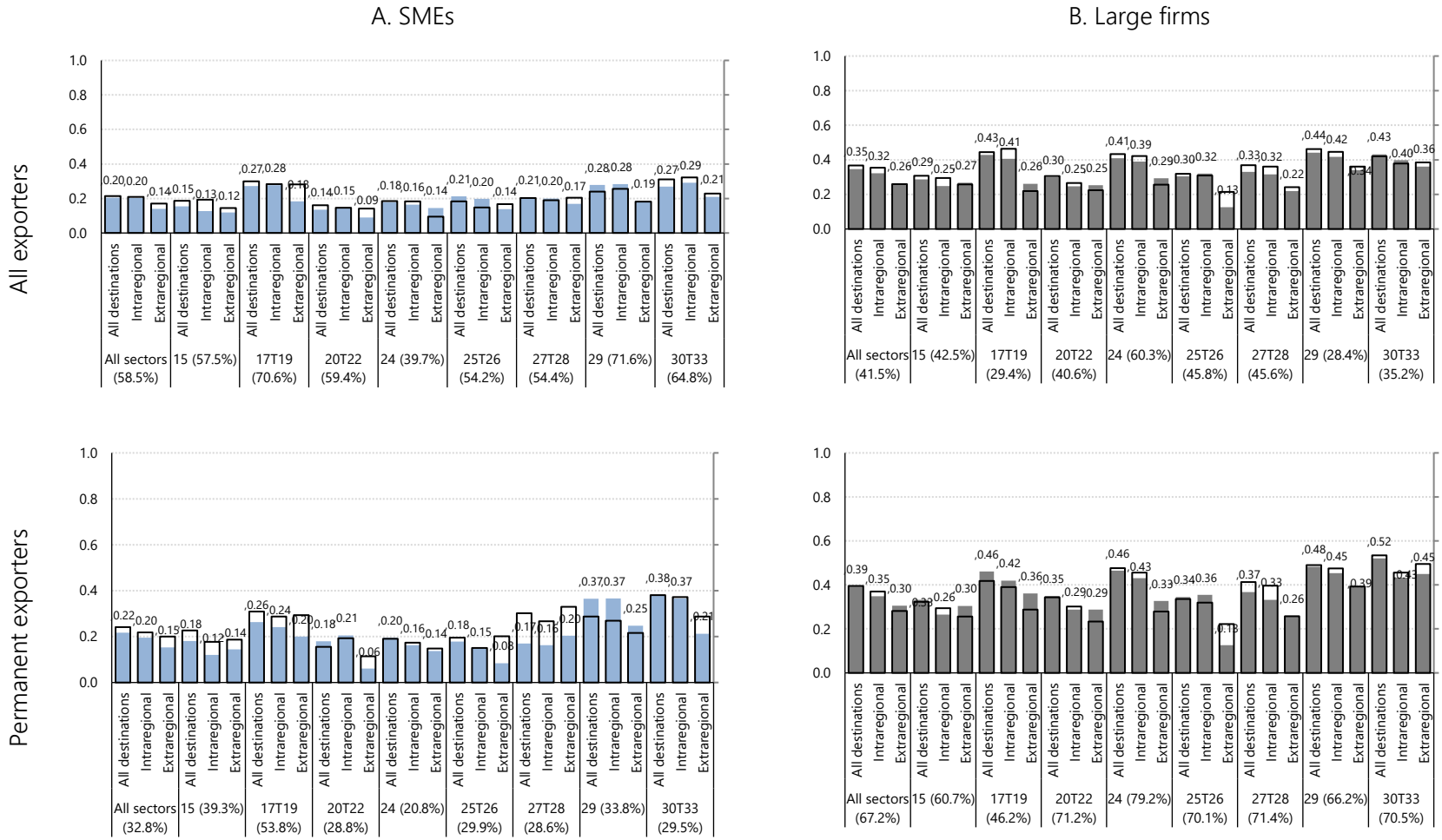


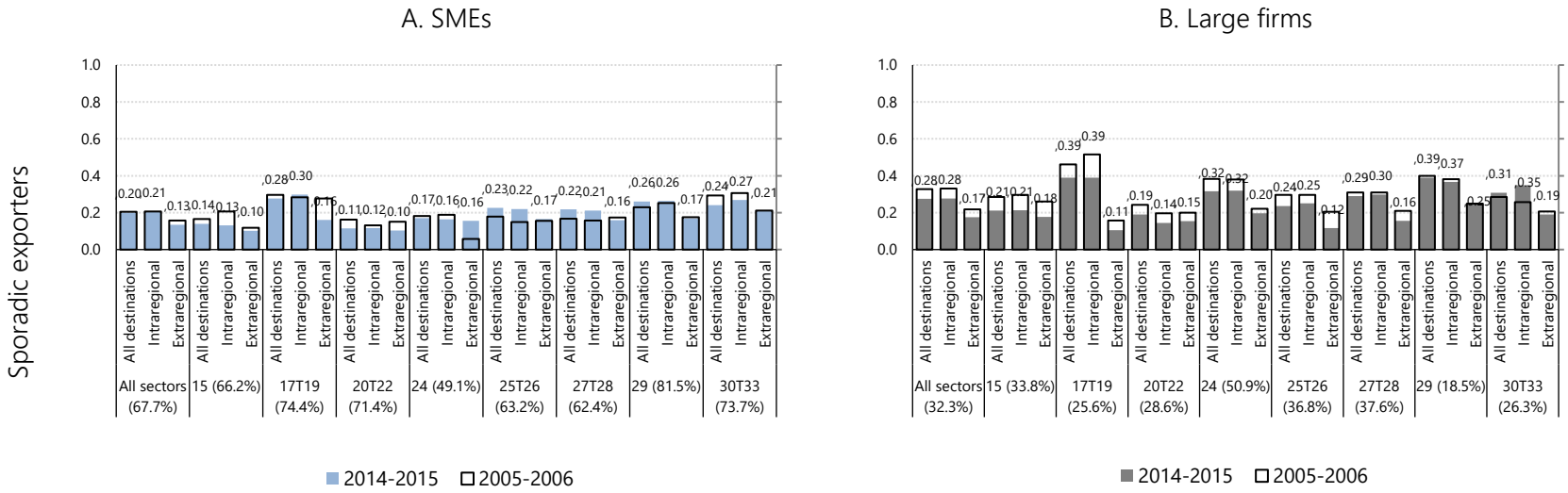
Source: Author's calculations on the basis of data from Chile's customs office.

[a] The percentages in brackets indicate the share of SMEs and large firms in each sector.

[b] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

Figure 9
Average firm-level diversification of exported products, 2005-2006 and 2014-2015[a]
(Herfindahl-Hirschman index)



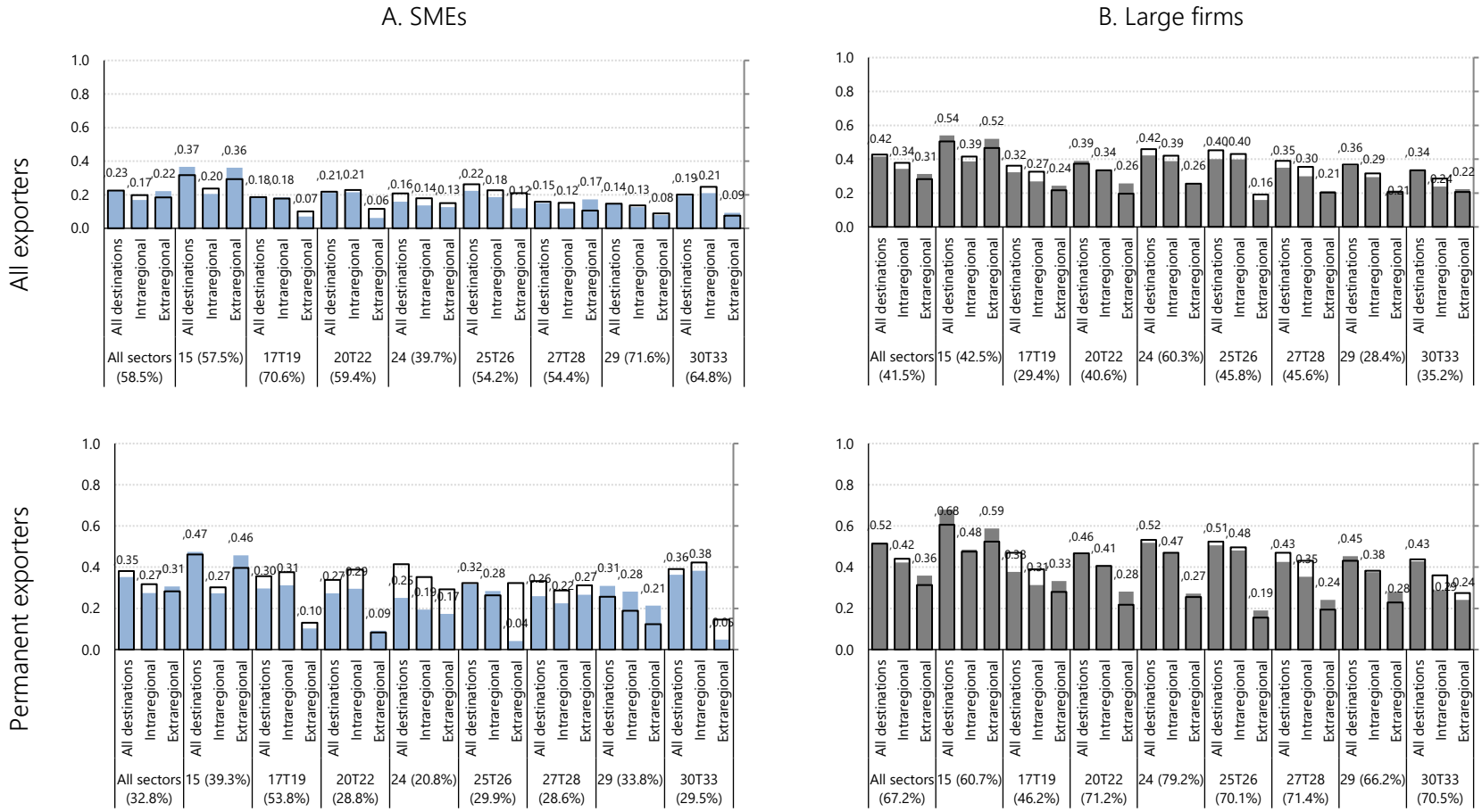


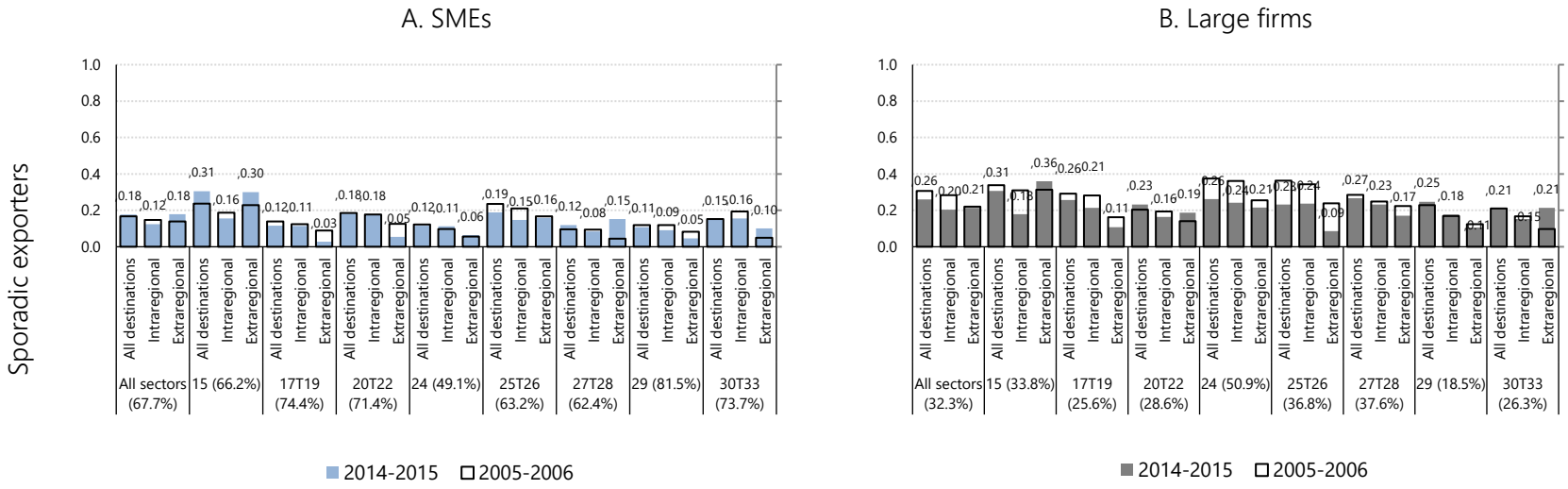
Source: Author's calculations on the basis of data from Chile's customs office.

[a] The percentages in brackets indicate the share of SMEs and large firms in each sector.

[b] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

Figure 10
Average firm-level diversification of destination countries, 2005-2006 and 2014-2015[a]
(Herfindahl-Hirschman index)





Source: Author's calculations on the basis of data from Chile's customs office.

[a] The percentages in brackets indicate the share of SMEs and large firms in each sector.

[b] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

III. Imported inputs and export performance: a sector-size-level analysis

A. Estimation strategy

The previous section provided a characterisation of the patterns of Chilean manufacturing firms' international sourcing activities and export performance. In this section, sector-size-level data are used to examine the relationship between the use of imported intermediate inputs and the extent of industries' export activity.[17]

The following equation is estimated:

$$\mathrm{PERF}_{\mathrm{it}} = \alpha + \beta_{\mathrm{m}}\mathrm{m}_{\mathrm{it-1}} + \sum_{\mathrm{z}}\beta_{\mathrm{z}}\mathrm{Z}_{\mathrm{it-1}} + \sum_{\mathrm{t}}\beta_{\mathrm{t}}\mathrm{T}_{\mathrm{t}} + \theta_{\mathrm{i}} + \varepsilon_{\mathrm{it}} \quad (1)$$

where *i* and *t* denote sector-size and year, respectively; *PERF* is the export performance indicator, *m* captures the use of imported inputs (variable of interest), *Z* are control variables, *T* are year dummies, θ are fixed effects that control for unobserved or omitted sector-size-level time-invariant factors, and ε is an independently and identically distributed (i.i.d.) error term.

The sector-size-level export performance indicators considered are the number of products exported and the number of destination markets (see figures A.5 and A.6 in the annex). The use of imported intermediate inputs is measured by four alternative sector-size-level indicators: import intensity, number of imported intermediates, number of origin countries, and number of imported input varieties (see figures A.1 to A.4 in the annex). Control variables include a set of observable sector-size characteristics that may be associated with export performance: labour productivity,

[17] Only exporting firms are considered in sector-size aggregates.

skill intensity, average level of foreign ownership, average firm size, average firm age, and number of firms (see table 2 in section I).

The use of lagged explanatory variables and fixed effects in equation (1) reduces unobserved heterogeneity and endogeneity concerns. However, the small number of observations available does not allow to adequately address the reverse causality problem, by taking into account the dynamic nature of the links between imported intermediates and industries' export performance. As a result, the analysis performed in this section cannot establish causal relations between the studied variables (i.e., whether it is the use of foreign intermediate goods that impact on sector-size groups' export activity, or it is sector-size groups' involvement in export markets what drives the use of imported inputs).

B. Results

Tables 3 and 4 show the estimation results for equation (1). In terms of product scope, a significant positive association is found for the number of imported inputs, the number of origin countries and the number of imported input varieties (once accounted for labour productivity, skill intensity, foreign ownership, firm size, firm age, and within-industry competition) (see table 3). Thus, having access to a wider range of foreign intermediates would be related to a more diversified export bundle. The relationship with import intensity is not statistically significant.

Table 3
Imported intermediate inputs and number of exported products, 2005-2015[a]

	(1)	(2)	(3)	(4)
Variable	Import intensity	Number of imported inputs	Number of origin countries	Number of imported input varieties
Imported inputs[b]	-0.0877	0.7225***	0.4038***	0.5828***
	(0.1543)	(0.2280)	(0.1448)	(0.1175)
Labour productivity	0.1030***	0.0664*	0.1027***	0.0613*
	(0.0387)	(0.0341)	(0.0301)	(0.0319)
Skill intensity	-0.2345	-0.2255	-0.2379*	-0.1847
	(0.1454)	(0.1566)	(0.1344)	(0.1352)
Foreign ownership	-0.0045	-0.0055	-0.0040	-0.0047
	(0.0032)	(0.0035)	(0.0032)	(0.0031)
Firm age	-0.7354**	-0.5392**	-0.6838**	-0.5835***
	(0.3339)	(0.2475)	(0.3329)	(0.2196)
Firm size	0.0341	0.0523	0.0230	0.0073
	(0.0488)	(0.0464)	(0.0530)	(0.0373)
Number of firms	0.7764***	0.7387***	0.7156***	0.5955***
	(0.1684)	(0.1537)	(0.2031)	(0.1590)
Observations	160	160	160	160

Source: Author's elaboration.
[a] Heteroskedasticity-robust standards errors are shown in parentheses. Errors are corrected for clustering at the sector-size level. *, ** and *** indicate significance at the 1%, 5% and 10% levels, respectively.
[b] Corresponds to import intensity (column 1), number of imported inputs (column 2), number of origin countries (column 3), or number of imported input varieties (column 4).

The results also show a significant positive correlation between the four measures of foreign intermediates considered and the geographic scope of Chilean manufacturing industries' export

sales (see table 4). Industries (i.e., sector-size groups) that source a higher proportion of their intermediates from abroad or have access to more diversified foreign inputs, are more diversified in terms of destination countries.

As for the control variables, estimates indicate that the extent of industries' export activity, particularly in the product dimension, is positively linked to their labour productivity level. In contrast, when significant, the relationship with skill intensity is negative. Thus, those sector-size groups with a more diversified export bundle are more productive and have lower average skill intensity. Results on firm age show a significant negative association with the number of exported products —indicating that those industries composed by less mature firms have more diversified export sales—, and a weak positive link with the geographic scope of export activity. Foreign ownership and firm size do not show a statistically significant relationship with the scope of industries' export sales.

Table 4
Imported intermediate inputs and number of destination countries, 2005-2015[a]

Variable	(1) Import intensity	(2) Number of imported inputs	(3) Number of origin countries	(4) Number of imported input varieties
Imported inputs[b]	0.2722***	0.4863***	0.2744*	0.3168***
	(0.1022)	(0.1790)	(0.1452)	(0.1077)
Labour productivity	0.0884***	0.0201	0.0599	0.0279
	(0.0291)	(0.0336)	(0.0494)	(0.0336)
Skill intensity	-0.2774***	-0.2307**	-0.2745***	-0.2409***
	(0.0989)	(0.0933)	(0.0915)	(0.0930)
Foreign ownership	0.0018	0.0002	0.0016	0.0007
	(0.0024)	(0.0017)	(0.0022)	(0.0019)
Firm age	0.1772	0.2203*	0.1197	0.1483
	(0.1358)	(0.1322)	(0.1223)	(0.1449)
Firm size	0.0138	0.0008	-0.0085	-0.0108
	(0.0470)	(0.0467)	(0.0427)	(0.0385)
Number of firms	0.0311	0.0175	-0.0044	-0.0513
	(0.1314)	(0.1109)	(0.1242)	(0.1016)
Observations	160	160	160	160

Source: Author's elaboration.

[a] Heteroskedasticity-robust standards errors are shown in parentheses. Errors are corrected for clustering at the sector-size level. *, ** and *** indicate significance at the 1%, 5% and 10% levels, respectively.

[b] Corresponds to import intensity (column 1), number of imported inputs (column 2), number of origin countries (column 3), or number of imported input varieties (column 4).

IV. Concluding remarks

Integration into GVCs offers opportunities for export diversification and upgrading, enabling countries to exploit finer comparative advantage niches. These competitiveness-related benefits of GVC participation are inextricably linked to the efficient sourcing of intermediate inputs. Particularly, accessing more differentiated, competitively priced and higher-quality imported intermediates can play an important role in enhancing export competitiveness.

This document examines Chilean manufacturing industries' backward participation in international production networks, evaluating the relationship between the use of foreign intermediate inputs and export performance (in terms of products and destination countries). The analysis is based on an original dataset that allows addressing within-industry heterogeneity across size classes.

The data show that Chilean manufacturing SMEs' participation in export activities is more limited than that of large enterprises. The proportion of firms engaged in exporting, and the share of permanent exporters, are significantly lower for SMEs. Also, the scope of SMEs' export activity is, on average, relatively limited in all the performance indicators considered (number of products exported, number of destination countries, and diversification of export sales). This would suggest that the resource constraints characteristic of smaller firms restrict their participation in export markets.

The proportion of input importers is also considerably lower for SMEs, although it increases among exporting firms (indicating potential common entry costs between import and export activities). For those SMEs engaged in international sourcing, the average level of import intensity is similar to that of large firms. However, in terms of the product and geographic scope of foreign intermediates, exporting SMEs are considerably less diversified than large enterprises.

The analysis reveals a positive association between the use of imported intermediate inputs and export performance at the sector-size level, in terms of the number of products exported and

the number of markets served. Product and geographic diversity of foreign intermediates are found to be positively linked to both dimensions of industries' export activity, while import intensity only shows a significant positive association with the number of destination countries. Although these results do not allow establishing causal relationships, they provide evidence on a connection between the patterns of import sourcing and industries' export performance.

Overall, findings in this document suggest that policies aimed at facilitating firms' access to foreign intermediates —particularly for SMEs— could contribute to enhance Chile's export performance. However, in a heterogeneous firm setting, a firm-level analysis would be required to identify the mechanisms linking international sourcing and export activity. It would also allow evaluating the channels through which foreign intermediates may affect export performance.

Bibliography

Bas, M. and Strauss-Kahn, V. (2014). "Does importing more inputs raise exports? Firm-level evidence from France", *Review of World Economics* 150 (2): 241-275.

Damijan, J.P., Konings, J. and Polanec, S. (2014). "Import churning and export performance of multi-product firms", *The World Economy* 37 (11): 1483-1506.

Damijan, J.P. and Kostevc, O. (2015), "Learning from trade through innovation", *Oxford Bulletin of Economics and Statistics* 77 (3): 408-436.

Eaton, J. and Kortum, S. (1999). "International technology diffusion: Theory and measurement", *International Economic Review* 40 (3): 537-570.

Ethier, W.J. (1979). "Internationally decreasing costs and world trade", *Journal of International Economics* 9 (1): 1-24.

Ethier, W.J. (1982). "National and international returns to scale in the modern theory of international trade", *American Economic Review* 72 (3): 389-405.

Feng, L., Li, Z. and Swenson, D.L. (2016). "The connection between imported intermediate inputs and exports: Evidence from Chinese firms", *Journal of International Economics* 101: 86-101.

Halpern, L., Koren, M. and Szeidl, A. (2015), "Imported inputs and productivity", *American Economic Review* 105 (12): 3660-3703.

Kowalski, P., Lopez-Gonzalez, J., Ragoussis, A. and Ugarte, C. (2015). "Participation of developing countries in global value chains: Implications for trade and trade-related policies", *OECD Trade Policy Papers* No. 179, OECD Publishing, Paris.

Lopez Gonzalez, J. (2016). "Using foreign factors to enhance domestic export performance: A focus on Southeast Asia", *OECD Trade Policy Papers* No. 191, OECD Publishing, Paris.

Lopez Gonzalez, J. (2017). "Mapping the participation of ASEAN small- and medium- sized enterprises in global value chains", *OECD Trade Policy Papers* No. 203, OECD Publishing, Paris.

Organisation for Economic Co-operation and Development (OECD) (2009). "Top barriers and drivers to SME internationalisation", Report by the OECD Working Party on SMEs and Entrepreneurship, OECD.

_____ (2013). *Interconnected Economies: Benefiting from Global Value Chains*, OECD Publishing.
_____ (2018). *OECD Economic Surveys: Chile 2018*, OECD Publishing.
Volpe Martincus, C., Carballo, J. and Garcia, P.M. (2012). "Public programmes to promote firms' exports in developing countries: Are there heterogeneous effects by size categories?", *Applied Economics* 44 (4): 471-491.
World Bank (2017). "The Republic of Chile. Systematic country diagnostic: Transition to a prosperous society", Report No 107903-CL.

Annex

Annex 1
Additional tables and figures

Table A.1
Firm-level import intensity: summary statistics, 2005-2006 and 2014-2015[a]

Category	Size class	Statistic	All sectors		15		17T19		20T22		24	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	35.1	40.8	14.9	19.1	42.3	55.5	33.8	34.6	42.7	44.2
		Median	29.0	35.2	7.0	9.4	42.2	56.1	24.7	26.5	38.9	41.5
		Dispersion	82.2	77.2	127.8	118.4	67.3	55.3	89.3	91.1	61.5	63.3
	SMEs	Mean	38.4	42.3	17.0	35.0	40.7	51.9	32.9	38.5	34.9	38.1
		Median	32.0	39.1	7.3	36.2	36.1	51.5	20.3	30.7	31.0	34.0
		Dispersion	77.0	72.0	127.7	86.7	71.0	57.8	93.1	88.7	73.1	53.9
	Large firms	Mean	34.1	40.4	14.7	17.7	43.5	59.0	33.9	33.7	43.6	45.3
		Median	27.1	34.1	6.9	8.0	42.4	70.6	24.7	23.8	40.4	41.6
		Dispersion	83.7	78.9	128.0	120.7	64.7	53.1	89.1	92.1	60.3	64.1
Permanent exporters	All firms	Mean	33.7	41.3	13.1	18.3	42.8	57.3	32.5	38.0	43.7	48.1
		Median	25.0	38.1	5.2	7.1	42.4	62.0	21.2	31.7	42.2	50.3
		Dispersion	87.1	76.5	142.0	128.8	61.5	45.4	96.5	80.8	60.9	58.3
	SMEs	Mean	38.4	46.8	16.0	37.2	41.6	55.2	79.7	54.3	35.1	39.4
		Median	34.7	48.3	9.4	29.4	40.2	61.6	87.1	38.1	27.2	42.0
		Dispersion	80.4	66.7	135.8	100.3	60.3	54.9	31.1	70.9	81.5	39.0
	Large firms	Mean	32.9	40.5	12.9	16.6	43.4	58.3	30.4	36.9	44.1	48.8
		Median	24.0	35.9	5.1	6.7	42.4	62.5	20.5	30.9	42.5	51.2
		Dispersion	88.2	78.2	143.1	129.2	62.5	42.6	99.0	82.4	60.1	58.9
Sporadic exporters	All firms	Mean	36.8	40.3	18.0	20.3	41.8	54.4	35.2	32.0	41.3	39.5
		Median	31.3	33.9	11.3	9.7	41.8	54.6	25.7	19.8	37.4	31.7
		Dispersion	76.5	78.0	108.5	105.6	72.0	60.9	81.7	100.3	62.6	69.6
	SMEs	Mean	38.4	40.5	18.3	32.1	40.2	51.0	22.1	35.4	34.8	37.6
		Median	32.0	35.8	5.0	36.2	32.4	47.6	16.7	22.5	32.5	33.5
		Dispersion	75.7	74.1	125.1	64.8	76.7	59.6	90.2	95.5	72.5	60.5
	Large firms	Mean	36.0	40.2	18.0	19.2	43.7	59.6	39.1	30.8	42.7	40.1
		Median	31.3	32.2	11.4	9.5	44.3	74.6	29.1	17.0	38.2	31.2
		Dispersion	76.9	80.1	107.3	111.0	67.7	62.3	76.7	103.1	60.9	72.2

Category	Size class	Statistic	All sectors		25T26		27T28		29		30T33	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	35.1	40.8	45.0	47.1	31.8	48.9	31.7	42.5	50.5	57.9
		Median	29.0	35.2	40.3	46.6	27.1	48.7	29.7	39.1	48.6	64.2
		Dispersion	82.2	77.2	63.4	64.4	90.6	67.2	72.6	73.0	59.7	55.3
	SMEs	Mean	38.4	42.3	40.0	42.2	37.3	31.4	32.7	40.3	53.9	54.0
		Median	32.0	39.1	36.9	43.4	33.1	23.4	24.5	29.3	51.9	60.0
		Dispersion	77.0	72.0	70.4	68.8	81.9	96.5	91.3	83.9	59.4	60.7
	Large firms	Mean	34.1	40.4	47.0	49.0	30.4	54.7	31.3	43.5	47.0	62.6
		Median	27.1	34.1	45.3	48.5	23.8	63.1	32.3	40.0	47.2	68.7
		Dispersion	83.7	78.9	60.5	62.6	93.1	58.1	62.2	69.4	60.0	50.0
Permanent exporters	All firms	Mean	33.7	41.3	44.4	44.7	33.4	54.3	33.7	49.9	46.0	47.2
		Median	25.0	38.1	38.7	38.4	29.0	64.2	29.2	52.3	46.8	48.6
		Dispersion	87.1	76.5	68.9	70.3	93.9	59.2	73.1	64.1	61.2	68.6
	SMEs	Mean	38.4	46.8	40.9	44.1	44.4	48.3	33.6	49.8	43.7	51.9
		Median	34.7	48.3	33.7	46.2	42.7	30.2	21.3	50.3	39.4	63.4
		Dispersion	80.4	66.7	91.2	70.9	55.9	74.5	106.5	73.4	83.7	69.3
	Large firms	Mean	32.9	40.5	45.2	44.8	32.4	54.9	33.7	49.9	46.8	42.9
		Median	24.0	35.9	40.3	38.4	21.7	64.8	36.1	55.8	47.2	46.3
		Dispersion	88.2	78.2	64.9	70.9	98.1	58.5	60.4	63.5	54.8	69.9
Sporadic exporters	All firms	Mean	36.8	40.3	45.4	48.9	29.5	43.6	28.5	32.7	54.5	66.7
		Median	31.3	33.9	41.9	52.1	25.6	35.8	30.2	28.6	54.3	73.6
		Dispersion	76.5	78.0	59.0	60.2	83.5	75.6	71.3	83.6	58.2	44.2
	SMEs	Mean	38.4	40.5	39.7	41.5	35.0	27.8	31.9	35.6	57.0	55.4
		Median	32.0	35.8	37.0	42.8	24.2	15.9	32.8	22.8	54.3	55.7
		Dispersion	75.7	74.1	62.1	69.1	92.2	102.6	78.0	92.7	53.8	57.6
	Large firms	Mean	36.0	40.2	49.1	53.3	25.9	54.4	26.0	30.1	47.4	84.4
		Median	31.3	32.2	50.8	60.0	27.1	60.7	27.7	32.7	46.2	81.9
		Dispersion	76.9	80.1	56.2	54.9	68.1	58.3	65.2	74.1	75.4	15.3

Source: Author's calculations on the basis of data from ENIA manufacturing survey.

[a] Dispersion is measured by the coefficient of variation, which shows the extent of variability in relation to the mean.

Table A.2
Firm-level number of imported inputs: summary statistics, 2005-2006 and 2014-2015[a]

Category	Size class	Statistic	All sectors		15		17T19		20T22		24	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	19.1	18.6	15.1	15.0	13.4	12.1	17.1	17.2	27.0	26.9
		Median	9.0	9.0	6.5	6.0	9.0	8.0	7.0	8.0	12.5	13.0
		Dispersion	152.7	155.7	144.1	149.6	118.6	119.3	179.1	155.3	163.0	178.9
	SMEs	Mean	7.7	8.4	4.8	5.1	8.7	8.5	4.8	5.9	6.0	5.5
		Median	4.0	4.5	2.0	2.0	6.0	5.5	3.0	3.0	4.0	3.0
		Dispersion	125.9	131.4	204.0	171.9	120.9	107.1	120.5	143.9	98.5	123.3
	Large firms	Mean	27.2	27.1	18.1	19.1	21.1	18.0	24.8	23.4	35.9	36.6
		Median	15.5	16.0	9.0	10.0	15.0	11.0	12.0	12.5	22.0	21.8
		Dispersion	129.0	131.6	128.6	130.5	93.8	105.7	148.5	132.4	138.7	150.9
Permanent exporters	All firms	Mean	28.8	29.0	16.6	15.9	18.9	17.6	27.6	27.8	42.9	44.5
		Median	16.0	16.8	7.3	7.3	12.5	11.0	14.5	15.3	29.3	32.3
		Dispersion	133.7	140.9	140.4	149.0	95.3	99.6	138.1	129.2	141.0	149.1
	SMEs	Mean	9.0	8.6	6.9	4.3	10.3	12.0	6.0	8.5	5.8	4.2
		Median	4.8	4.0	1.5	1.3	8.5	5.5	3.8	6.5	3.0	2.3
		Dispersion	125.9	117.4	235.3	161.1	84.5	115.8	122.7	109.8	124.6	131.8
	Large firms	Mean	33.7	34.8	18.3	18.5	26.9	23.5	31.3	30.9	48.3	51.4
		Median	21.5	21.0	9.0	9.0	22.3	20.5	16.5	18.5	33.5	37.0
		Dispersion	122.2	127.5	131.3	137.0	77.1	82.0	127.7	121.7	130.1	135.3
Sporadic exporters	All firms	Mean	13.9	13.0	13.6	14.2	11.8	9.9	9.6	9.2	17.5	13.5
		Median	7.0	7.0	5.5	5.5	7.5	6.8	4.0	4.5	9.5	7.8
		Dispersion	149.7	133.3	147.3	150.0	126.3	125.5	220.0	126.8	149.9	135.0
	SMEs	Mean	7.5	8.3	3.8	5.4	8.3	7.4	4.6	5.4	6.0	5.8
		Median	4.0	4.5	2.0	3.0	5.0	5.8	3.0	3.0	4.0	3.0
		Dispersion	125.3	134.3	113.4	171.2	129.8	91.5	119.6	152.6	93.9	121.0
	Large firms	Mean	21.2	19.5	17.9	20.0	18.6	14.8	15.8	13.2	25.1	19.5
		Median	12.0	12.0	8.5	11.5	12.8	9.3	8.0	10.0	15.0	14.0
		Dispersion	127.1	111.2	125.9	123.7	102.3	124.3	189.7	100.7	124.8	111.7

Category	Size class	Statistic	All sectors		25T26		27T28		29		30T33	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	19.1	18.6	17.1	16.6	17.9	16.5	22.4	23.3	23.9	21.1
		Median	9.0	9.0	9.3	8.5	9.8	8.0	12.0	12.5	12.0	10.5
		Dispersion	152.7	155.7	130.8	140.7	138.0	129.3	131.0	136.5	134.1	139.2
	SMEs	Mean	7.7	8.4	6.8	6.5	7.3	7.3	9.9	12.6	11.5	10.4
		Median	4.0	4.5	4.0	4.0	4.5	4.5	6.0	8.0	7.5	5.8
		Dispersion	125.9	131.4	108.4	107.4	122.3	111.6	106.8	120.2	118.0	125.8
	Large firms	Mean	27.2	27.1	23.9	23.8	25.2	24.4	39.0	43.5	40.9	37.3
		Median	15.5	16.0	14.0	13.5	17.8	17.8	28.0	29.0	30.0	26.3
		Dispersion	129.0	131.6	109.0	117.1	115.5	104.6	95.1	99.7	100.7	103.4
Permanent exporters	All firms	Mean	28.8	29.0	25.2	26.9	27.6	27.0	39.7	42.0	43.4	40.0
		Median	16.0	16.8	14.5	16.0	20.5	19.5	25.0	26.3	30.5	21.0
		Dispersion	133.7	140.9	112.3	119.7	113.1	99.9	98.4	114.8	95.8	117.4
	SMEs	Mean	9.0	8.6	6.8	8.5	10.4	9.3	13.3	12.9	16.1	7.8
		Median	4.8	4.0	5.0	4.0	5.8	5.5	13.3	10.8	19.0	4.8
		Dispersion	125.9	117.4	100.6	122.5	138.6	108.6	81.0	70.5	81.2	89.4
	Large firms	Mean	33.7	34.8	31.5	31.9	31.7	31.7	46.3	53.7	52.6	51.5
		Median	21.5	21.0	22.3	20.5	22.5	23.0	32.3	33.0	42.3	37.0
		Dispersion	122.2	127.5	95.3	107.4	103.3	88.5	88.0	97.8	83.5	96.7
Sporadic exporters	All firms	Mean	13.9	13.0	12.5	10.6	13.3	12.0	14.9	17.2	17.5	14.7
		Median	7.0	7.0	6.5	6.0	6.5	6.5	7.0	10.0	8.8	9.5
		Dispersion	149.7	133.3	133.2	122.0	145.6	137.1	131.6	122.1	144.1	109.6
	SMEs	Mean	7.5	8.3	6.8	6.0	6.8	7.0	9.5	12.6	11.0	10.8
		Median	4.0	4.5	4.0	4.0	4.0	4.5	5.8	7.0	6.8	6.0
		Dispersion	125.3	134.3	110.7	97.5	112.4	111.7	110.9	125.0	123.9	127.1
	Large firms	Mean	21.2	19.5	17.8	15.8	20.2	18.7	29.5	33.0	31.7	24.7
		Median	12.0	12.0	10.0	10.5	12.3	12.0	24.5	25.5	22.0	23.8
		Dispersion	127.1	111.2	115.9	103.9	123.6	116.2	97.8	85.5	115.8	71.3

Source: Author's calculations on the basis of data from Chile's customs office.

[a] Dispersion is measured by the coefficient of variation, which shows the extent of variability in relation to the mean.

Table A.3
Firm-level number of origin countries: summary statistics, 2005-2006 and 2014-2015[a]

Category	Size class	Statistic	All sectors		15		17T19		20T22		24	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	6.3	6.4	5.4	5.9	5.6	4.6	5.6	6.1	8.8	9.1
		Median	4.0	4.0	3.0	3.5	4.5	3.0	3.5	3.5	6.5	6.5
		Dispersion	95.3	101.4	105.3	106.6	85.1	80.8	104.3	104.9	84.9	87.0
	SMEs	Mean	3.2	3.2	3.8	5.3	8.6	7.1	4.6	5.1	6.5	6.2
		Median	2.0	2.0	2.0	3.0	6.0	6.0	4.0	4.0	5.0	4.0
		Dispersion	86.8	89.5	78.8	120.4	89.5	75.5	84.4	88.7	75.8	90.2
	Large firms	Mean	8.5	9.0	12.9	14.6	15.4	12.4	15.2	16.2	22.4	23.5
		Median	7.0	7.0	8.0	10.0	12.0	11.0	12.0	14.0	18.0	20.0
		Dispersion	78.1	82.1	93.9	93.0	69.2	71.6	84.8	87.5	68.5	67.8
Permanent exporters	All firms	Mean	8.7	9.3	5.9	6.5	7.8	6.1	8.2	9.1	12.0	13.1
		Median	7.0	7.0	4.0	4.0	6.0	5.5	6.5	7.8	10.8	11.8
		Dispersion	79.8	87.4	99.5	107.3	71.9	70.1	83.4	87.0	66.7	68.1
	SMEs	Mean	3.6	3.3	2.1	2.0	5.6	4.2	3.0	3.5	3.7	2.9
		Median	2.5	2.5	1.5	1.0	5.0	3.0	2.5	2.5	3.0	2.0
		Dispersion	82.1	82.2	66.5	79.1	66.6	69.7	67.7	79.6	82.5	93.4
	Large firms	Mean	9.9	11.0	6.6	7.5	9.9	8.0	9.1	10.0	13.3	14.9
		Median	8.0	9.0	4.3	5.0	8.5	7.5	7.0	9.0	12.8	14.8
		Dispersion	70.9	76.1	93.0	97.5	64.0	57.0	76.7	81.1	58.8	56.8
Sporadic exporters	All firms	Mean	5.0	4.8	4.9	5.4	5.0	4.0	3.7	3.9	6.9	6.0
		Median	3.0	3.0	2.5	3.0	4.0	3.0	2.0	2.8	5.0	5.0
		Dispersion	99.4	96.0	111.2	104.2	86.7	82.1	109.9	95.7	93.7	86.9
	SMEs	Mean	3.1	3.2	1.8	2.9	4.0	3.3	2.2	2.3	3.2	3.2
		Median	2.0	2.0	1.0	1.8	3.0	2.3	1.8	2.0	2.5	2.0
		Dispersion	87.7	91.1	85.1	123.4	95.3	77.2	88.1	88.1	74.0	90.0
	Large firms	Mean	7.2	7.0	6.2	7.1	6.8	5.2	5.6	5.6	9.4	8.1
		Median	6.0	5.5	4.0	5.0	6.0	4.0	4.5	4.0	8.0	6.8
		Dispersion	82.9	79.0	95.5	86.9	67.9	78.3	91.1	78.1	75.8	68.2

Category	Size class	Statistic	All sectors		25T26		27T28		29		30T33	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	6.3	6.4	6.3	6.7	5.8	5.4	5.7	6.1	7.1	7.3
		Median	4.0	4.0	5.0	5.0	4.0	4.0	3.5	4.0	4.5	5.0
		Dispersion	95.3	101.4	81.6	92.2	90.6	94.1	101.1	109.3	95.1	104.2
	SMEs	Mean	3.2	3.2	6.1	5.6	5.7	5.6	6.2	7.3	7.5	8.2
		Median	2.0	2.0	4.0	4.0	4.0	4.0	4.0	6.0	6.0	6.0
		Dispersion	86.8	89.5	75.2	72.0	79.1	76.0	81.6	95.2	78.8	80.2
	Large firms	Mean	8.5	9.0	17.0	19.0	15.6	15.4	18.1	21.4	23.3	24.4
		Median	7.0	7.0	15.0	16.0	13.0	13.0	15.0	16.0	21.0	20.5
		Dispersion	78.1	82.1	63.2	69.9	73.7	75.6	76.4	79.8	66.5	78.6
Permanent exporters	All firms	Mean	8.7	9.3	8.4	10.1	7.9	8.0	9.2	10.7	13.2	13.1
		Median	7.0	7.0	7.5	8.0	7.3	7.0	7.5	7.5	11.0	11.0
		Dispersion	79.8	87.4	68.1	75.1	68.0	71.9	76.7	86.9	64.2	86.2
	SMEs	Mean	3.6	3.3	3.2	3.2	3.3	3.4	3.5	4.6	4.2	2.8
		Median	2.5	2.5	2.5	2.0	2.5	2.5	2.3	3.5	3.5	2.5
		Dispersion	82.1	82.2	75.8	83.5	91.5	86.1	90.8	73.0	73.6	70.3
	Large firms	Mean	9.9	11.0	10.2	12.0	9.0	9.3	10.7	13.2	16.2	16.7
		Median	8.0	9.0	8.8	10.8	9.0	8.5	8.8	12.0	15.3	14.0
		Dispersion	70.9	76.1	53.1	61.9	58.1	61.5	66.4	74.5	46.2	65.4
Sporadic exporters	All firms	Mean	5.0	4.8	5.2	4.7	4.8	4.3	4.1	4.6	5.1	5.4
		Median	3.0	3.0	4.0	3.5	3.0	3.0	3.0	3.0	3.5	4.0
		Dispersion	99.4	96.0	86.0	86.1	101.7	100.8	101.1	101.0	90.0	85.1
	SMEs	Mean	3.1	3.2	3.0	2.7	2.8	2.7	3.1	3.5	3.7	4.3
		Median	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	3.0	3.5
		Dispersion	87.7	91.1	75.6	67.6	76.1	73.1	80.6	98.3	79.9	79.4
	Large firms	Mean	7.2	7.0	7.2	7.1	6.8	6.4	7.0	8.1	8.1	8.2
		Median	6.0	5.5	5.5	6.0	5.0	5.0	4.3	6.3	6.8	7.0
		Dispersion	82.9	79.0	69.6	66.2	87.0	86.9	87.1	75.1	73.2	72.2

Source: Author's calculations on the basis of data from Chile's customs office.

[a] Dispersion is measured by the coefficient of variation, which shows the extent of variability in relation to the mean.

Table A.4
Firm-level number of imported input varieties: summary statistics, 2005-2006 and 2014-2015[a]

Category	Size class	Statistic	All sectors		15		17T19		20T22		24	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	30.0	31.7	21.1	22.8	18.1	16.1	28.7	29.5	43.7	43.9
		Median	11.0	11.0	7.5	7.5	10.3	9.0	8.5	10.0	18.0	17.5
		Dispersion	186.7	227.9	172.4	185.1	138.8	135.7	235.1	221.5	170.2	189.4
	SMEs	Mean	9.8	11.4	5.2	6.5	11.3	10.7	5.7	7.0	7.5	7.3
		Median	5.0	5.0	2.0	2.3	6.0	6.0	3.5	3.0	4.5	3.3
		Dispersion	142.9	190.6	189.8	221.0	158.4	122.6	126.5	141.3	110.7	140.2
	Large firms	Mean	44.5	48.7	25.9	29.6	29.3	24.9	43.1	41.9	58.9	60.5
		Median	21.5	22.0	10.3	12.5	19.0	13.8	16.0	16.0	29.5	31.5
		Dispersion	154.8	190.1	154.6	161.4	105.5	117.5	192.2	187.3	142.6	158.0
Permanent exporters	All firms	Mean	48.2	54.0	23.7	25.1	26.7	23.4	50.0	52.4	71.3	76.0
		Median	21.0	22.0	8.5	8.5	16.8	14.5	19.0	20.5	41.5	48.0
		Dispersion	158.3	199.7	171.6	198.7	111.5	115.8	183.2	177.2	137.3	150.3
	SMEs	Mean	11.4	10.5	7.7	4.8	13.4	13.7	7.3	10.3	8.8	6.3
		Median	6.0	5.0	2.5	2.0	9.5	6.8	4.3	6.5	3.5	2.8
		Dispersion	130.6	120.2	213.5	153.7	87.7	119.0	116.6	113.4	134.3	155.0
	Large firms	Mean	57.4	66.2	26.4	29.5	39.1	33.5	57.4	59.2	80.5	87.9
		Median	28.0	30.0	10.8	10.5	26.8	28.5	21.5	26.0	52.3	55.0
		Dispersion	143.8	179.8	162.4	182.9	91.6	96.5	169.6	166.2	126.1	136.1
Sporadic exporters	All firms	Mean	20.2	19.8	18.7	20.9	15.7	13.1	13.5	12.1	27.1	19.5
		Median	8.0	8.0	6.5	6.5	9.0	7.5	4.5	5.3	11.8	9.8
		Dispersion	185.9	187.7	170.4	165.9	148.3	141.8	267.8	144.2	181.3	154.6
	SMEs	Mean	9.5	11.6	4.2	7.2	10.8	9.7	5.4	6.4	7.3	7.5
		Median	5.0	5.0	2.0	3.0	5.3	6.0	3.5	3.0	4.5	4.0
		Dispersion	145.8	199.7	115.9	225.8	174.7	122.2	128.9	147.6	103.7	137.7
	Large firms	Mean	32.4	31.2	25.2	29.8	25.0	19.9	23.4	18.4	40.2	28.8
		Median	16.0	15.5	10.0	14.0	17.5	11.0	10.8	12.0	22.0	18.5
		Dispersion	154.7	154.9	144.6	134.5	110.9	132.8	221.5	118.3	148.4	127.1

Category	Size class	Statistic	All sectors		25T26		27T28		29		30T33	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	30.0	31.7	25.0	25.0	26.3	24.6	39.2	49.6	41.5	42.7
		Median	11.0	11.0	11.3	10.5	11.0	10.0	15.0	16.5	18.0	16.5
		Dispersion	186.7	227.9	149.4	178.8	168.4	158.1	187.8	258.2	158.1	191.9
	SMEs	Mean	9.8	11.4	8.5	7.4	9.1	8.9	12.8	19.1	14.9	15.9
		Median	5.0	5.0	4.5	4.5	5.0	5.5	7.0	9.0	8.5	7.0
		Dispersion	142.9	190.6	116.2	111.5	145.0	121.4	120.9	192.2	121.6	164.8
	Large firms	Mean	44.5	48.7	36.0	37.5	38.3	38.2	74.5	107.3	78.1	83.1
		Median	21.5	22.0	20.3	19.3	23.0	22.0	37.8	40.0	50.3	44.0
		Dispersion	154.8	190.1	123.2	146.4	139.9	126.4	135.6	186.6	111.1	138.2
Permanent exporters	All firms	Mean	48.2	54.0	37.2	42.8	42.0	41.3	76.8	109.4	88.9	95.5
		Median	21.0	22.0	19.0	22.3	24.3	24.0	33.8	35.5	61.5	37.5
		Dispersion	158.3	199.7	128.0	152.9	139.4	119.9	135.8	204.4	108.0	145.2
	SMEs	Mean	11.4	10.5	8.3	10.0	13.7	11.8	16.5	16.8	19.8	9.2
		Median	6.0	5.0	6.0	5.0	7.0	6.3	15.0	15.0	21.5	6.5
		Dispersion	130.6	120.2	111.8	125.4	174.5	117.2	88.1	76.5	79.0	88.1
	Large firms	Mean	57.4	66.2	47.2	51.7	48.7	49.3	91.9	146.6	111.8	126.4
		Median	28.0	30.0	30.0	29.0	30.0	29.0	48.8	51.5	81.0	79.5
		Dispersion	143.8	179.8	108.9	137.4	128.0	106.9	121.4	174.7	90.0	118.9
Sporadic exporters	All firms	Mean	20.2	19.8	18.2	14.7	19.0	17.6	22.9	30.0	26.0	24.6
		Median	8.0	8.0	9.0	7.5	8.0	7.0	8.5	12.0	12.0	11.5
		Dispersion	185.9	187.7	154.7	138.7	176.7	176.1	197.5	211.4	162.5	144.7
	SMEs	Mean	9.5	11.6	8.6	6.9	8.3	8.5	12.3	19.4	14.3	16.7
		Median	5.0	5.0	4.3	4.5	5.0	5.3	6.8	8.5	7.5	7.3
		Dispersion	145.8	199.7	117.8	101.1	123.5	121.4	126.0	199.1	128.2	164.6
	Large firms	Mean	32.4	31.2	27.0	23.6	30.3	29.6	51.7	66.5	51.7	44.6
		Median	16.0	15.5	13.0	13.5	15.5	14.3	29.3	33.5	32.0	28.3
		Dispersion	154.7	154.9	132.1	111.5	146.3	144.9	146.8	159.3	123.8	101.4

Source: Author's calculations on the basis of data from Chile's customs office.

[a] Dispersion is measured by the coefficient of variation, which shows the extent of variability in relation to the mean.

Table A.5
Firm-level number of products exported: summary statistics, 2005-2006 and 2014-2015[a]

Category	Size class	Statistic	All sectors		15		17T19		20T22		24	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	6.3	5.6	4.6	3.8	6.6	5.6	4.3	3.5	8.0	6.8
		Median	3.0	2.5	2.3	2.0	3.0	3.0	2.0	2.0	3.5	3.5
		Dispersion	177.7	196.0	151.4	145.2	147.1	130.2	186.5	114.5	135.7	125.2
	SMEs	Mean	3.1	3.0	2.4	2.3	4.9	4.6	2.3	2.0	2.8	2.1
		Median	2.0	2.0	2.0	1.0	2.0	2.0	1.5	1.0	2.0	1.0
		Dispersion	136.0	161.3	82.8	111.1	163.9	154.5	96.1	111.8	112.3	89.6
	Large firms	Mean	8.9	8.1	6.5	5.4	9.8	7.1	6.1	4.6	10.4	9.2
		Median	4.5	4.0	3.3	3.3	5.5	4.5	3.0	3.0	6.3	6.5
		Dispersion	157.6	174.9	138.1	131.9	118.0	102.1	171.5	100.3	117.8	104.0
Permanent exporters	All firms	Mean	8.8	8.1	5.7	5.3	8.1	6.2	6.1	4.8	11.5	9.9
		Median	4.5	4.0	3.0	3.0	4.5	4.0	3.0	3.0	7.0	6.5
		Dispersion	160.4	178.5	138.5	134.2	132.4	109.8	151.2	101.8	109.6	104.1
	SMEs	Mean	3.9	3.3	3.0	2.7	6.3	4.5	3.2	2.9	3.1	2.3
		Median	2.5	2.0	2.5	2.0	3.3	2.3	2.0	2.0	2.3	2.0
		Dispersion	117.5	105.4	74.9	84.2	136.4	122.6	106.1	119.0	105.8	68.5
	Large firms	Mean	10.7	10.3	7.0	6.9	9.9	8.1	6.9	5.5	13.6	11.9
		Median	6.0	5.5	4.3	4.5	5.0	5.3	3.8	3.3	10.0	9.5
		Dispersion	149.5	163.5	131.6	122.9	122.6	94.7	146.6	94.0	97.2	90.2
Sporadic exporters	All firms	Mean	4.3	3.6	3.5	2.4	6.0	5.1	2.9	2.0	5.0	3.4
		Median	2.0	2.0	1.8	1.5	3.0	2.5	1.5	1.0	2.0	2.0
		Dispersion	174.9	175.8	161.4	117.4	153.2	148.8	229.5	85.9	155.9	107.7
	SMEs	Mean	2.8	2.9	2.1	2.1	4.5	4.8	2.0	1.7	2.7	2.1
		Median	1.5	1.5	1.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0
		Dispersion	143.6	182.9	85.1	129.5	174.6	169.5	79.7	77.7	113.6	100.2
	Large firms	Mean	6.4	4.8	5.6	3.0	9.7	6.2	4.7	2.7	6.6	4.6
		Median	3.0	2.5	2.5	2.0	5.0	4.0	2.3	2.0	3.5	3.5
		Dispersion	160.1	159.1	148.5	98.6	114.9	109.0	235.5	78.1	143.2	93.5

Category	Size class	Statistic	All sectors		25T26		27T28		29		30T33	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	6.3	5.6	5.1	4.2	6.3	5.3	10.9	9.6	8.2	9.3
		Median	3.0	2.5	3.0	2.5	3.5	3.0	4.0	3.0	3.0	3.0
		Dispersion	177.7	196.0	133.7	117.9	146.2	165.0	222.8	216.8	143.6	209.3
	SMEs	Mean	3.1	3.0	2.8	3.2	2.9	2.7	3.3	4.2	3.9	3.9
		Median	2.0	2.0	2.0	2.0	1.5	2.0	2.0	2.0	3.0	2.0
		Dispersion	136.0	161.3	108.0	136.8	96.5	87.4	102.9	201.3	114.0	131.5
	Large firms	Mean	8.9	8.1	6.7	5.1	8.8	7.7	18.2	18.1	12.1	14.8
		Median	4.5	4.0	4.0	3.0	6.0	4.0	8.0	8.3	7.5	5.5
		Dispersion	157.6	174.9	121.3	104.4	128.2	147.9	177.4	164.9	121.4	176.6
Permanent exporters	All firms	Mean	8.8	8.1	6.3	5.5	8.0	6.9	19.0	18.9	15.8	17.9
		Median	4.5	4.0	4.5	3.5	6.0	4.5	9.3	7.8	11.0	6.3
		Dispersion	160.4	178.5	109.6	103.2	93.5	117.6	179.3	170.2	99.7	161.2
	SMEs	Mean	3.9	3.3	3.1	3.5	4.2	2.8	4.6	4.8	6.6	5.0
		Median	2.5	2.0	2.0	2.0	3.0	2.0	3.5	3.5	3.0	3.8
		Dispersion	117.5	105.4	98.5	128.7	84.4	94.9	80.1	70.0	119.2	89.7
	Large firms	Mean	10.7	10.3	7.6	6.3	9.2	8.4	23.1	25.6	19.1	22.4
		Median	6.0	5.5	5.0	4.0	7.0	5.5	13.5	12.3	13.5	10.8
		Dispersion	149.5	163.5	100.0	93.3	86.8	105.8	162.8	145.2	87.2	144.3
Sporadic exporters	All firms	Mean	4.3	3.6	4.1	3.1	5.0	4.3	4.2	5.2	3.4	3.9
		Median	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.0	2.0
		Dispersion	174.9	175.8	161.2	128.1	205.4	208.3	132.4	184.5	98.3	126.4
	SMEs	Mean	2.8	2.9	2.6	3.1	2.4	2.6	2.9	4.1	3.2	3.7
		Median	1.5	1.5	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0
		Dispersion	143.6	182.9	113.7	135.7	92.2	84.3	109.6	224.9	88.6	145.4
	Large firms	Mean	6.4	4.8	5.6	3.1	8.2	6.9	7.3	8.4	3.8	4.3
		Median	3.0	2.5	2.5	2.0	4.0	3.0	4.8	4.5	2.3	2.5
		Dispersion	160.1	159.1	155.2	103.5	177.5	198.4	111.2	117.9	103.2	92.8

Source: Author's calculations on the basis of data from Chile's customs office.

[a] Dispersion is measured by the coefficient of variation, which shows the extent of variability in relation to the mean.

Table A.6
Firm-level number of destination countries: summary statistics, 2005-2006 and 2014-2015[a]

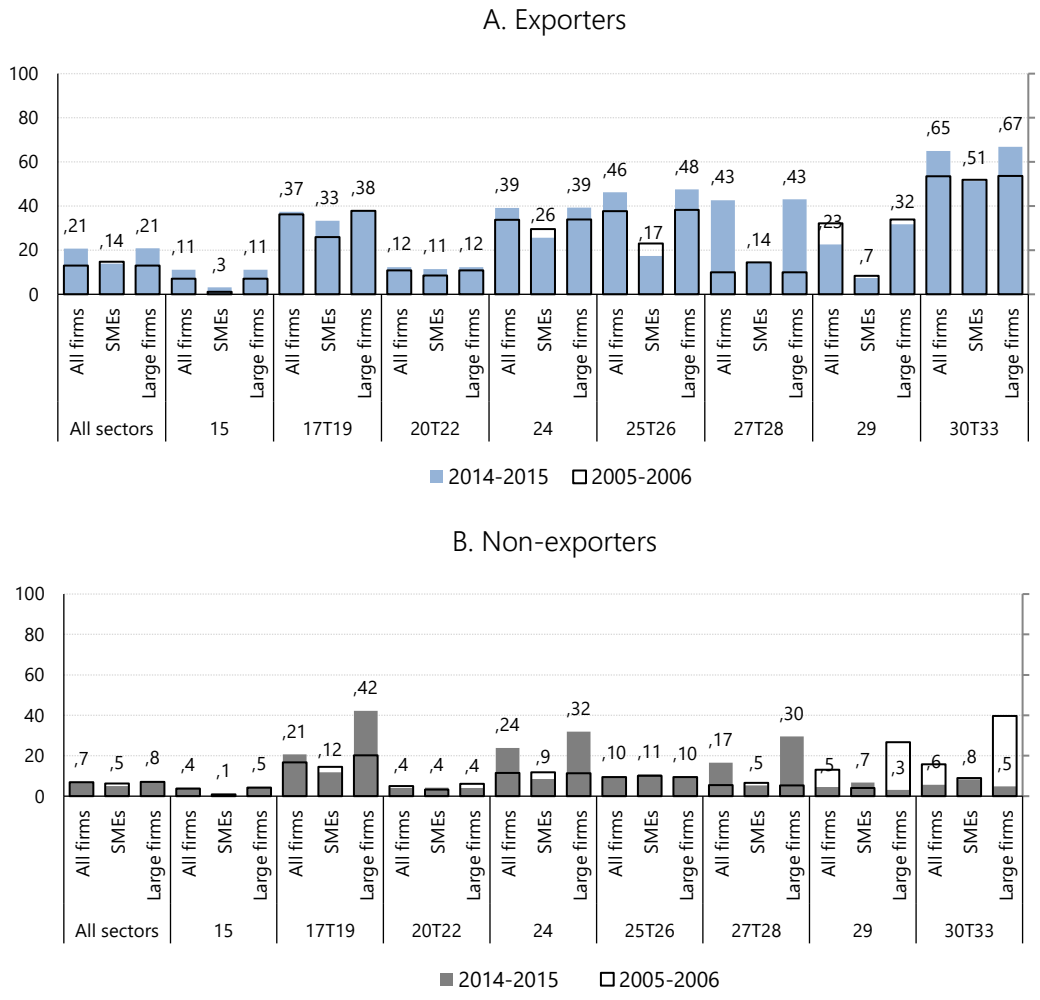
Category	Size class	Statistic	All sectors		15		17T19		20T22		24	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	5.1	5.1	8.3	9.2	3.1	3.0	4.2	4.3	5.2	4.7
		Median	2.5	2.0	4.0	4.0	2.0	2.0	2.5	2.0	3.0	2.5
		Dispersion	139.2	162.2	137.0	145.7	111.2	109.6	121.1	138.9	112.5	132.6
	SMEs	Mean	2.8	2.9	3.9	5.2	2.4	2.2	2.5	2.1	2.6	2.0
		Median	1.0	1.0	2.0	3.0	1.0	1.0	1.0	1.5	1.0	1.0
		Dispersion	118.0	150.9	114.8	140.6	104.0	87.8	100.0	83.9	136.0	95.5
	Large firms	Mean	7.0	7.2	11.9	13.5	4.6	4.3	5.6	6.0	6.3	6.1
		Median	4.0	4.0	6.5	7.5	3.0	2.3	3.8	3.5	4.0	4.0
		Dispersion	123.5	142.7	115.8	123.9	98.7	102.5	109.2	122.4	99.2	117.6
Permanent exporters	All firms	Mean	7.6	8.0	12.3	14.2	4.9	4.1	6.4	6.3	6.9	6.7
		Median	5.0	4.5	7.8	8.5	4.0	2.5	4.5	4.0	5.0	4.0
		Dispersion	115.5	133.0	109.1	115.2	92.1	88.3	101.0	119.7	91.1	108.6
	SMEs	Mean	4.4	4.4	5.7	7.2	3.6	3.2	4.0	2.8	5.1	2.8
		Median	3.0	2.5	4.0	4.0	3.3	2.5	2.8	2.0	3.0	2.0
		Dispersion	89.2	122.5	76.5	109.5	61.2	77.9	90.1	89.3	113.7	98.8
	Large firms	Mean	8.9	9.7	15.4	18.6	6.4	5.1	7.1	7.5	7.4	7.7
		Median	6.0	6.0	11.0	13.3	5.0	3.0	5.0	5.0	5.5	5.0
		Dispersion	110.3	124.1	97.5	100.2	91.5	86.4	97.6	110.3	86.6	100.3
Sporadic exporters	All firms	Mean	3.1	2.6	4.2	4.4	2.5	2.1	2.4	2.1	3.7	2.6
		Median	1.5	1.0	2.0	2.0	1.0	1.0	1.5	1.5	2.0	1.0
		Dispersion	142.7	152.3	157.5	155.8	111.0	127.2	99.5	85.6	134.2	157.0
	SMEs	Mean	2.2	2.2	2.9	4.1	2.0	1.5	2.1	1.7	1.6	1.6
		Median	1.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0
		Dispersion	127.2	161.2	145.1	165.5	119.6	67.5	93.6	63.7	76.5	76.3
	Large firms	Mean	4.4	3.4	6.0	4.9	3.5	3.4	3.0	2.7	5.1	3.5
		Median	2.0	2.0	2.5	2.0	2.0	1.5	2.0	2.0	3.0	1.8
		Dispersion	131.8	136.4	143.9	140.6	89.5	133.2	99.8	92.0	116.9	154.7

Category	Size class	Statistic	All sectors		25T26		27T28		29		30T33	
			2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015	2005-2006	2014-2015
All exporters	All firms	Mean	5.1	5.1	4.9	4.0	3.9	3.2	3.6	3.1	3.4	3.3
		Median	2.5	2.0	3.0	2.0	2.0	2.0	2.0	1.8	2.0	2.0
		Dispersion	139.2	162.2	101.2	118.5	119.0	121.8	115.8	128.9	100.2	96.8
	SMEs	Mean	2.8	2.9	3.1	2.4	1.9	1.7	2.2	1.9	2.4	2.2
		Median	1.0	1.0	2.0	1.3	1.0	1.0	1.0	1.0	1.0	1.0
		Dispersion	118.0	150.9	103.2	92.0	99.1	88.3	128.6	103.7	107.2	96.4
	Large firms	Mean	7.0	7.2	6.1	5.3	5.2	4.4	4.9	5.0	4.4	4.4
		Median	4.0	4.0	4.0	3.0	3.0	3.0	3.3	3.0	3.0	3.0
		Dispersion	123.5	142.7	91.0	108.4	103.4	107.2	97.0	108.0	87.3	83.7
Permanent exporters	All firms	Mean	7.6	8.0	6.1	6.0	5.3	4.8	5.3	5.7	5.7	5.3
		Median	5.0	4.5	5.0	4.0	3.5	3.5	3.8	3.8	5.0	4.0
		Dispersion	115.5	133.0	87.8	98.3	91.2	103.4	92.6	100.5	73.3	69.2
	SMEs	Mean	4.4	4.4	3.5	3.3	3.1	2.5	3.2	3.3	4.3	3.7
		Median	3.0	2.5	2.5	2.5	2.5	1.5	2.0	2.0	3.0	2.8
		Dispersion	89.2	122.5	78.9	79.7	87.6	101.1	97.1	105.6	91.7	75.6
	Large firms	Mean	8.9	9.7	7.2	7.0	6.0	5.7	5.9	6.9	6.2	5.8
		Median	6.0	6.0	5.5	6.0	4.5	3.5	4.0	5.0	5.5	5.3
		Dispersion	110.3	124.1	80.9	92.1	85.9	94.8	87.6	91.3	67.2	64.8
Sporadic exporters	All firms	Mean	3.1	2.6	3.8	2.3	2.7	2.1	2.2	1.8	2.0	2.0
		Median	1.5	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		Dispersion	142.7	152.3	111.2	101.9	149.2	114.7	126.1	85.9	86.9	99.5
	SMEs	Mean	2.2	2.2	3.0	2.1	1.5	1.5	1.9	1.6	1.9	1.8
		Median	1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		Dispersion	127.2	161.2	114.2	93.0	86.9	67.2	139.9	78.2	91.7	96.7
	Large firms	Mean	4.4	3.4	4.7	2.6	4.2	3.1	2.7	2.5	2.3	2.4
		Median	2.0	2.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0	1.5
		Dispersion	131.8	136.4	103.4	106.4	132.7	113.9	99.5	84.7	80.4	101.0

Source: Author's calculations on the basis of data from Chile's customs office.

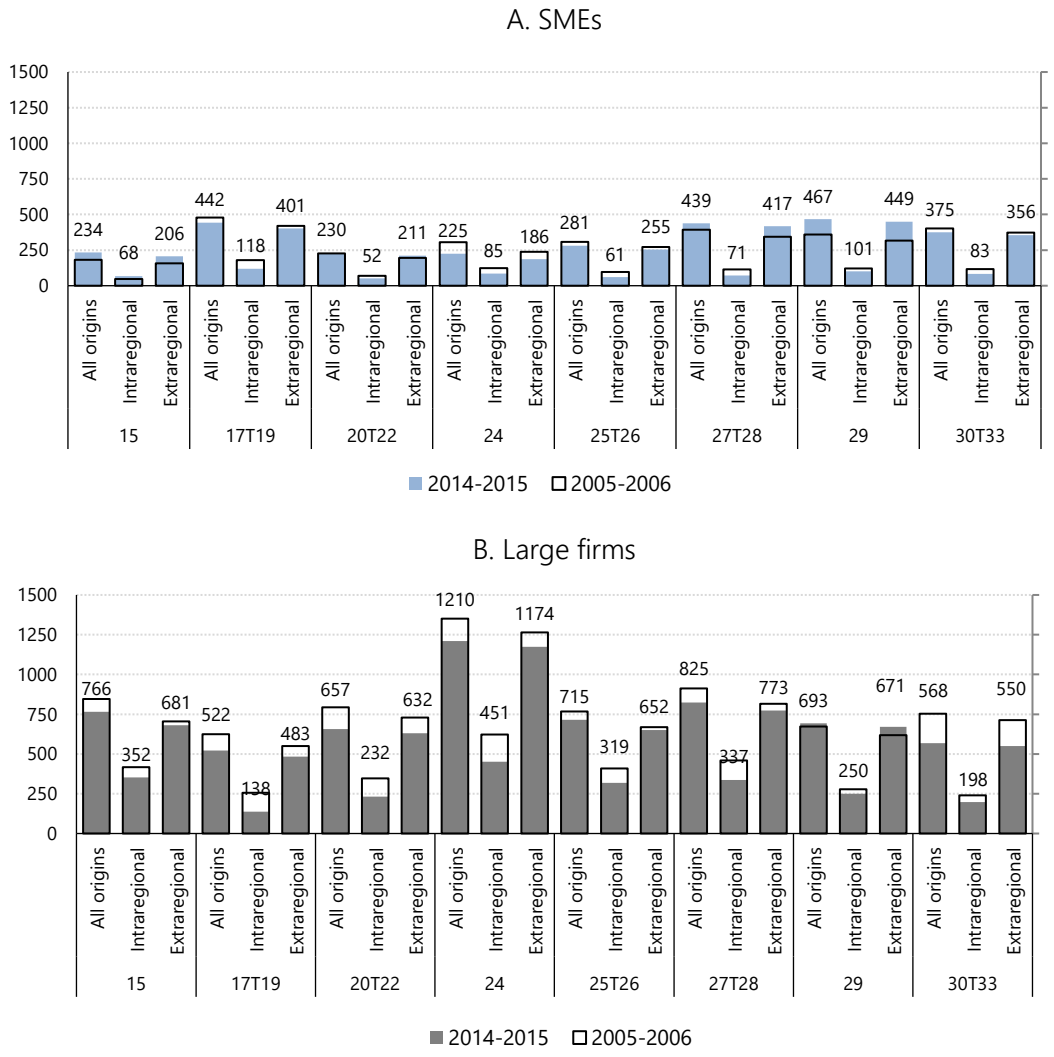
[a] Dispersion is measured by the coefficient of variation, which shows the extent of variability in relation to the mean.

Figure A.1
Sector-level import intensity, 2005-2006 and 2014-2015[a]
(Percentages)



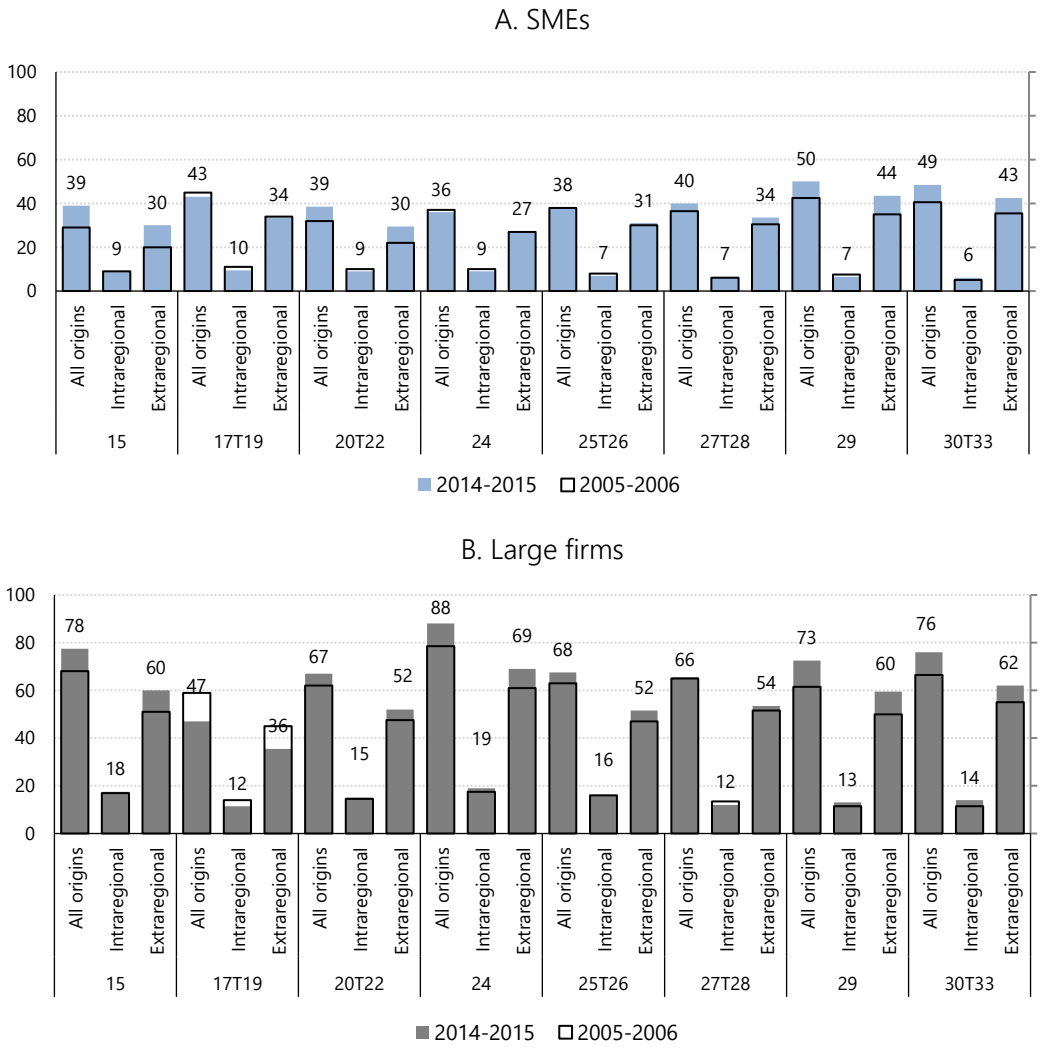
Source: Author's calculations on the basis of data from ENIA manufacturing survey.
[a] "All sectors" corresponds to the aggregate of the eight manufacturing sectors considered in the analysis.

Figure A.2
Sector-level number of imported inputs, 2005-2006 and 2014-2015
(Number of products)



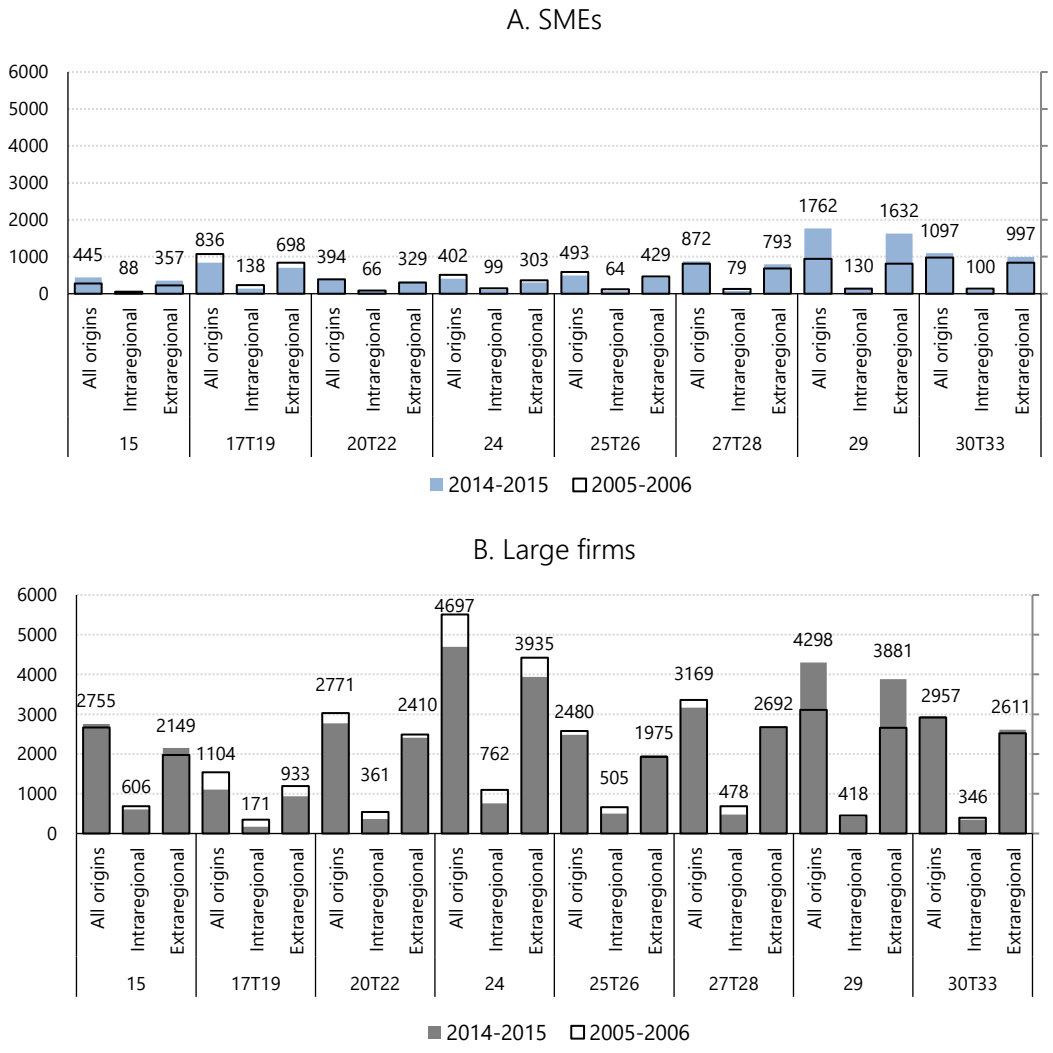
Source: Author's calculations on the basis of data from Chile's customs office.

Figure A.3
Sector-level number of origin countries, 2005-2006 and 2014-2015
(Number of countries)



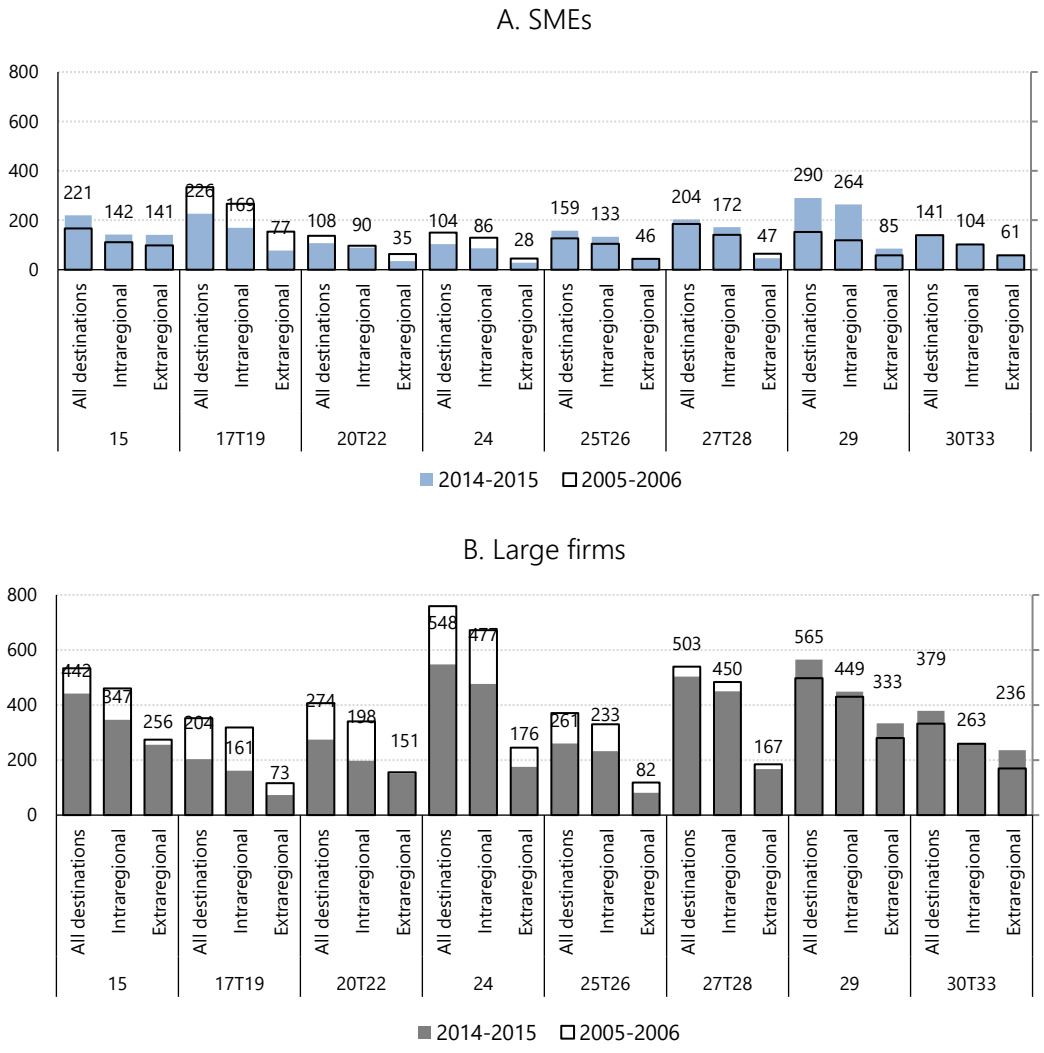
Source: Author's calculations on the basis of data from Chile's customs office.

Figure A.4
Sector-level number of imported input varieties, 2005-2006 and 2014-2015
(Number of product-origin country pairs)



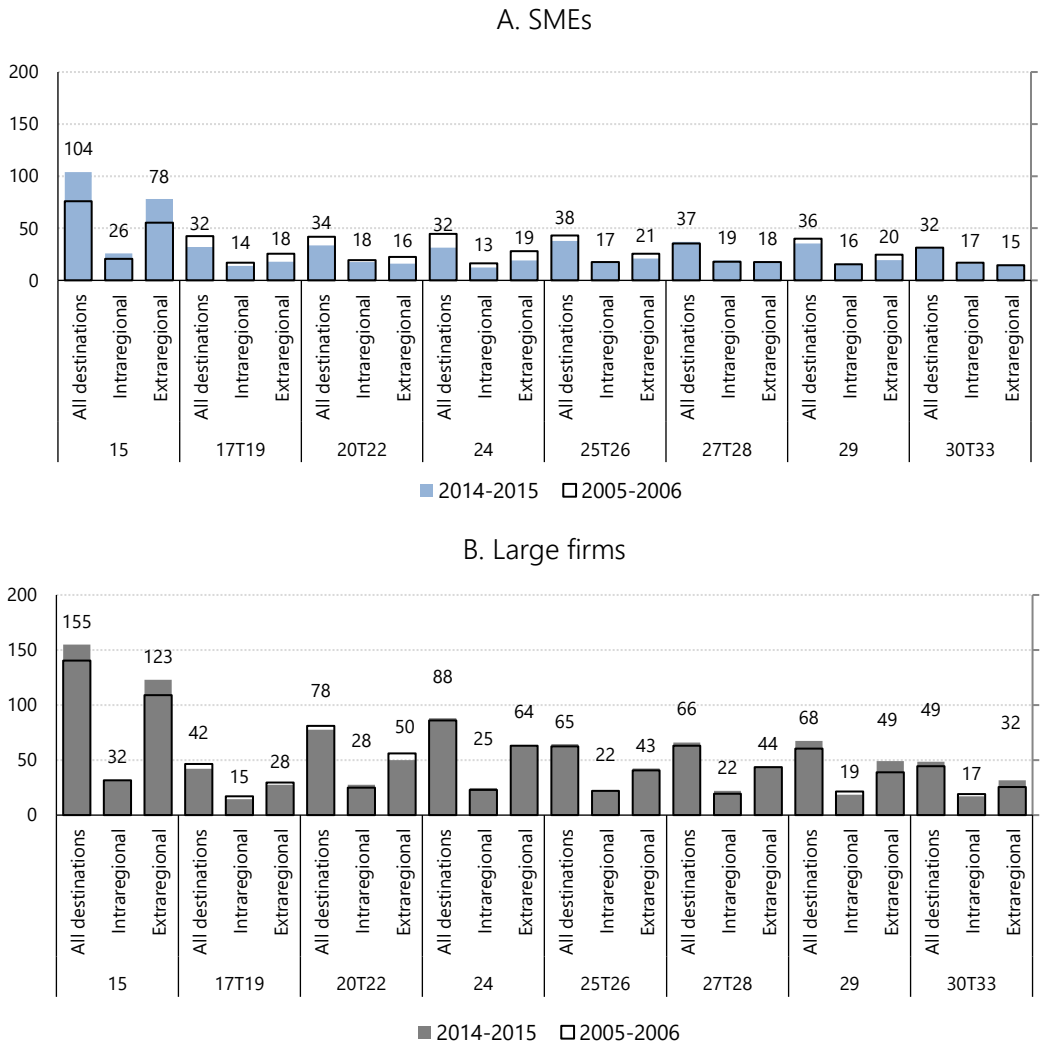
Source: Author's calculations on the basis of data from Chile's customs office.

Figure A.5
Sector-level number of products exported, 2005-2006 and 2014-2015
(Number of products)



Source: Author's calculations on the basis of data from Chile's customs office.

Figure A.6
Sector-level number of destination countries, 2005-2006 and 2014-2015
(Number of countries)



Source: Author's calculations on the basis of data from Chile's customs office.

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