

The DNA of New Exporters: Spin-Offs and FDI at the Extensive Margin of Trade *

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Abstract

While new exporters account for the majority of aggregate export growth, little else is known about them. Using new data on Chilean firms, 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, have high survival rates, and quickly converge to their long-term export intensity. Moreover, these “new firms” are owned by existing businesses and are likely the by-product of either domestic spin-offs or foreign direct investment. By focusing on the average new exporter, typically a firm previously serving the domestic market, the existing models of new exporter dynamics miss these key features of export growth.

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1 Introduction

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 policy makers. 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)). Altogether, these facts suggest that any fixed cost firms face when entering into exporting should not be too large, that uncertainty about firms' performances 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.

An important set of facts that the existing data analyses have not uncovered is the characteristics of those "atypical" firms that manage to overcome the costs of selling abroad and succeed as exporters. Put differently, *who are the new exporters that drive aggregate export growth and what is the economic process that creates these new, successful exporters?* Trade models generally treat new exporters as firms that previously sold in the domestic market and, as a result of a productivity or a foreign demand shock, decide to diversify into foreign markets.¹ This model of new exporter firms is appealing but is it not an accurate depiction of those new firms that drive export growth.

In this paper, we use new detailed data on Chilean firms to answer the above questions. Using these data, we uncover micro characteristics of 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 for more than one year before becoming an exporter—"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" firms 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% of Chile's new successful exporters in a typical year. However, these firms account for only 10% of the country's aggregate export growth from

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

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, SII). 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 (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 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 at the 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%).

These findings have major implications for academics and policy makers alike. In academia, existing models of new exporter dynamics capture the behaviour 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, not surprisingly, export growth is skewed towards 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 selling 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 de Astarola et al. (2015), who show that new apparel and textiles exporters in Bangladesh (and to some extent in 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 in 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 have an average export intensity of 17%, indeed lower than the export intensity of the typical Chilean permanent exporter, who exports 28.4% of its sales. Our work complements de Astarola et al. (2015)'s 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 a 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 country's exports in a meaningful way.

2 The Data and the Typical New Exporter

2.1 Data description

The main dataset we use in this paper is Chile's Census of Manufacturers (ENIA) 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.

We merge three other data sets with the Census to create our final data set. The first is the set of Customs Records for the universe of Chilean exporters. This merge creates a panel data set 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) of which 68 exported these products. Although these firms represented a tiny share of the 10,785 manufacturing firms and the 29,744 exporters in the sample, their foreign sales accounted for 51% of Chile's total exports value. Because these firms have very special business models and operate on a vastly larger scales than firms in the rest of the economy, we have excluded them from the sample.

The first columns in Table 1 report a summary of this merged data set. In a typical year, our sample has 1,618 exporting manufacturing firms, of which 1,362 are old exporters—exported in the previous period—and 256 are new exporters. Although new exporters represent almost 16% of all exporters, their share in total exports is only 1.4%. 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, has a exports to total sales ratio of 11%, while the median new exporter's export intensity is only 1%. Old exporters have more employees, more capital, and larger value-added per worker than new exporters as well.

The second merged data set is one produced by 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 in detail and their use in Section 4.1 of the paper. The final data set we use contains information on the ownership characteristics of newly constituted Chilean firms. We will discuss the construction of this data set and its use in Section 4.3 of the paper.

2.2 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.²

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% 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% of aggregate export growth originates in firms that started exporting during the sample period, i.e. new exporters. The other 44.8% 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%.

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.

3 New Exporter Heterogeneity: new versus existing firms

A particularly valuable feature of our data is that they allow us to identify whether a new exporter was previously active selling 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. "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.

The data reveal that new and existing firms are very different at the time they first enter exporting. This fact is reported in the last columns of Table 1 (panel labelled "New Exporters").³ Despite being in the minority—in a typical year they are 27% of the new exporters—new firms

²For completeness, the Online Appendix to this paper reproduces these results for our sample period and shows additional data patterns confirming the same findings.

³Note that the analysis distinguishing between new and existing firms is done on data covering the 1997-2009 period. This is the case because, in order to distinguish between these two types of firms, we "lose" the first two years of data.

export 55% 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. In terms of their domestic sales, however, these two firms are almost identical. 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 4.7% for the median new exporter that is a new firm, but is just 0.9% for the median new exporter that is an existing firm. Across all Chilean manufacturer exporters, this number equals 8.4%. It is worth noting that, among new exporters, new firms are significantly more capital intensive than the previously existing firms.

Perhaps most significant of all is the distinction between new and existing firms in terms of their survival rates as exporters. These results are shown in Figures 1 and 2. The probability that the average exporter in our sample continues exporting the next year is 79% (reported as the horizontal line in the figures). The average new exporter have a 55% survival rate. But this average hides large differences between new exporters that are new versus existing firms. New firms have a chance of surviving the first year of exporting that is higher than 65% and, by the second year of exporting, their chance of continuing to export is already on par with that of the average exporter. In contrast, existing firms that become new exporters have less than a 50% chance of continuing to export after the first year, and it takes 4 to 5 years for the ones that remain exporting to achieve the survival rate of the average exporter.⁴

The export intensity is also markedly different between new exporters that are new or existing firms. This is shown in Figure 2 that reports the evolution of export intensity for firms that export for at least four consecutive years.⁵ 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.⁶ After that, their export intensity fluctuates without a clear trend. By contrast, existing firms' export intensity starts off significantly below the one 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.

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,

⁴Figure A1 in the online appendix shows the evolution of the survival rate for the average new exporter.

⁵This controls for the selection of firms due to quitting exporting.

⁶This increase is possibly artificially created by firms starting to export during the calendar year while having full-year domestic sales. See [Bernard et al. \(2017\)](#) for an analysis of partial-year effects in trade data.

we find that almost 85% 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% of all new exporters. These facts raise the obvious question: Who are these new firms?

4 Forensic Evidence on Newly-Born Exporters

4.1 Are new firms really new?

The criterion we used thus far for identifying a new firm relies on the date it appears in the Census of Manufacturers and in Customs. We are able to validate our criterion using information from the Chilean Tax Authority on the date of a firm's first tax reporting. In particular, for the sub-sample of new exporters that export for at least four consecutive years, we have information on the date (month and year) of the firm's 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 sub-sample in the 1999–2009 period, we compare the classification of new versus existing firms implied by the Census of Manufacturers with the one implied by the tax authority. We find that 88% 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% of the new exporters that we classify as existing firms according to the timing of appearance in the Census of Manufacturers indeed 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.

4.2 New legal entities versus new economic entities

New exporters that are new firms share several features with regular exporters, and one must wonder whether they are indeed new exporters. In fact, 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, by acquisitions, or by other business considerations which do not involve, necessarily, the creation of new economic entities. Because

of that, one may even question the current evidence on the importance of the extensive margin of trade. To illustrate, imagine that a new legal identity (new firm) is created after the merge 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. Therefore, we can track whether the plants operated by new firms are 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 that are also new firms operate new plants. In particular, this is the case for 87% of these new firms and they account for 81% of export growth. This further corroborates the finding that the extensive margin of trade is about new economic activity.

4.3 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 get some insight into this question, we take an unprecedented look into the legal records 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 a sub-sample of about half of the new successful exporters that are new firms, we are able to compile this information.⁷ In particular, we are able to recover the firm's registration record published in Chile's Official Gazette, and supplement this information with numerous other legal records with details on the firm's constitution and its owners.⁸ We focus specifically on the ownership structure of the new legal entity, the previous economic activities of its owners, and the types of contributions the owners make to the new firm, i.e., financial versus physical assets. We also look at other publicly available contracts related to the new firm at the time of its incorporation. These include, for instance, purchases of other firms and transfers of assets.

⁷This sub-sample is observationally equivalent to the one for which we don't have this information in terms, for instance, of exports levels and contribution to aggregate exports growth.

⁸The Online Appendix shows the registration records of two firms in the Official Gazette. Note that these are records of firms that are not in our sample and are reported for illustration purposes only.

The analysis of these thousands of legal records paints a picture of each firm's birth process. The most striking fact we uncover is that about 70% of these new firms are owned by existing firms. Moreover, in two-thirds of the case we can document that the new firm and its parent firm are in the same industry. In 24.2% of the cases at least one of the owners of the 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% of the exports growth due to the firms in our sub-sample. The rest is due to new firms owned by existing domestic firms. For about 30% 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. 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% of the exports growth in our sub-sample. The firms created by existing firms' direct investments are the ones driving the exports growth at the extensive margin of trade.

5 Discussion

It should come as no surprise that the main contribution to the growth in exports attributable to new exporters is not from firms that behave like the typical new exporter. As with 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. 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 or a productivity advantage (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 and trade policy are profound. In particular, policy that focuses 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 and develop models that view these firms as the drivers of new export growth and the extensive margin of trade.

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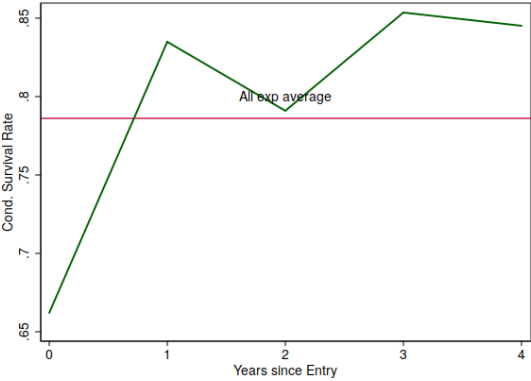
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Table 1: Summary Statistics by firm type: Average across years during the 1996-2009 period

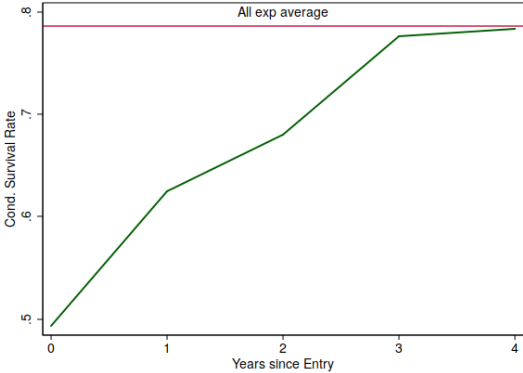
| | Exporters | | | | New Exporters | | |
|---|-----------|-----------|---------|---------|---------------|-----------|----------------|
| | All | Old | New | Exiting | All | New firms | Existing Firms |
| Number of firms | 1,618 | 1,362 | 256 | 269 | 251 | 68 | 183 |
| Share of Exporters (%) | 100 | 84.2 | 15.8 | 16.6 | 15.6 | 4.2 | 11.4 |
| Total Exports | 9,526,270 | 9,388,622 | 137,648 | 108,008 | 135,157 | 75,085 | 60,072 |
| Share of All Exports (%) | 100 | 98.6 | 1.4 | 1.1 | 1.4 | 0.8 | 0.6 |
| Exports per firm (median) | 261 | 426 | 17 | 15 | 17 | 51 | 14 |
| Exports per firm (mean) | 5,993 | 6,957 | 559 | 402 | 561 | 1,346 | 331 |
| Domestic sales per firm (median) | 2,883 | 3,191 | 1,612 | 1,433 | 1,612 | 1,643 | 1,666 |
| Domestic sales per firm (mean) | 16,729 | 17,981 | 8,059 | 7,005 | 8,059 | 7,591 | 8,376 |
| Export Intensity (export/total sales) (median, %) | 8.4 | 11.2 | 1.0 | 1.0 | 1.0 | 4.7 | 0.9 |
| Export Intensity (export/total sales) (mean, %) | 25.6 | 28.4 | 7.0 | 6.8 | 7.0 | 17.3 | 5.5 |
| Employment (median) | 91 | 101 | 48 | 46 | 47 | 49 | 49 |
| Capital (median) | 4,694 | 5,346 | 2,121 | 1,136 | 2,036 | 2,723 | 2,072 |
| Value Added per worker (median) | 24 | 26 | 17 | 16 | 17 | 19 | 18 |

Notes: Values in thousands of USD; Statistics on the panel labelled “New Exporters” cover the period from 1997 to 2009. This is due to the fact that we use two years of data to distinguish between New Firms and Existing Firms.

Figure 1: Conditional Survival Rates for New Exporters that are New and Existing Firms

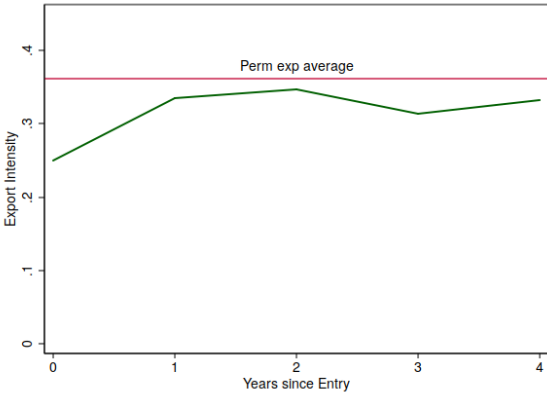


(a) New firms

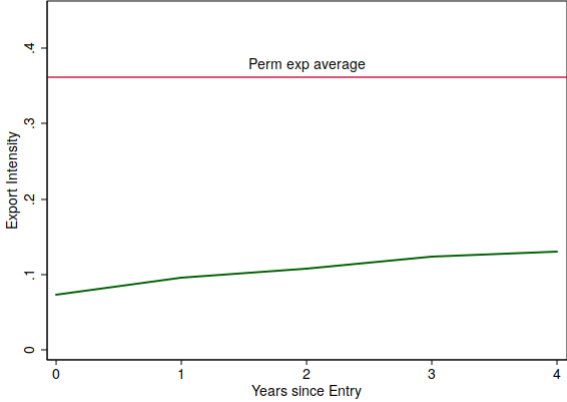


(b) Existing firms

Figure 2: Average Export Intensity for New Exporters that are New and Existing firms



(a) New firms



(b) Existing firms