

The DNA of New Exporters: Spin-offs and FDI at the Extensive Margin of Trade[†]

By BERNARDO S. BLUM, SEBASTIAN CLARO, IGNATIUS HORSTMANN,
AND TREVOR TOMBE*

Other than that new exporters account for a large part of aggregate export growth, we know little else. We document that aggregate export growth in Chile is driven by only a few new exporters. These exporters are new business entities, operate new plants, and behave much like experienced exporters: they start large and have high survival rates. Moreover, 70 percent of these new firms are owned by existing businesses and are likely the by-product of either domestic spin-offs or foreign direct investment (24 percent). By focusing on the average new exporter, the existing models of new exporter dynamics miss these key features of export growth. (JEL F14, F23, L22, L60, M13, O14, O19)

Recent analyses of firm-level data find that new exporters are responsible for up to half of medium- to long-term growth in a country's exports (Eaton et al. 2007). Unsurprisingly, this fact has drawn the attention of academics and policymakers. The same data reveal that the "typical" new exporter tends to start exporting small values and is likely to quit exporting soon after their first foreign sale. Those exporters that survive tend to grow their foreign sales over time and require a number of years to reach their steady-state export levels (Ruhl and Willis 2017). Researchers have interpreted these facts as indicating that any fixed cost firms face when entering into exporting should not be too large, that firms' uncertainty about performance in foreign markets is only resolved by entry into exporting, and that either frictions or slow evolution of export market fundamentals prevent firms from immediately reaching their steady-state foreign sales.

The question that existing data does not answer but is crucial to understanding exporter dynamics is *who are the new exporters that drive aggregate export growth, and what is the economic process that creates these new, successful exporters?*

*Blum: Rotman School of Management, University of Toronto (email: bernardo.blum@rotman.utoronto.ca); Claro: Pontificia Universidad Catolica de Chile (email: sclaro@uc.cl); Horstmann: Rotman School of Management, University of Toronto (email: ignatius.horstmann@rotman.utoronto.ca); Tombe: Department of Economics, University of Calgary (email: ttombe@ucalgary.ca). Pete Klenow was coeditor for this article. We would like to acknowledge valuable suggestions from Daniel Treffer, Stephanie McWhinnie, David Kohn, and various seminar participants at Rotman School of Management, the University of Calgary, Pontificia Universidad Catolica de Chile, and Arizona State University's Quantitative Macroeconomics Conference. We thank Cristian Munoz, Jaime Baez, and Alvaro Cordero for superb research assistance.

[†]Go to <https://doi.org/10.1257/aeri.20190379> to visit the article page for additional materials and author disclosure statement(s).

Existing trade models generally treat new exporters as firms that previously sold in the domestic market and, as a result of a productivity or foreign demand shock, decided to diversify into foreign markets.¹ While appealing, this model of new exporter firms turns out not to be an accurate depiction of those new firms that actually drive export growth.

In this paper, we use new detailed data on Chilean firms to answer the aforementioned question. Using these data, we uncover microcharacteristics of the Chilean firms that become successful exporters between 1995 and 2009. The results of our analysis paint a new picture of those successful exporters that are the drivers of aggregate export growth.

What we find is that, consistent with trade models, firms that had been serving the domestic market at least two years before becoming exporters—“existing firms”—are the majority of new exporters. These firms start exporting small amounts and grow their foreign sales and export intensity over time. However, while they are the majority of new exporters, these firms make a small contribution to aggregate export growth. There are two reasons. First, many of these “typical” new exporters are unlikely to survive beyond the first year of exporting. Second, the ones that do continue serving foreign markets sell relatively small amounts even after many years of exporting. Specifically, existing firms are 80 percent of Chile’s new successful exporters in a typical year. However, these firms account for only 10 percent of the country’s aggregate export growth from new exporters over the medium term.

By contrast, firms born at most one year before becoming an exporter—“new firms”—are few among new exporters but account for the lion’s share of aggregate export growth generated by new exporters. These firms do not follow the documented behaviors of the “typical” new exporter described in trade models. Instead, these “atypical” new exporters start as relatively large exporters, are significantly less likely to quit exporting in the first year, and export a stable share of their sales.

That the important new exporters are new firms who behave much like old exporters raises the question of whether these firms are indeed new exporters. In our data, as in almost all datasets, a firm is identified by its tax ID code. Therefore, a “new firm” is a new tax code created by Chile’s tax revenue agency (Servicio de Impuestos Internos). Although “new firms” are new legal entities, they may or may not be new economic entities. Consider the case of two firms that merge and start operating under a new tax ID. In this case, the finding that new exporters contribute to aggregate export growth should be questioned. After all, the existing economic entities may have been exporting before the change in tax ID code, and this could explain why these new exporters behave like experienced exporters. In this hypothetical scenario, the extensive margin of trade is an accounting illusion.

Using the Chilean Census of Manufacturers, we can show that the vast majority of new legal entities (new firms) that become new exporters are in fact new economic entities in the following sense: the new firms (legal entities) that become new exporters operate plants that did not previously belong to any other firm. These

¹ A notable exception is Díaz de Astarloa et al. (2015).

new firms, operating new plants, account for the vast majority of the country's new exports.

This observation raises the question, *so who are these new economic entities?* To answer this question, we conduct an unprecedented investigation of legal documents published in Chile's official gazette in order to uncover details of the contracts that create these new firms/new exporters. We find that these firms are often owned by existing firms despite being new legal and economic entities. In the majority of the cases, these new firms were constituted under arrangements that are, essentially, foreign or domestic direct investments. In many cases we find evidence of physical assets being transferred from existing firms to create the new legal and economic entity in a process that suggests a domestic spin-off. Only one-third of the new firms we study are not owned by existing businesses, and these firms account for a disproportionately small share of the country's exports growth due to new exporters (only 16 percent).

These findings have major implications for academics and policymakers alike. In academia, existing models of new exporter dynamics capture the behavior of the average new exporter (Albornoz et al. 2012; Nguyen 2012; Eaton et al. 2014; Rho and Rodrigue 2016; Kohn, Leibovici, and Szkup 2016; and Ruhl and Willis 2017). But unsurprisingly, export growth is skewed toward a few (new) exporters that account for most of the country's growth in foreign sales. For these few relevant firms, the sunk cost of exporting may be large: they invest in new plants, start exporting large amounts, and are unlikely to quit exporting. There is also little evidence that these firms face significant uncertainty about their performance in foreign markets or significant frictions to reaching their optimal foreign sales. They are also not existing businesses that become marginally more productive or more profitable in foreign markets. Instead, our analysis suggests they are intrinsically connected to existing businesses, either domestic or foreign. In short, the evidence indicates a need for models in which export growth is the by-product of new ventures created by existing firms.

In addition to the research discussed in the previous paragraphs, our work is related to Díaz de Astarloa et al. (2015), who show that new apparel and textiles exporters in Bangladesh (and to some extent China) are new firms that export all their output. They also find that these export-processing plants are not important in explaining the extensive margin of trade in Colombia or Taiwan. These firms are not the type of new exporters in our Chilean data either. To illustrate, the average new exporter that is a new firm in our sample has an average export intensity of 21.5 percent, indeed lower than the export intensity of the typical Chilean permanent exporter, who exports slightly more than 35 percent of its sales. Our work complements Díaz de Astarloa's et al. (2015) findings by showing that new firms play an important role at the extensive margin of trade, even when they are not export-processing firms.

Our results also have implications for the policy debate on the effectiveness of export promotion strategies. Our findings indicate that the potential for export growth is not in existing domestic firms, which, as a result of a productivity or foreign demand shock, may be converted into exporters. It seems not to be in "straight entrepreneurship" either. Instead, existing domestic and foreign firms hold the key to new ventures that will become successful exporters and will contribute to countries' exports in a meaningful way.

I. The Data and the Typical New Exporter

A. Data Description

The main dataset we use in this paper is Chile's Census of Manufacturers (Instituto Nacional de Estadísticas de Chile 1995–2009) for the period 1995–2009. The Census of Manufacturers covers all Chilean manufacturing establishments (plants) with ten or more employees and contains information on plants' outputs and inputs, including capital stocks, employment, and sales. To these data, Chile's statistical agency merged the set of customs records (Servicio Nacional de Aduanas de Chile 1995–2009) for the universe of Chilean exporters. Thus, we have a panel dataset containing firm characteristics and export activity. One well-known characteristic of Chile's exports is the predominance of copper products. Over our sample period, there were 99 manufacturing firms that produced core-copper products (industry code 272), 68 of which exported these products. Although these firms represented a tiny share of the 10,785 manufacturing firms and 29,744 exporters in the sample, their foreign sales accounted for 51 percent of Chile's total exports value. Because these firms have very special business models and operate on vastly larger scales than firms in the rest of the economy, we have excluded them from the sample.

Table 1 reports a summary of these data. The top panel shows information from the customs records. In a typical year, our sample has 1,629 exporting manufacturing firms. Of these, 1,376 are firms that exported in the previous calendar year. We label these firms "old exporters." The remaining 253 firms—those that did not export in the previous calendar year—we label "new exporters." Although new exporters represent almost 16 percent of all exporters, their share in total exports is only 1.3 percent.

The bottom panel of the same table reports firm characteristics from the Census of Manufacturers. Note that customs records allow us to precisely identify when firms begin exporting, while the Census of Manufacturers allows us to measure firms' characteristics at every stage of their export journey. The alignment of customs and census data is not perfect, however. In approximately 75 percent of cases, new exporters begin exporting (appear in customs records) at least one calendar year before they declare to the Census that they are exporting. More problematic, close to one-third of new exporters start exporting before they even appear in the Census of Manufacturers. One reason for the mismatch is simply that the Census is reported annually. As a result, a firm that begins exporting late in a calendar year may not appear in the Census as an exporter until the following calendar year. This is not the entire story, however. In many cases, a firm does not appear in the Census for two or more years after it starts operations (or appears in customs records). This lag seems to be due to delays in the census updating process. The consequence is that research that defines new exporters based solely on census information will misidentify as the first year of new exporters what is in reality the firms' second or even third year of exporting. In contrast, our Table 1 reports characteristics of new exporters in their actual first calendar year of exporting.

From the table, we see that the median new exporter has domestic sales equivalent to half of that of old exporters. As a result, the median old exporter in a typical year

TABLE 1—SUMMARY STATISTICS BY FIRM TYPE: AVERAGE ACROSS YEARS DURING THE 1997–2009 PERIOD

	Exporters				New exporters		Nonexporters
	All	Old	New	Exiting	New firms	Existing firms	All
Number of firms	1,629	1,376	253	273	67	186	3,665
Share of exporters (percent)	100	84.4	15.6	16.7	4.1	11.4	—
Total exports	9,860,898	9,735,896	125,002	97,512	74,486	50,516	—
Share of all exports (percent)	100	98.7	1.3	1.0	0.8	0.5	—
Exports per firm (median)	259	424	17	15	51	14	—
Exports per firm (mean)	6,141	7,129	510	362	1,323	272	—
Domestic sales per firm (median)	2,767	3,114	1,543	1,358	1,520	1,590	384
Domestic sales per firm (mean)	16,858	18,205	7,510	6,477	7,420	7,632	1,982
Export intensity (median, percent)	8.9	12.1	1.1	1.1	5.8	0.9	—
Export intensity (mean, percent)	26.9	29.5	9.8	9.3	21.5	8.1	—
Employment (median)	90	100	48	46	59	49	21
Capital (median)	4,530	5,168	2,075	2,066	2,846	2,035	664
Value added per worker (median)	24	26	18	16	19	18	10

Notes: Values in thousands of US dollars. Information on manufacturing firms in the Chilean Census of Manufacturers. Domestic sales, employment, and capital stock from the Chilean Census of Manufacturers. Export information from Chilean customs transaction-level data. An old exporter is a firm that exported in calendar year $t - 1$ and continues to export in calendar year t . A new exporter is a firm that did not export in calendar year $t - 1$ and exports in calendar year t . An exiting exporter is a firm that exports in calendar year t and does not export in calendar year $t + 1$ (regardless of whether it is an old or new exporter in calendar year t). New exporters are classified into two mutually exclusive categories: new firms and existing firms. Existing firms are the ones that had economic activity two or more years before entering the export market. New firms are the ones for which we have no evidence of previous economic activity two or more years prior to their commencing exporting. Export intensity is defined as exports divided by total sales.

has an exports-to-total-sales ratio of 12 percent, while the median new exporter's export intensity is only 1 percent. Some of this difference in export intensity is undoubtedly due to new exporters entering foreign markets during the calendar year while having full-year domestic sales (see Bernard et al. 2017 for evidence on this bias in Peruvian data). Even if these partial-year effects are of a magnitude similar to that in the Peruvian data, new exporters will still sell smaller amounts abroad and have lower export intensities than existing exporters.² Old exporters also have more employees, more capital, and larger value added per worker than new exporters.

Finally, the last column in Table 1 confirms that exporters are larger and have higher value added per worker than nonexporters.

In subsequent sections, we report additional information resulting from a merge of two other datasets with our merged customs/census panel. One dataset is from Chile's tax authority and contains information on the month and year a firm reports its first revenues. We use this information to identify firms' birth and will discuss these data and their use in detail in Section IIIA of the paper. The other dataset contains information on the ownership characteristics of newly constituted Chilean firms. We will discuss the construction of this dataset and its use in Section IIIC of the paper.

²By the same logic, the export values of exiting exporters—firms that do not export in the following year—should also reflect the fact that these firms, on average, quit exporting before the end of the calendar year.

B. Export Performance of Chile's Typical New Exporter

The typical (average or median) Chilean new exporter in our sample follows the same patterns of behavior as described in previous research on new exporters (see, for instance, Eaton et al. 2007 for evidence using Colombian data and Kohn, Leibovici, and Szkup 2016 for evidence using Chilean data over the period 1995–2007). In particular, the typical Chilean new exporter starts exporting small dollar values, is significantly less likely to continue to export than the average exporter, and exports a significantly smaller share of total sales than do permanent exporters. Conditional on continuing to export, the typical new exporter gradually increases its export intensity over time.³

The other key finding in the literature about new exporters is that they expand foreign sales at a faster pace than continuing exporters and thus account for a significant share of a country's overall export growth. Eaton et al. (2007), for instance, find that new exporters account for 47 percent of Colombia's export growth over a 10-year period. We follow their methodology to decompose the contribution of old exporters and new exporters to total Chilean manufacturing export growth (excluding copper) from 1995 to 2009. We find that 55.2 percent of aggregate export growth originates in firms that started exporting during the sample period, that is, new exporters. The other 44.8 percent is due to firms that were already exporting in 1995. The latter includes changes in foreign sales of firms that continue to export to the end of the sample period and firms that quit exporting altogether. When the same calculation is performed over five-year windows, the average contribution to aggregate export growth of new exporters stands at 48.1 percent.

In sum, just as for many other countries, the typical new Chilean exporter starts small and is likely to quit exporting within one year of entering into foreign markets. The ones who continue to export, however, expand their foreign sales over time and are responsible for about half of the country's exports growth.

II. New Exporter Heterogeneity: New versus Existing Firms

A particularly valuable feature of our dataset is that for new exporters, we can identify whether the firm was previously active but selling only to the domestic market or is a newly created firm. We label a new exporter as an "existing firm" if it had economic activity two or more years before entering the export market. Evidence of economic activity includes, at this point, being surveyed by the Census of Manufacturers or appearing in customs records.⁴ "New firms" on the other hand are ones for which we have no evidence of previous economic activity two or more years prior to their commencing exporting.

When it comes to export activity, new and existing firms are very different at the time they first enter exporting. This evidence is reported in the top panel of Table 1 (columns labeled "new exporters"). While new firms represent a minority of all new

³For completeness, the online Appendix of this paper reproduces these results for our sample period and shows additional data patterns confirming the same findings.

⁴Recall that a new exporter at year t is a firm that did not export in year $t - 1$. A new exporter/existing firm is a firm that, in addition to not having exported in year $t - 1$, was surveyed by the Census of Manufacturers or appeared in customs records at years prior to $t - 1$.

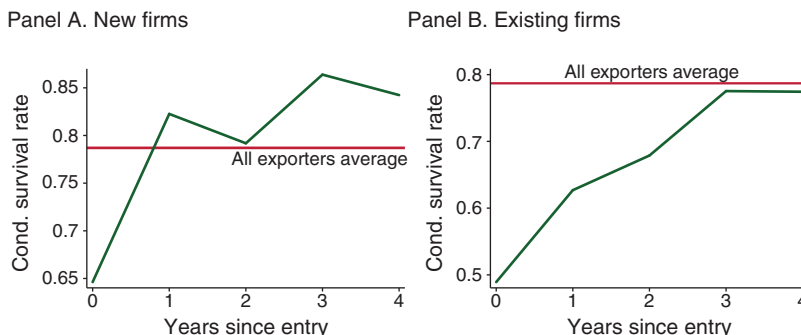


FIGURE 1. CONDITIONAL SURVIVAL RATES FOR NEW EXPORTERS THAT ARE NEW AND EXISTING FIRMS

Notes: This figure plots the conditional survival rate for new exporters that are classified as new firms (panel A) and existing firms (panel B). The conditional survival rate is the share of exporting firms of a given age (number of years exporting) that continue exporting in the following period. For example, the value at $x = 1$ shows the probability that a firm in its second year of exporting will continue exporting for an additional year. The red line in each panel is the unconditional survival rate for all exporters, which is the probability of exporting in t conditional on exporting in $t - 1$ across all exporters and years.

exporters—in a typical year they are 27 percent of the new exporters—they export 55 percent of the value sold abroad by new exporters. The median new exporter that is a new firm sells three times more abroad than does the median new exporter that is an existing firm.⁵

Perhaps of even greater significance, new firms have a significantly higher survival rate than do existing firms. The survival results are shown in Figure 1. The probability that the average exporter in our sample continues exporting the next year is 79 percent (reported as the horizontal line in the figures). The average new exporter has a lower survival rate of 55 percent. This average, however, hides large differences between new exporters that are new versus existing firms. New firms have a first-year survival rate of greater than 65 percent, and by the second year of exporting, their chance of continuing to export is already on par with that of the average exporter. By contrast, existing firms that become new exporters have less than a 50 percent chance of continuing to export after the first year. It takes four to five years for those that remain exporting to achieve the survival rate of the average exporter.⁶

The fact that new firms have both larger exports initially and higher survival rates suggests that they must be the main contributors to new exporter aggregate export growth. This is indeed the case. When we break down the contribution to export growth by new versus existing firms, we find that almost 85 percent of Chile's export growth due to new exporters over 5-year periods is produced by new firms that succeed in exporting for at least 4 years. This number is even more remarkable given these firms account for less than 40 percent of all new exporters.

Using the census data, we can also study, at least for a subset of new exporters, the domestic characteristics of new exporters that are new and existing firms. Because of the misalignment between customs and census data discussed earlier, only about 30 percent of new exporters that are new firms appear in the Census in the same year

⁵Partial-year effects should not impact the relative exports of new versus existing firms.

⁶Figure A1 in the online Appendix shows the evolution of the survival rate for the average new exporter.

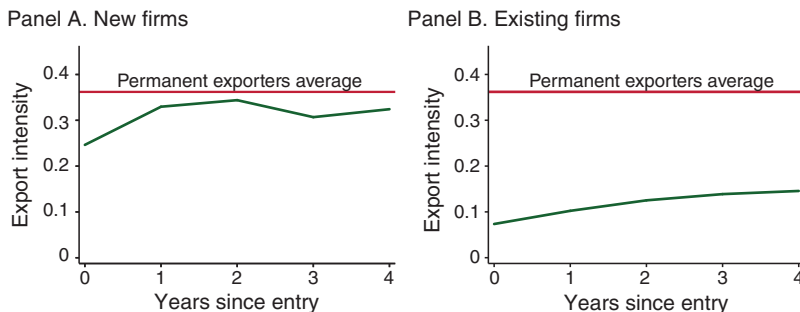


FIGURE 2. AVERAGE EXPORT INTENSITY FOR NEW EXPORTERS THAT ARE NEW AND EXISTING FIRMS (PERCENT)

Notes: Export intensity is measured as the ratio of export to total sales at the firm level. The red line represents the average export intensity across permanent exporters, that is, firms that export continuously between 1995 and 2009. The green line in each panel represents the average export intensity across new successful exporters that are classified as new firms (panel A) and existing firms (panel B) in each year of their corresponding export cohort.

that they begin exporting (appear in customs). The domestic characteristics of new exporters that are new firms reported in Table 1 are for this 30 percent subsample of new firms.⁷

In terms of their domestic sales, new and existing firms are almost identical in the first year they export. As a result, the export intensity of new firms is significantly higher than that of existing firms, although still lower than that of the average exporter. In particular, exports divided by total sales equals 5.8 percent for the median new exporter that is a new firm but is just 0.9 percent for the median new exporter that is an existing firm. Across all Chilean manufacturer exporters, this number equals 8.9 percent. It is worth noting that, among new exporters, new firms are significantly more capital intensive than the previously existing firms.

The time path of export intensity is also markedly different between new exporters that are new or existing firms. This is shown in Figure 2, which reports the evolution of export intensity for firms that export for at least four consecutive years.⁸ New firms that succeed in exporting for at least four consecutive years start with export intensities that are similar to that of permanent exporters. Between their first and second years of exporting, they experience an increase in export intensity. Some of this increase is likely due to firms starting to export during the calendar year while having full-year domestic sales. After that, their export intensity fluctuates without a clear trend. By contrast, existing firms' export intensity starts off significantly below that of permanent exporters and steadily increases over time. Still, these firms' export intensity continues to be significantly smaller than that of permanent exporters, even after four years of exporting.

Lastly, Figure 3 shows the evolution of firms' domestic market shares in their four-digit ISIC industries. Market shares are computed as firms' domestic sales divided by the sum of total domestic sales and imports. New exporters that are new

⁷These firms are observationally equivalent to the new exporters/new firms that appear in the Census after they start exporting in all observed dimensions. In particular, they have similar exports per firm, exporting survival rates, and exports growth over four-year periods.

⁸By looking at firms that export for at least four consecutive years, we control for the selection of firms due to quitting exporting.

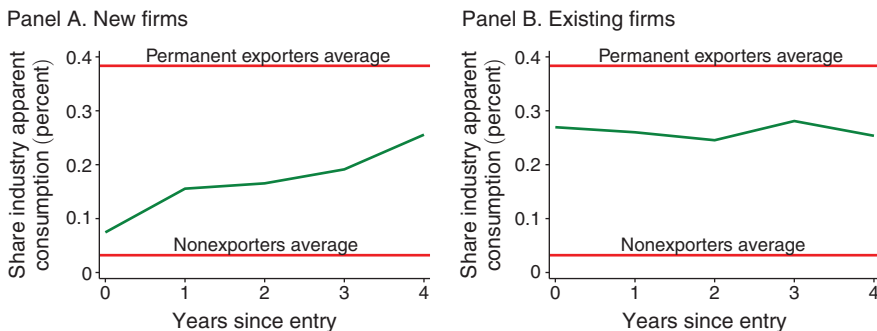


FIGURE 3. MEDIAN INDUSTRY-LEVEL MARKET SHARE IN APPARENT CONSUMPTION FOR NEW EXPORTERS THAT ARE NEW AND EXISTING FIRMS (PERCENTAGE POINTS)

Notes: Market share is computed as the ratio of each firm's domestic sales to total four-digit ISIC industry level apparent consumption (computed as total domestic sales at the industry level plus total imports at the industry level). We compute the median value for permanent exporters and nonexporters across the full sample (red lines). The green lines show the median market share in apparent consumption across new successful exporters that are classified as new firms (panel A) and existing firms (panel B) in each industry/year of their corresponding export cohort.

firms have smaller domestic market shares in their first year of exporting, but they steadily gain domestic market shares over time. In contrast, existing firms have stable domestic market shares in their industries over their first four years of exporting. We find similar evolutions for the firms' employment industry shares.

Given the large differences between new exporters that are new and existing firms, and the importance of new firms to aggregate exports growth, the obvious question is, who are these new firms?

III. Forensic Evidence on Newly Born Exporters

A. Are New Firms Really New?

The criterion we have used thus far for identifying a new firm is the date it first appears in either the Census of Manufacturers or customs. Because it may take some time for a new firm to be included in the Census, we supplement our analysis with information from the Chilean tax authority on the date of a firm's first tax reporting as a means of validating our definition of new and existing firms. For the subsample of new exporters that export for at least four consecutive years, we have information on the date (month and year) of the firms' first positive revenues, as reported to the tax authority. Unfortunately, these data are only available starting in 1998, with the information truncated at January of 1998. For each firm in our subsample in the 1999–2009 period, we compare our classification of new versus existing firms with the one implied by the information from the tax authority. We find that 88 percent of the new exporters that we classify as new firms according to the timing of appearance in the Census of Manufacturers indeed first report revenues to the tax authority within one year of entering into exporting. Similarly, 84 percent of the new exporters that we classify as existing firms according to the timing of appearance in the Census of Manufacturers first report revenues to the tax authority more than

one year before entering into exporting. This adds robustness to our finding that new firms drive the extensive margin of trade.

B. New Legal Entities versus New Economic Entities

New exporters that are new firms share several features with existing exporters, and one must wonder whether they are indeed new exporters. Because of the nature of the data available to identify new firms, it may be that they are not new exporters in any economically relevant sense. The reason is that what we (and the literature) call a new firm can be more precisely defined as a new tax ID number or, in other words, a new legal entity. While it should be the case that new economic entities receive new tax ID numbers, the opposite is not necessarily the case. New legal entities can be created by mergers, acquisitions, or other business considerations that do not involve, necessarily, the creation of new economic entities. For this reason, one may even question the current evidence on the importance of the extensive margin of trade. To illustrate this, imagine that a new legal identity (new firm) is created after the merger of two firms, or after a firm acquires a competitor. In these cases, it is possible that this new firm will appear in trade data as a new exporter when it actually had been exporting under different tax ID numbers. Thus, in this example, the extensive margin of trade would be a spurious consequence of an accounting illusion.

To evaluate the extent to which new exporters/new firms are new tax IDs operating old economic entities, we exploit the fact that the Census of Manufacturers follows plants and identifies the legal identity (firm) that owns each plant. Even if a plant changes ownership or receives new investment, the Census of Manufacturers still identifies it as the same plant (ID number), since one of the objectives of the Census is precisely to monitor the evolution of plants' characteristics. As a result, we can track whether the plants operated by new firms are brand-new plants or are plants that had been operating before under a different owner and perhaps exporting. We find that the vast majority of new exporters/new firms operate new plants. Specifically, 87 percent of these new firms operate new plants, and they account for 81 percent of export growth. This further corroborates the finding that the extensive margin of trade is about new economic activity.

C. An Analysis of Firms' Birth Certificates

What else can we say about the economic processes that create these new exporters that act like experienced exporters? In order to gain insight into this question, we take an unprecedented look into the legal records of some of these firms at the moment of their legal constitution. In Chile, when a firm is created, its registry needs to be published in the official gazette within a 60-day period. Only after this has taken place can the firm apply for a tax ID number at the tax authority and start operations.

For this analysis, we had access to the actual identities of a limited number of these new firms. We chose to sample firms from two distinct sets. One sample was drawn from the set of new firms/new exporters that (i) continued exporting for at least the subsequent four years (were successful exporters) and (ii) appeared in the

Census within a year (plus or minus) of the time they began exporting. This sample will be our main sample. It comprises about 50 percent of all new firms that are successful new exporters and includes all those whose domestic characteristics are detailed in Table 1. The other more limited sample was randomly drawn from the new firms that began exporting several years prior to appearing in the Census. This sample was chosen to check for any systematic bias in the way that new firms are included in the Census.⁹

For our two sample sets, we are able to recover the firms' registration records published in Chile's official gazette and supplement this information with numerous other legal records with details on the firms' constitutions and owners.¹⁰ We focus specifically on the ownership structure of the new legal entities, the previous economic activities of their owners, and the types of contributions the owners make to the new firms, that is, financial versus physical assets. We also look at other publicly available contracts related to a new firm at the time of its incorporation. These include, for instance, purchases of other firms and transfers of assets.

The analysis of these thousands of legal records paints a picture of each firm's birth process. For our main sample, we find that about 70 percent of new firms are owned by existing firms. Moreover, in two-thirds of the cases we can document that the new firm and its parent firm are in the same industry. In 24.2 percent of the cases, at least one of the owners of a new firm is a foreign firm, and thus the new firm is essentially an episode of foreign direct investment. These cases account for 54.5 percent of the exports growth due to the firms in our subsample. The rest is due to new firms owned by existing domestic firms. For almost 40 percent of the cases, we can actually document that the parent firm transfers physical assets to the creation of the new firm in a process that suggests that the new firm is a spin-off of its owner.¹¹ Overall, the fewer than a third of the cases in which we find no legal evidence connecting the new firm to existing businesses via its ownership account for less than 15 percent of the exports growth in our subsample. The firms created by existing firms' direct investments are the ones driving the exports growth at the extensive margin of trade.

The picture is essentially the same for the firms in our other sample. Here we find again that slightly more than 70 percent of new firms are created from existing firms, and all of these firms are created from parent firms in the same industry as the new firm. In only about 30 percent of cases in the sample is there no evidence linking the new firm to an existing firm.

IV. Discussion

It should come as no surprise that the main contribution to the growth in exports attributable to new exporters is not from the "average" new exporter. As with

⁹In terms of export behavior, there is no evidence of such bias in that firms in this latter set are observationally equivalent to those in the former when it comes to export levels and growth. Also, from our interactions with census officials, it appears that lags in census inclusion are driven mainly by the bureaucratic process through which firms are added to/subtracted from the universe of firms covered by the Census.

¹⁰Chile's official gazette is available at www.diariooficial.interior.gob.cl. The online Appendix shows the registration records of two firms. Note that these are records of firms that are not in our sample and are reported for illustration purposes only.

¹¹The online Appendix reports these numbers in Table A6.

exports overall, it is a relatively small number of “atypical” firms that drive export growth from new exporters. These atypical firms are new economic entities in the sense that they invest in new plants and equipment at their creation and prior to the commencement of any exporting. At the same time, these firms are often the creation of established domestic or foreign firms and often operate in the same industry as their owners.¹² This seems to give them an advantage: they export more initially, have higher export survival probabilities, and quickly achieve export levels commensurate with those of established exporters. Whether this advantage is some demand advantage, productivity, or some other advantage is unclear. What is clear is that the behaviors and outcomes we observe for these new entities are very different than the ones for established domestic firms that become new exporters.

The implications of these facts for trade theory and trade policy are profound. In particular, policies that focus on incremental productivity, enhancing investments, and reduction of demand uncertainty via market exploration are unlikely to drive significant export growth. Models that focus on the same issues are unlikely to be informative on the extensive margin of trade. Rather, we need to focus on policies that exploit the assets of established firms, domestic and foreign, and develop models that view these firms as the drivers of new export growth and the extensive margin of trade.

REFERENCES

- Albornoz, Facundo, Héctor F. Calvo Pardo, Gregory Corcos, and Emanuel Ornelas.** 2012. “Sequential Exporting.” *Journal of International Economics* 88 (1): 17–31.
- Bernard, Andrew B., Esther Ann Boler, Renzo Massari, Jose-Daniel Reyes, and Daria Taglioni.** 2017. “Exporter Dynamics and Partial-Year Effects.” *American Economic Review* 107 (10): 3211–28.
- Rlum, Bernardo S., Sebastian Claro, Ignatius Horstmann, and Trevor Tombe.** 2020. “The DNA of New Exporters: Spin-offs and FDI at the Extensive Margin of Trade: Dataset.” *American Economic Review: Insights*. <https://doi.org/10.1257/aeri.20190379>.
- Díaz de Astarloa, Bernardo, Jonathan Eaton, Kala Krishna, Bee Aw Roberts, Andrés Rodríguez-Clare, and James Tybout.** 2015. “Born to Export: Understanding Export Growth in Bangladesh’s Apparel and Textiles Industry.” https://pdfs.semanticscholar.org/5d06/145a8f3b1a10ec76ea1fd79956988b123829.pdf?_ga=2.223503891.908989552.1590068254-196961829.1590068254.
- Eaton, Jonathan, Marcela Eslava, David Jinkins, C. J. Krizan, and James Tybout.** 2014. “A Search and Learning Model of Export Dynamics.” <https://www.econ.pitt.edu/sites/default/files/Tybout.export%20dynamics.pdf>.
- Eaton, Jonathan, Marcela Eslava, Maurice Kugler, and James Tybout.** 2007. “The Margins of Entry into Export Markets: Evidence from Colombia.” http://www.personal.psu.edu/jxt32/EEKT_final.pdf.
- Instituto Nacional de Estadísticas de Chile.** 1995–2009. “Encuesta Nacional Industrial Anual.” <https://www.ine.cl/ine-ciudadano/participacion-ciudadana/acceso-a-la-informacion-relevante>.
- Kohn, David, Fernando Leibovici, and Michal Szkup.** 2016. “Financial Frictions and New Exporter Dynamics.” *International Economic Review* 57 (2): 453–86.
- Nguyen, Daniel X.** 2012. “Demand Uncertainty: Exporting Delays and Exporting Failures.” *Journal of International Economics* 86 (2): 336–44.
- Rho, Youngwoo, and Joel Rodrigue.** 2016. “Firm-Level Investment and Export Dynamics.” *International Economic Review* 57 (1): 271–304.
- Ruhl, Kim J., and Jonathan L. Willis.** 2017. “New Exporters Dynamics.” *International Economic Review* 58 (3): 703–25.
- Servicio Nacional de Aduanas de Chile.** 1995–2009. “Estadísticos de Comercio Exterior.” <https://www.aduana.cl/aduana/site/edic/base/port/estadisticas.html>.

¹² It is worth mentioning that there are no policies in Chile that incentivize firms to set up new legal entities to perform export activities.