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A new look at Philippine export performance: a firm-level view

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This article introduces a rich new database of the Philippine Statistics Authority that contains the universe of export and import transactions of all firms in the period 1991-2012, merged with all the manufacturing firm surveys since 1996. A new set of stylized facts is presented that pertains to the drivers of export growth and patterns of trade, including the dimensions of geographical location, size, and firm ownership. New firm typologies are developed tracing the behavior of every exporting and importing firm not only in terms of entry, exit, and survival, but also in terms of re-entry, permanent exit, and continuous or resilient survival. Micro evidence points to a steady decline in manufacturing exporters during the period under study, with the drastic drop in new entry and survival rates of firms coinciding with a significant increase of permanent exit from export markets.

JEL classification: F14, C55
Keywords: Export dynamics, firm-level data, firm heterogeneity, firm demographics

1. Introduction

A rich literature based on firm-level data has been expanding for some years now, providing new stylized facts about firms and trade (e.g. Bernard, Jensen, Redding, and Schott [2007] for the United States; Manova and Zhang [2012] for China), as well as generating novel theories on the adjustment of firms, the role of product quality, and others. In the policy arena, an equally rich array of indicators and methodology is being developed, such as the European Union Competitiveness Research Network with its diagnostic tool kit for competitiveness, utilizing the matched firm-level trade and balance sheet database of 17 member countries of the European Union.

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In the Philippines, a joint government and academic initiative, begun in 2013, produced a new and rich database that opens numerous possibilities to explore the dynamics of the economy at the most disaggregated level of the firm. The Philippine Statistics Authority (PSA), together with a consortium between the University of the Philippines and Erasmus University Rotterdam, undertook an extensive effort to match the universe of trade transactions of all Philippine firms from 1991-2012 with the Surveys of Establishments from 1996 till 2012.[1] This makes the Philippine database one of the longest transactions database available. Panel data of this kind is especially rare in the developing world. It is also lengthy enough to cover the critical periods of the 1997 Asian financial crisis, the dotcom crisis of 2001, the global financial crisis of 2007, as well as the major events of ASEAN regional integration. Some of the shifts in the product and destination patterns of trade are quite dramatic, also given the number of years covered by the data.

This paper introduces this new dataset and illustrates some of its uses for research as well as for policy. It provides a more rigorous empirical support to known stylized facts and introduces new findings on the state of Philippine trade and manufacturing. The drivers of the high concentration of Philippine exports are illustrated, as well as the dimensions that relate to firm ownership and geographical location, for instance. New firm typologies are developed, as the behavior of every single exporting and importing firm could now be traced, not only in terms of the usual entry, exit, and survival, but also in terms of re-entry, permanent exit, and continuous or resilient survival.

It is noteworthy that within the fastest-growing region in the world, and during a period of rapid globalization, Philippine exports grew only at a yearly average of 2 percent over a span of 22 years. This is the weakest growth registered in Southeast Asia. A decomposition of export growth shows that the dynamics of Philippines exports are largely explained by the performance of incumbent firms; the net contribution of new entrants, the "extensive margin," has been minimal. By contrast, in France for example, every percentage point increase in new entrants led to almost the same amount of growth in export values [Eaton, Kortum, and Kramarz 2004]. The extensive margin found for Colombia was 0.54, a figure already considered rather low [Eaton, Eslava, Kugler, and Tybout 2007]. The elasticity for the Philippines, however, is even lower at only 0.18. This implies that changes in exports have been due largely to the increase in the average sales of surviving firms. Such findings are consistent with the results of the firm demographics analyzed here. New entry rates, or the share of new entrants in the total, have been plummeting sharply, especially among manufacturing firms, from a peak of 88 percent in 1999 to just 12 percent in 2012. A more striking result

[1] This project is part of the Integrated Research Programme funded by the WOTRO Netherlands Scientific Council entitled "Escaping the Middle Income Country Trap," project number W.O1.65.336.00.

is that almost half of these new entrants belong to the set of the most sporadic exporters, where the incidence of one-time exporting is the highest.

The rest of this paper is organized as follows. The following section describes the trade transactions and establishment survey database and the general firm and trade patterns emanating from it. Section 3 decomposes the growth of Philippine exports to key markets and to the rest of the world. Section 4 is devoted to the dynamics of firm entry, exit, and survival, which lead to various firm typologies. Firm demographics are also analyzed with respect to location and size. Section 5 concludes with a discussion of further potential use of the dataset and the approaches introduced in this paper that could contribute towards an evidence-based policymaking.

2. The Philippine matched trade transaction-firm survey database

2.1. Description of data and merging methodology

The database consists of the universe of the exports and imports of all Philippine firms over the period 1991-2012.[2] Generated from customs data, each transaction reports the product code, FOB value in US dollars, insurance and freight costs, and country of destination. This is matched by the PSA with the firm surveys using firm identifier codes. The exercise is made difficult by the fact that the same firm is assigned different codes in the customs data (7-digit IMP code) and in the firm survey data (12-digit-2-letter establishment code number). This entails linking firms through the firm name, address, or tax information number codes. For firms whose codes have changed over time, a common code is assigned so as to capture the historical trend for each firm.[3]

Integrating the transactions data is further hindered by the changing product classifications employed across the years. Trade data from 1991 to 2005 is based on the 7-digit Philippine Standard Commodity Classification (PSCC), which is harmonized with the 5-digit Standard International Trade Classification Revision 3. From 2006 onwards, the shift was made to the 10-digit PSCC (harmonized to the ASEAN Harmonized Tariff Nomenclature), and this was then concorded to the 7-digit PSCC in the database. Analysis made using this database therefore provides the most disaggregated enquiry possible. Where the units for the volume measurement have changed over time, gross kilos were used to ensure continuity.

Additional firm information such as size, ownership, revenue, and cost structure is obtained by matching the firm survey data comprising nine Annual

[2] The PSA performed the merging task while observing the strictest protocol to protect the confidentiality of the data.

[3] A firm that has been assigned a new establishment code number, due to change of ownership or for whatever reason, kept its original number in the database if address or name verification show that data pertain to the same firm.

Survey of Establishments in 1996 (combined survey with 1997), 1998, 2001, 2003, 2005, 2008, 2009, 2010, and three rounds of the Census of Philippine Business and Industry in 2000, 2006, and 2012. Large firms with 200 or more employees (from 2008 onwards, large firms with more than 100 employees) are in the certainty stratum, while the rest are sampled. Almost a third of all observations were generated in 1999-2000 census years.

Certain characteristics of the data, however, make it difficult to use it as panel data. First, the questions in the survey have changed over time, which hampers the integration of the survey data and leads to unevenness of the information set. Second, the rate of response to questions differed across firms, with larger firms displaying a higher propensity to supply answers. Empirical analysis based on the survey data will therefore suffer from a large-firm bias, since only these firms have been covered by all surveys.

The trade data is furthered cleaned by removing product lines, such as *Goods returned to the country whence imported/exported* (PSCC 9310400), *Commodities temporarily exported/imported* (PSCC 9310500), *Personal and household effects of travelers and immigrants* (PSCC 9310600), *Gifts, donations, relief goods* (PSCC 9310701), and *Tourist purchases* (PSCC 9310901). These products were removed, not necessarily because of insignificance, as they comprise only 2 percent of all export value, but because they distort the pattern of export and import transactions. For instance, these sectors are in the top 10, in terms of number of firms that export and import them, with lines 9310400 and 9310500 being the second and third most transacted products, respectively (47,768 and 43,374 times).

Table 1 provides some basic description of the trade data. Throughout the 21-year period, a total of 65,115 (respectively 92,288) firms were reported to have exported (respectively imported). There are 7,406 firms with a firm survey establishment code number, which implies that they have been classified as belonging to the manufacturing sector. Merging the trade and survey data, however, produced firm survey information only for 4,605 manufacturing exporters and 4,896 manufacturing importers.[4] The set of non-manufacturing firms are those that engage in trade but are categorized as belonging to the agriculture and services sectors, which have their own separate surveys.[5]

[4] This means that the remaining 2,801 exporting and 2,510 importing manufacturing firms have never been surveyed since 1996.

[5] The exact number of firms engaging in trade in the agriculture and services sectors can be determined by matching the annual surveys of these sectors with the trade database.

TABLE 1.1 Basic description of trade data

	Trade data		
	All	**Manufacturing**	**Non-manufacturing**
Observations			
Export	2,081,199	1,045,004	1,036,195
Import	6,385,562	3,027,894	(3,357,668)
Number of firms			
Exporting	64,115	7,406	56,709
importing	92,288	8,561	83,727
Revenues ($billion)			189
Export	846	657	288
Import	995	707	
Products			
Export	7,336	6,533	6,437
Import	9,038	8,666	8,823
Countries			
Export	276	273	262
Import	265	250	254
Unit Values ($)			
Export			
Median	13.5	17.5	10
Average	57	65	49
Import			
Median	9	14	5.5
Average	3,051	2,645	3,416
Age (years)			
Export	13	16	7
Import	13	18	8

TABLE 1.2 Basic description of survey data

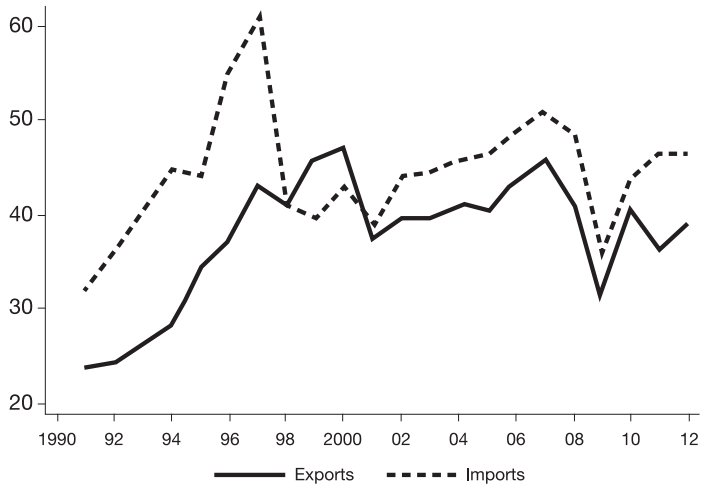
	Survey data		
	All	**Manufacturing exporters**	**Manufacturing non-exporters**
Observation	68,083	20,424	47,659
Manufacturing firms	32,968	4,605	28,363
Median revenues (₱ million)	1.8	48	1.1
Median employment size	11	70	9

Source: Author's calculations based on Philippine Statistical Authority firm survey database

2.2. Overall trade patterns

As shown in Figure 1, Philippine exports and imports from 1991 to 2012 grew only at a yearly average of 2 percent in real terms and 8 percent in nominal terms in a span of 22 years. This is the lowest growth rate registered in Southeast Asia during the same period. The impact of the Asian financial crisis as well as the global financial crisis is evident from these trends. While exports have somewhat

recovered from a sharp drop of 28 percent in real terms in 2009, the country in 2012 still had not reached the export revenues attained in its peak year of 2000.

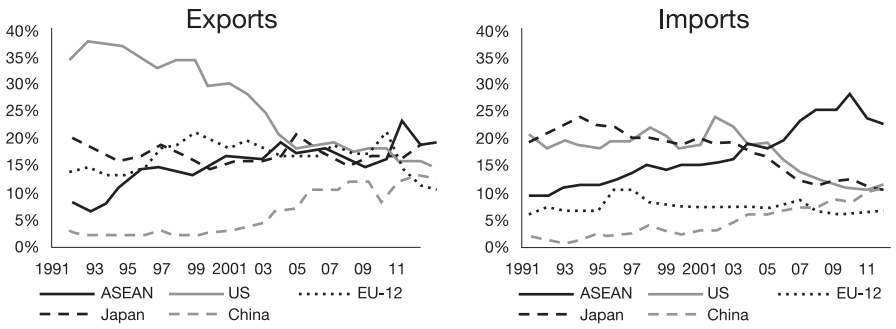


Source: Philippine Statistical Authority, with corrections by author

FIGURE 1. Philippine exports and imports, 1991- 2012 (in US$ billion, constant 2005 prices)

Market patterns of Philippine trade have changed significantly since 1991. Figure 2 reports the export shares of the top export partners: the United States, the EU-12[6], Japan, ASEAN, and China constitute an average of 78 percent of the country's total export revenues for the entire 22-year period. China has shown the greatest rise in export share, from only 1 percent in 1991 to 12 percent in 2012. On the other hand, exports to the United States experienced the sharpest drop from 35 percent to 14 percent in the same period. The share of ASEAN in Philippine exports rose from just 7 percent in 1990 to a peak of 22 percent in 2010. In imports, however, the share sourced from ASEAN represents almost a third of the country's total import demand in 2010, and ASEAN is in fact the most important market with 23 percent share of total imports in 2012. This means that the Philippines has also risen in importance as a market for the exports of the other ASEAN member countries. While the Philippine share in intra-ASEAN exports in 2012 was still the lowest at 11.3 percent of total intra-regional exports, the country is now the second largest intra-ASEAN importer, next only to Singapore. In the same year of 2012, its share in total ASEAN imports reached 12 percent, which is slightly bigger than Malaysia's 11 percent share.

[6] EU-12 refers to the composition of the European Union in January 1986: Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom.



Source: Philippine Statistical Authority

FIGURE 2. Relative importance of selected countries in Philippine exports and imports

2.3. Trade patterns among foreign-owned firms

The dominance of global production networks in world trade changes the calculus of the relative importance of export markets for a particular country. With production now being highly fragmented and spread across the globe, multinational firms must organize and move the necessary capital, technology, and other knowledge assets to further deepen and expand the division of labor among their "multi-national" suppliers. What is increasingly important is therefore not so much the nationality of export markets, but the ownership nationality of firms that source and manufacture locally and eventually export overseas. In Figure 2, the growing importance of China and ASEAN as export and import markets is evident. But the ranking of markets may easily change depending on the production and sourcing strategies decided in the boardrooms of foreign lead firms. It is therefore crucial to examine the ownership profile of firms as a further step in understanding the drivers of Philippine exports.

The PSA survey data contains firm ownership information for 77 percent of manufacturing exporters. Since the objective is to trace firms with foreign origin or participation, foreign nationality (with majority ownership) is encoded even if changes (i.e. a shift to full Filipino ownership) may have taken place across survey years. Table 2 reports the distribution of firms based on ownership, together with their corresponding employment, revenues, and export values. Almost 70 percent of all manufacturing exporting firms either are or have been 100-percent Filipino-owned, but these generated only 21 percent of all export revenues during the entire data period. Among foreign-owned firms, Japanese-owned firms are the greatest in number and have contributed most to employment and revenues (both domestic and foreign).

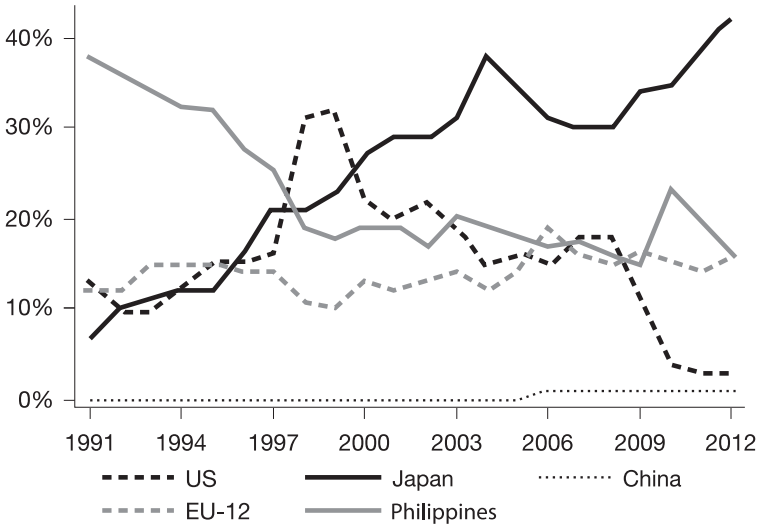
TABLE 2. Firm ownership profile of Philippine manufacturing exporters

	Total	United States	Japan	China	EU-12	Philippines	PH-for	No-own
Firms total	4,605	60	428	61	83	2,368	208	1,069
Shares (%)		2	12	2	2	67	6	23
Employment	763,000	26,898	162,819	15,454	34,218	376,314	13,600	133,823
Shares (%)		4	21	2	4	49	2	18
Employment median size		345	413	297	320	205	166	111
Domestic revenues (P billion)	646	19.9	291	4.11	55.1	186	6.94	82.5
Shares (%)		3	45	1	9	29	1	13
Exports ($ billion)	657	109	181	3	92	136	6.97	26.8
Shares(%)		17	28	0	14	21	1	4

Source: Author's calculations based on Philippine Statistical Authority firm survey database
Notes:
EU-12 refers to the composition of the European Union as per January 1986: Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom.
PH-for refers to local firms with foreign ownership. No-own refers to no ownership data
Total sums up the values for each type of firm ownership, except for Exports, which is the total of exports of all manufacturing firms from 1991-2012.

Figure 3 illustrates the export shares of firms according to their ownership, which is derived by matching the trade and firm survey data. What is worth noting is the sharp rise of the shares of Japanese-owned firms in the total manufacturing export revenues from just 7 percent in 1991 to 42 percent in 2012. The converse trend can be seen from firms with 100-percent Filipino ownership from 38 percent to 16 percent during the same period. Hence, while the relative importance of Japan as an export market hardly registered any change, Japanese capital has clearly been driving not only the amount but also the direction of Philippine exports. The manner in which production is being organized by Japanese firms around the ASEAN and Chinese markets, especially during the last decade, can be gleaned from these combined trade and investment trends.

The equally sharp drop of engagement by American firms in Philippine manufacturing can likewise be observed. After a peak share of 32 percent in 1999, the export contribution of American-owned firms dropped to just 3 percent in 2012. This may partly be explained by the 2008 exit of the semiconductor company, Intel, which was the first American company to locate part of its manufacturing in the country. Since 1974, when the company first located in the Philippines, it poured in a total of US$1.5 billion worth of investments with direct bearing on the country's export bills. In 2004, for instance, the chipmaker's investments were estimated to have generated around US$713 million in direct and indirect exports [Calimag 2008]. Another major exit was Ford Motors in 2012. Among the reasons cited for this departure was the lack of a broad supply base in the Philippines, as well as limited local demand and small export market in other parts of ASEAN [Sicat 2012]. The departure of major American firms such as these have left an indelible mark on the country's export landscape.



Source: Author's calculations based on matched PSA Trade & Firm Survey Database

FIGURE 3. Export shares according to firm ownership, 1991-2012

2.4. Analysis of products

Product analysis typically relies solely on the sectoral contribution to overall trade volume and revenue growth almost always at the level of broad product categories. The new PSA database allows one to observe additional dimensions of product dynamics at the most disaggregated level of analysis. For instance, trends in the number of firms and in the amount of transactions per sector are new indicators that can be used to gauge the relative importance of sectors. Based on the usual yardstick of revenue size, for example, semiconductors and other electronic products constitute the country's top exports. A different set of products comes to the fore, however, when one looks at the population of firms active in a particular sector, as well as the number of export transactions ascribed to a product.[7]

In Tables 3 and 4, we compare the characteristics of the highest-earning sectors and those with the most number of firms. While the top ten earning sectors accounted for half of total export revenues, these represented only 3 percent of all the 2.1 million export transactions in the period 1991-2012. The top ten most transacted products and most firm-populous sectors, on the other hand, brought in only 3 percent of total export value and were responsible for 17 percent of all transactions.

[7] In this subsection, the complete (uncorrected) dataset is used so as to cover all sectors in the analysis.

TABLE 3. Highest-earning products, 1991-2012

Philippine Standard Commodity Classification	Description	Exports (US$ billion)	Export growth (%)	Firms	Growth in number of firms (%)	Number of transactions
9310221	Semiconductor devices, manufacturing from material on consign basis	167	-2	584	-3	12,097
9310229	Finished electricall and electronic machinery and parts, manufacturin from material-consign, nes	85	1	1034	-3	12,088
7764109*	Other monolithic digital integrated circuits	33.8	-12	61	0	589
7764900	[Other] electronic [integrated circuits and] microassemblies	28.8	1	664	8	7,977
7599700	Parts and accessories of machines of 752	23.4	14	2439	2	16,029
7527000*	Storage units, whether or not presented with the rest of a system	22.1	10	244	-9	2,254
7526000	Inkjet printers	21	-8	525	4	2,456
7523002*	Laptops	15.4	8	168	8	771
7763900	Other semiconductor devices	14.9	5	526	-5	3,775
4223100	Coconut (copra) oil, crude	13.8	-1	350	5	2,560

Source: Author's computation based on Philippine Statistical Authority trade database
*These products were exported from 2000 onwards.

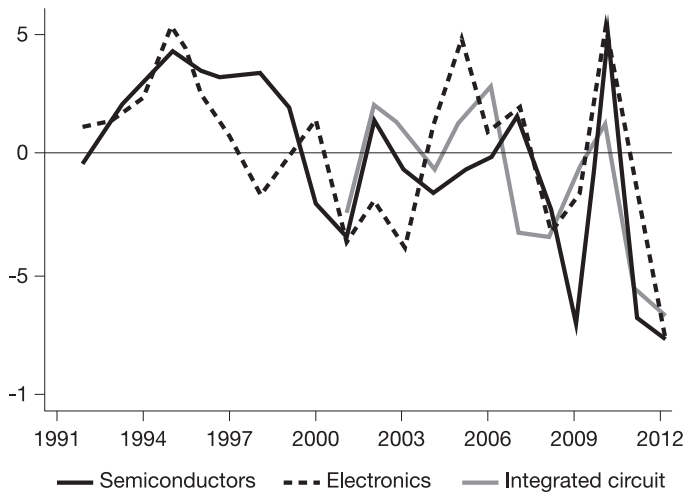
TABLE 4. Most populous sectors and most transacted products

Philippine Standard Commodity Classification	Description	Exports (US$ billion)	Export growth	Firms	Firm growth	Transactions
9310702	Samples	0.139	-4%	12,485	-2%	59,251
9310409	Goods returned to the country whence imported/exported, nes	7.95	2%	9,904	0	47,768
9310509	Other commodities temporarily imported/ exported	2.95	3%	9,002	3%	43,374
6354903	Statuettes and other ornaments (including carved articles) of wood	0.84	-12%	6,575	2%	25,359
8997119	Other basket work and art from plaiting material goods-89973,89974/89979	1.27	-16%	6,313	-0.3%	31,950
8944500	Other articles for Christmas festivities excluding lighting fittings and bulbs	2.14	-9%	6,079	-8%	37,502
8215909	Other wooden furniture, nes	2.25	-0.7%	5,840	7%	30,173
8972909	Imitation jewellery, of other non-precious materials, nes	1.01	-8%	4,933	11%	31,752
9310600	Personal and household effects of travelers and immigrants	0.48	12%	4,881	0.3%	13,474
8217903	Furniture, of rattan	2.13	-15%	4,633	3%	29,789

Source: Author's computations based on Philippine Statistical Authority trade database

While the export performance of the top earning sectors is mixed, all the manufacturing items in the most firm-populous sectors experienced significant dips in export growth, most notably the country's traditional exports of baskets and rattan furniture. Growth was positive only for the three non-manufacture categories (e.g. personal household effects of travelers and immigrants). These downward export trends reflect the heightened global competition for labor-intensive goods where entry barriers are low.

It is largely the performance of the top earning sectors, however, that influences overall Philippine export performance. The semiconductors sector (PSCC 9310221), after attaining peak growth of 54 percent in 1995, saw exports steadily decline thereafter. In fact, its real export value in 2012 is barely a third of its highest reported revenues earned in 1997. Since 2008, the growth of all top ten export-earning sectors nose-dived, with the exception of copra which did not register any change.



Source: Author's computation based on PSA Trade database

FIGURE 4. Export growth of top three products (7-digit Philippine Standard Commodity Classification), 1991-2012

2.5. First set of stylized facts

We can now summarize the preceding discussion by culling the following first set of stylized facts:

a. Exports are concentrated in manufacturing firms. These constitute only 12 percent of total exporting firms but account for 76 percent of total export revenues of all firms. Among these firms, just a handful (5 percent of firms) account for 85 percent of export revenues. In fact, as few as 12 firms are responsible for generating 50 percent of all exports.

b. The exports of manufacturing firms are concentrated in fewer products compared to their non-manufacturing counterparts. The top ten products generate 53 percent and 35 percent of all revenues, respectively.
c. Manufacturing firms sell more varieties of exports but import slightly fewer types of products compared to those in the non-manufacturing sector.
d. Manufacturing firms buy and sell at higher unit prices relative to non-manufacturing firms, indicating a higher propensity to sell and buy higher quality goods.
e. By and large, exporters also import (only 29 percent of them do not do so), but a little over half (51 percent) of importers do not export. However, these non-importing exporters and non-exporting importers account for just 1 percent and 4 percent of all exports and imports, respectively. Thus, the 45,307 exporting-importing firms account for 99 percent and 96 percent of all exports and imports, respectively.
f. While the negative impact of the 1997 Asian financial crisis only slightly affected Philippine exports, the global financial crisis of 2007 pushed the country's exports back to pre-1997 levels.
g. The trend of high export concentration is also observable in the direction of trade. The United States, EU-12, Japan, ASEAN, and China together constitute an average of 78 percent of the Philippines' total export revenues for the entire 21-year period.
h. Exports have largely been driven by firms with Japanese ownership, which generated almost a third of total export sales. The same firms dominate the total revenues (i.e. exports and domestic sales) as they reap close to half of the combined revenues of American, Chinese, European (EU-12), and Philippine-owned firms.
i. Philippine-owned firms (full and partial), while representing at least 73 percent of all manufacturing firms, accounted for only 22 percent of export revenues and at least 30 percent of total revenues (i.e. exports and domestic sales).
j. Firms with American ownership have seen the largest drop in export shares from a peak of 32 percent in 1999 to only 3 percent in 2012.
k. The top ten sectors in terms of export earnings accounted for half of total export, but they represented only 3 percent of all export transactions from 1991-2012. The earnings of the ten sectors with the most number of firms, however, are just 5 percent of the values realized by the top earners. The latter, in turn, barely reached 10 percent of the export activity generated by the top 10 most firm-populous sectors.
l. All the top firm-populous sectors, especially the manufacture of traditional products, experienced a drop in export growth averaged across the period of 1991 to 2012.
m. The effects of the global recession are evident from the performance of the top ten earning products. With the exception of copra, all top earners experienced a sharp fall in revenues from 2008 to 2012.

3. Decomposition of Philippine export growth

We now turn to the decomposition of Philippine export growth and compare the performance and behavior of firms active in the country's key markets. Following the work on Colombia done by Eaton, Eslava, Kugler, and Tybout [2007], export growth can be decomposed into changes in intensive and extensive margins, that is, changes in the average sales of firms and changes in the number of exporting firms, respectively. The relative contribution of these margins can be seen by expressing exports, X to destination j in year t as:

$$\ln X_{jt} = \ln N_{jt} + \ln \bar{x}_{jt}, \tag{1}$$

where N_{jt} denotes the number of firms active in each destination j at time t and $\bar{x}_{jt}$ is the average export revenues of each firm.

Figure 5 illustrates the relationships inherent in the above equation by plotting the number of firms against total exports. Regressing the growth of the number of firms with respect to export growth further shows that changes in exports are more sensitive to changes in intensive margins, that is, a doubling of exports coincides with an increase of only 18 percent in the number of firms, or conversely, an 82 percent rise in the average sales of firms. The sluggish growth of Philippine exports in the last two decades can largely be attributed to the small and falling size of the average sales of firms from US$200,000 in 1991 to US$134,000 in 2012.

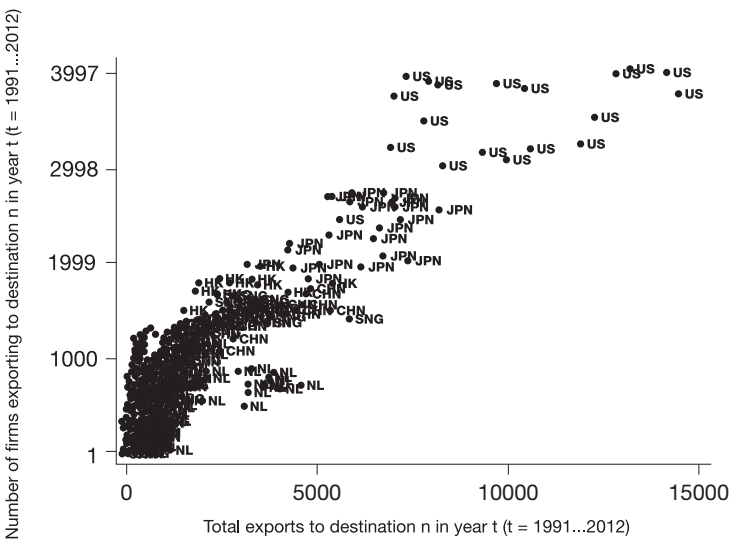


FIGURE 5. Number of firms and total exports per destination, 1991 - 2012

The Philippine experience is opposite to the trends found by Eaton et al. [2007] in Colombia and Eaton et al. [2004] in France. In those countries, the contributions of extensive margins were 54 percent and 62 percent, respectively. The lower margin of entry for the Philippines could be explained by the smaller size of entrants relative to the average. While most destinations attracted numerous firms during the 21 years of study, they only added marginally to the total value of exports. The outlier destinations are the United States, Japan, Singapore, and the Netherlands, where entering firms exported in large amounts.

Decomposing aggregate export growth into the contribution of firm entrants, survivors, and exiters sheds further light on the roles of intensive and extensive margins. As Eaton et al. [2007] have done, we express total growth in exports using the identity given by (2) below. Total exports to destination j in year t are denoted by X_{jt}, while x_{ijt} represents the exports for firm i to destination j at time t. The set of *continuing* or *surviving* firms that are period pairwise exporters is denoted by *CN*. The set of *entrants*, which exported in year t but not in $t-1$, is denoted by *EN*, and the set of *exiters*, which exported in $t-1$ but no longer in t, by *EX*.

The first two bracketed expressions on the right-hand side of (2) refer to the continuers' contribution to growth, which is obtained as the product of the continuers' share in total exports and their export growth. The following bracket in the second line pertains to the entrants' share in growth, expressed as the sum of entrant firms' contribution (assuming that new firms export the average sales of firms in the previous year, $t-1$), and the actual difference between the entrants' exports with those of the average firm in the previous year. The latter therefore corrects the gross percentage growth due to entry of new firms. The last bracket represents the contribution of exiters, which is the sum of the fall of exports due to non-surviving firms (and once again assuming that their sales are as big as the average firm in year $t-1$), and a correction term that accounts for the actual size of exiters relative to the average.

$$\left[\frac{X_{it}-X_{it-1}}{\frac{(X_{it-1}+X_{it})}{2}}\right]=\left\{\left[\frac{\frac{\sum_{j\in CN_i^{t-1,t}}[x_{ijt-1}+x_{ijt}]}{2}}{\frac{(X_{it-1}+X_{it})}{2}}\right]\left[\frac{\sum_{j\in CN_i^{t-1,t}}[x_{ijt}-x_{ijt-1}]}{\frac{\sum_{j\in CN_i^{t-1,t}}[x_{ijt-1}+x_{ijt}]}{2}}\right]\right\}+\left\{\left[\frac{NEN_i^{t-1,t}\bar{x}_{it-1}}{(X_{it-1}+X_{it})/2}\right]+\left[\frac{\sum_{j\in EN_i^{t-1,t}}[x_{ijt}-\bar{x}_{it-1}]}{\sum_{j\in N_i^{t-1,t}}[x_{ijt-1}+x_{ijt}]/2}\right]\right\}-\left\{\left[\frac{NEX_i^{t-1,t}\bar{x}_{it-1}}{\frac{(X_{it-1}+X_{it})}{2}}\right]-\left[\frac{\sum_{j\in XN_i^{t-1,t}}[x_{ijt-1}-\bar{x}_{it-1}]}{\sum_{j\in N_i^{t-1,t}}[x_{ijt-1}+x_{ijt}]/2}\right]\right\} \quad (2)$$

Figure 6 decomposes growth in 21 pairwise years, pooled across all destinations.[8] It is clear that fluctuations in export growth are largely driven by the

[8] Table 1A in the Appendix provides the detailed contribution of "Continuers, entrants, and exiters in total export growth, 1991-2012."

behavior of continuing firms, particularly from 1998 onwards. While surviving firms account for 83 percent of total exports, on average, their falling growth rate of 7.5 percent explains the overall weak performance of aggregate exports. Net entry hardly makes an impact on growth, particularly since the size of new exporters in terms of revenues is only 32 percent of the sales realized by the average firm. It was only in the years 1996-1998 that net entry significantly pulled up exports, thanks to relatively bigger sized entrants. From 2000 onwards, the importance of entrants has significantly weakened, with exiters even surpassing entrants in 2003-2005 and 2008-2009. The period of high exit rates coincides with the period of most entrants. However, since exiters are on average even smaller than new entrants, the period 1996-1998 still emerges as the most significant for net entry.

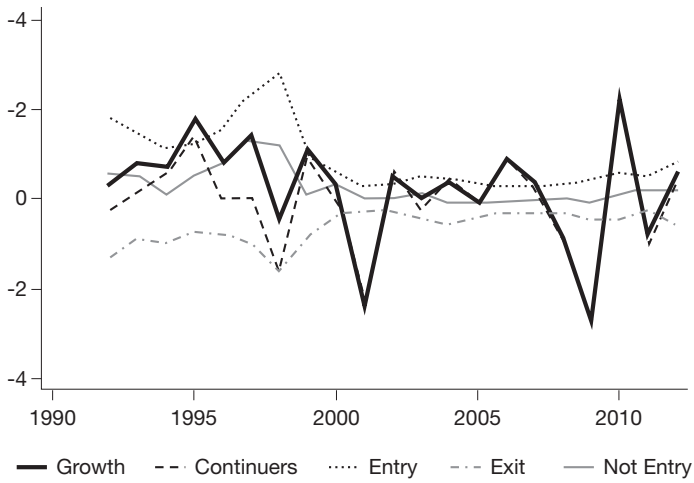


FIGURE 6. Decomposition of export growth

How does the behavior of firms compare across markets? Figure 7 zooms in on the firm dynamics of exporters to key export destinations, namely, ASEAN, the United States, Japan, EU-12, China, South Korea, and Taiwan, which together account for an average of 85 percent of total Philippine exports for the period 1991-2012. Exports to ASEAN leaped by 46 percent and 45 percent in 1994 and 1995, respectively, resulting in an average of 7 percent growth. China's demand for the country's exports grew an average of 12 percent, however, making it the country's fastest-growing market. This is largely due to the export boom of 38 percent from 2002-2005. In contrast, exports to the Philippines' largest market, the United States, fell by 2 percent, while exports to Europe and Japan grew rather tepidly by 2 percent and 1 percent, respectively. The importance of continuers was more pronounced for ASEAN, China, and the United States, while entrants drove the growth of exports to Taiwan.

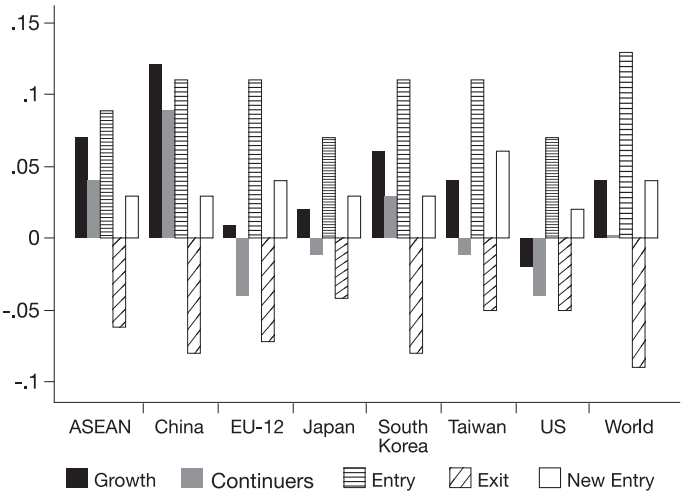


Figure 7. Decomposition of growth in key selected markets, 1991 - 2012

4. Firm demographics

4.1. Birth, death, survival, and re-entry of firms in export markets

Firm survival, or the duration of time of continued exporting by a firm, is not completely observable because of the time limitation of existing data. For instance, the occurrence of the event being studied is said to be left-censored, if firms appearing in year $t_k (k = 1,\ldots, n)$ of the data are not all new entrants as they have most likely existed previously since year $t_k - 1$, or right-censored, if exiters in year t_n are not all permanent exiters for they could still re-enter in $t_n + 1$. In Balaoing, van Heuvelen, and Viaene [2016], discrete survival analysis was used to address these issues in order to analyze the exporting spells of Philippine firms, as well as the determinants of firm survival, with proxies for product quality.

One of the drawbacks of such methods is that observations in the first and last period of the data are dropped. In Balaoing et al. [2016], for instance, analysis was restricted to the period 1996-2007. Dropping firms and observations particularly in 1991 entails a loss of valuable information as exporting spells involve some of the biggest and oldest firms in the data. To preserve all the information contained in the PSA database, this paper employs an alternative method of tracking the behavior of every single exporting firm from 1991-2012, developing an algorithm programmed in STATA in order to sift through the various firm types according to their entry, survival, and exit patterns. Although the problem of right- and left- data censoring cannot be fully resolved, particularly in the estimation of permanent exit (i.e. this will be over-estimated for firms at the latter period of the data) or new entry (which will be over-estimated at the initial periods), the

22-year stretch of the data nevertheless provides a reasonable measure of relative entry, exit, and survival rates.

Table 5 provides a summary of the firm demographics of Philippine exports while Table 2 in the appendix reports the complete yearly results. Of the 64,115 firms that exported from 1991 to 2012, a total of 24,659 or 38 percent have permanently exited, leaving only a total of 9,125 firms still active in 2012. For manufacturing exports, this figure is lower at just 13 percent (or 974) out of the total of 7,406 firms.

TABLE 5. Firm demographics of Philippine exporters, 1991-2012

	All	Manufacturing	Non- manufacturing
All	64,115	7,406	
Total firms in 1991	6,719	927	5,792
Total firms in 2012	9,125	2,832	6,293
New entrants[1]	57,396	6,479	47,849
Permanent exiters[2]	50,984	3,685	47,299
One-time entrants[3]	24,659	974	23,685
Re-entrants[4]	27,362	5,409	21,953
Resilient firms[5]	4,427	1,725	2,702
Permanent ex-plus[6]	16,012	2,323	13,689
Rates of:			
New entry[7]	66%	53%	69%
Survival[8]	37%	58%	34%
One-time entry[9]	41%	14%	46%
Permanent exit[10]	59%	23%	63%
Resilience[11]	5%	23%	3%

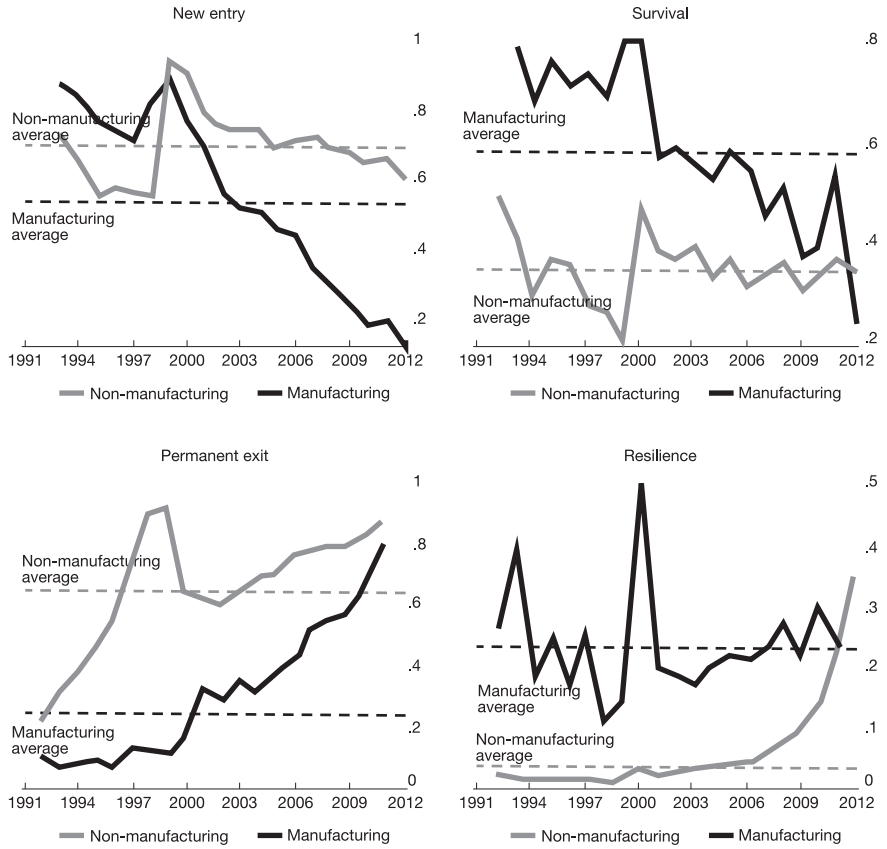
Source: Authors own computations based on Philippine Statistical Authority trade database
Notes:
[1]New entrants are firms in t+1, not in t;
[2]Permanent exiters are firms that exit in t and have not re-entered till end of data;
[3]One-time entrants are new entrants in t, but permanently exited in t+1;
[4]Re-entrants entered in t, having previously exited;
[5]Resilient firms entered in t and survived until last data year;
[6]Permanent exiters plus are permanent exiters that have survived for at least three years
[7]New entry rates are the percentage of new entrants over total entrants for a specific year, averaged across 1994-2012;
[8]Survival rates are the percentage of new entrant survivors in t+1 over new entrants in t, averaged across 1994-2012;
[9]One-time entry rates are the percentage of one-time entrants over new entrants, averaged from 1992-2008;
[10]Permanent exit rates are the percentage of permanent exiters over total exiters, averaged from 1992-2008; and
[11]Resilience rates are the percentage of resilient firms among the total of new entrants for each specific year, averaged from 1992 to 2008.

Given the long series and wealth of information contained in the PSA database, various typologies of firms can be identified. In this section, we track distinct types of entrants, survivors and exiters, using the following definitions.

a. New entrants: firms present in $t+1$, but not in t;
b. One-time entrants: entered in t, but permanently exited in $t+1$;
c. Re-entrants: entered in t, but already previously entered and exited;
d. Surviving first entrants: new entrants in t, surviving in $t+1$;
e. Permanent exiters: exited in t, and did not re-enter till end of data series;
f. Permanent exiters-plus: permanent exiters with three or more survival spells (years); and
g. Resilient exporters: new entrant in t that survived till end of data series.

The key indicators used are *new entry rates* (new entrants as a percentage of total entrants for a specific year); *survival rates* (new entrant survivors in $t+1$ as a percentage of new entrants in t); *one-time entry rates* (one-time entrants as a percentage of new entrants); *permanent exit rates* (permanent exiters as a percentage of total exiters); and *resilience rates* (resilient firms as a percentage of total of new entrants for a specific year). Since the data is right- and left-censored, new entry and survival rates are averaged across 1994-2012, while one-time entry, permanent exit, and resilience rates are averaged from 1992 till 2008 only.

The trends shown in Figure 8 point to a more or less steady decline in manufacturing exporters during the period under study. First, the rate of new entrants among manufacturing firms drastically fell from around 88 percent in 1999 to merely 12 percent in 2012. Second, while the pattern of survival has been relatively stable for non-manufacturing firms, that of manufacturing firms has been steadily falling from almost 80 percent in 1991 to just 24 percent in 2012. Third, the rate of permanent exit is considerably higher for non-manufacturing, but the increase for manufacturing is considerably higher, from just 10 percent in 1992 to a bit more than half in 2008. Finally, the number of manufacturing firms that export for only one year, the so-called "one-time entrants" has likewise jumped from only 8 percent in 1991 to 27 percent in 2000, and further to 42 percent in pre-crisis 2006.



Source: Author's calculation based on PSA Trade database

FIGURE 8. Rates of new entry, survival, one-time entry, permanent exit and resilience, 1991-2012

There is a growing literature on export firm survival which points to high mortality rates for first-time exporters. Using firm survival analysis, Fu and Wu [2014] find that nearly half of new Chinese firms survive for less than three years in export markets, while Esteve-Perez et al. [2008] estimated that around 37.5 percent of Spanish firms survived for less than four years. It appears that a significant number of firms attempt to test their relative competitiveness by exporting but then exit the following year. In Balaoing et al. [2016], which uses the same PSA trade database employed here, the exit or hazard rate was found to be around 72.2 percent.[9] Survival spells in that paper contain more dimensions,

[9] It is difficult to compare this result with others found in the firm survival literature because of the varying dimensions of the data used.

that is, survival of each firm-product-destination export spell, explaining the much higher rate of exit.[10] Most firm survival studies show that exit rates drop significantly after the second and third year, and this is confirmed by the Philippine case.

The vulnerability of export spells in the first three years is the reason why observing the behavior of re-entrants is important, especially their permanent exit. Firms that have passed the critical threshold of three years but still exited can be tracked using this paper's approach. A third of all manufacturing firms gave up exporting (i.e., denoted by *permanent ex-plus* in Table 5) despite having more than three years of export experience.

The most extreme type of sporadic exporters are the one-time entrants. These are firms that enter in year *t* and exit the following year, never again to venture into exporting. Among manufacturing exporters, one-time entrants reached a total of 974 firms. However, 93 percent of these firms are those that have the lowest response rate, not even filling in the most critical information on size, location, and ownership. These firms also account for 68 percent of all permanent exiters among manufacturers and only 14 percent of resilient firms. Non-response could therefore be a proxy or an indicator of minimal engagement in exporting. Of the 3,869 firms without critical firm characteristic information in the survey data, 2,486 are permanent exiters, of which 913 are one-time entrants, thus leaving only 471 firms still active in 2012.

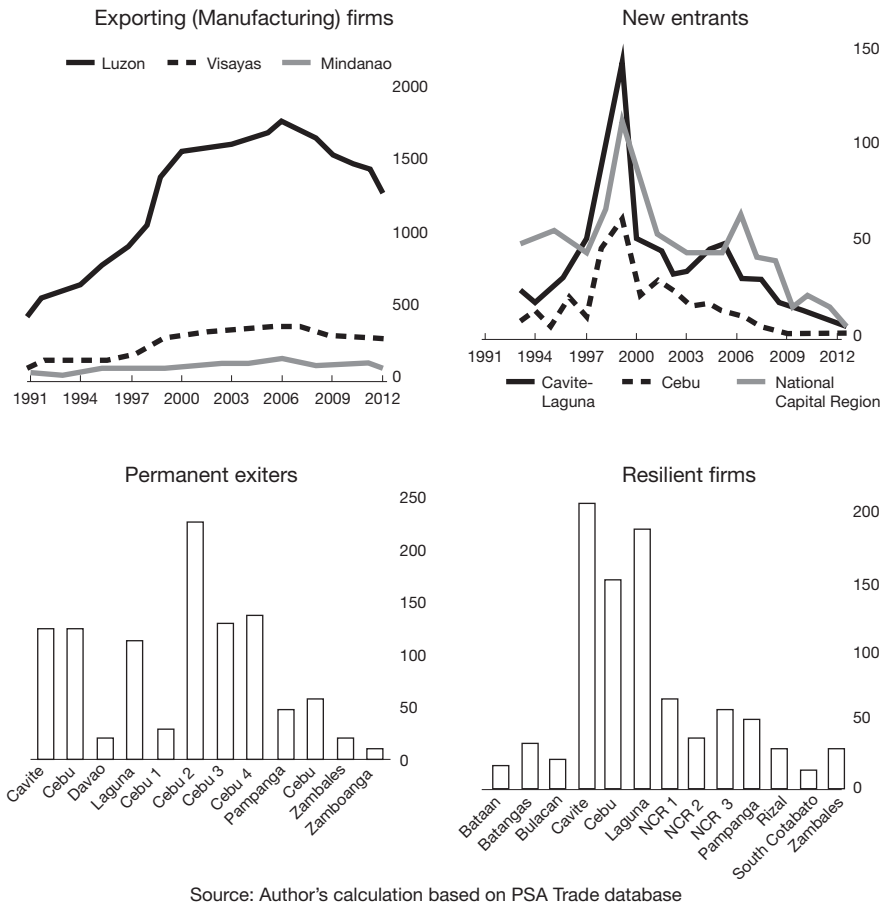
4.2. Firm demographics of firms by location and size

There are many ways firm demographics can be useful, especially for policy. Data on location, from the provincial to the municipal and up to the barangay levels, allows local government officials, for instance, or members of the legislature to monitor the state of the firms in their localities, enabling them to craft policies that respond more directly to the needs of these specific types of firms. Moreover, rates of entry, exit, and resiliency through time are indicators that could be particularly useful in evaluating the impact of policy interventions that have been undertaken.

Figure 9 typifies the various types of information regarding geographical location which can be culled from the merged trade and firm survey PSA database. Luzon, where around 80 percent of export activity has been taking place, is evidently the fulcrum of manufacturing in the country. While a slight increase in the number of exporting firms can be glimpsed for the Visayas, the trend for Mindanao has been practically flat for the last two decades, with its total export transactions and sales being only 4 percent and 3 percent of overall,

[10] In this paper, the object of interest is the survival of firms themselves, regardless of market- or product switching.

respectively. Most new entrants (60 percent) originated from just three places, namely, the National Capital Region (767), Cavite (379), and Cebu (313), with the highest rates of new entrants also being attributed to Cavite (63 percent) and Laguna (59 percent). The rates of permanent exits are similar for Luzon, Visayas, and Mindanao at 18 percent, with the National Capital Region being above (22 percent), and Cavite and Laguna lower than average rates (15 percent). In fact, the National Capital Region accounted for 44 percent of all permanent exiters. Resilient firms are likewise concentrated in just a few provinces, with the 13 localities depicted in Figure 9 representing 93 percent of the total population of resilient firms.



Source: Author's calculation based on PSA Trade database

FIGURE 9. Distribution and firm demographics across major Philippine regions, 1991-2012

The heightened policy intent to stimulate the growth of small and medium enterprises in the context of generating more inclusive growth also makes size-related indicators a point of interest. In the firm survey data, size is based on average total employment, as defined in Table 6. As depicted in Figure 10, the majority of exporting firms are small, with an average of 10-99 employees, followed by large, medium, and micro-sized firms. The same size ordering is seen when inspecting the number of new entrants, permanent exiters, and resilient firms. New entry rates are almost similar for small and large firms, 53 percent and 50 percent, respectively; permanent exit rates are highest for micro (34 percent), followed by large (20 percent), small (19 percent), and medium sized (17 percent) firms. In terms of resiliency, however, large firms report more than double the average rate, while those of the smallest size have the least number of firms that have continuous export spells from the first year of entry. In Figure 11, the huge differences in resiliency between those located in the National Capital Region and those in Cavite and Laguna can also be seen.

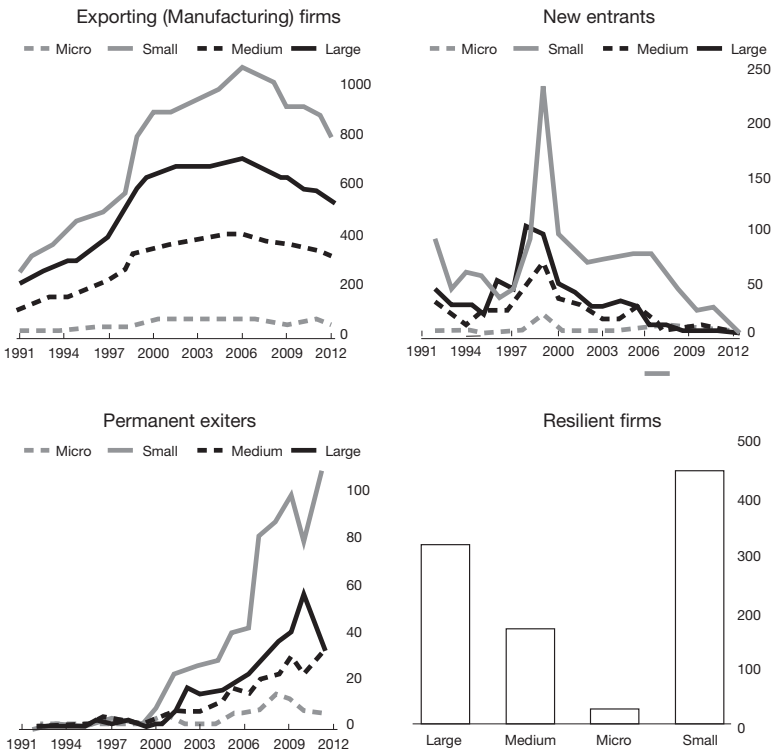
TABLE 6. Size codes used in Philippine Statistics Authority firm survey database

Size	Average Total Employment Code	Employment
Micro	0	1 – 4
	1	5 – 9
Small	2	10 – 19
	3	20 – 49
	4	50 – 99
Medium	5	100 – 199
Large	6	200 – 499
	7	500 – 999
	8	1000 – 1,999
	9	2,000 and over

4.3. Second set of stylized facts

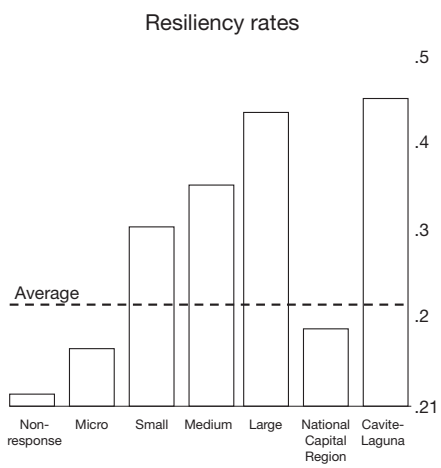
The second set of stylized facts can be derived from the export decomposition and from firm demographics analysis.

a. Export growth is more sensitive to changes in the intensive margin: a doubling of exports is associated with an increase of only 18 percent in the number of firms. Rates of new entry have fallen sharply since 1999 (especially for manufacturing firms), and most new entrants are small firms with average revenues of only a third of those earned by the average firm. Permanent exit rates in manufacturing have likewise risen sharply since 2000, even among some large firms, which helps explain the falling average revenue size of firms.



Source: Author's calculation based on PSA Trade database

FIGURE 10. Distribution and firm demographics based on firm size, 1991-2012



Source: Author's calculation based on PSA Trade database

FIGURE 11. Resiliency rates of exporting manufacturers, 1991-2012

b. The outlier destinations, where entering firms export in sizeable values, are the United States, Japan, Singapore, and the Netherlands.
c. Continuing firms are responsible for an average of 83 percent of total exports and largely drive the trends in export growth. Their declining growth rate of 7.5 percent averaged over the period of 1991-2012 has led to the overall sluggish performance of exports.
d. In 1996-98, the net entry of firms helped pulled up export growth, with a sharp rise of new entry among large firms. Since then, however, new entry has fallen drastically from a share of 88 percent of total entrants in 1999 to only 24 percent in 2012.
e. The share of permanent exiters in the total number of firms is significantly higher in the non-manufacturing than in the manufacturing sector, indicating higher fixed costs of exporting by the latter. However, the rate of change of permanent exit has been more rapid in the manufacturing sector (from 10 percent in 1992 to 51 percent in 2008).
f. A third of all manufacturing exporters exited permanently despite having survived the critical three years of exporting.
g. The number of one-time entrants rose from 8 percent in 1991 to 42 percent in 2006. However, 93 percent of these belong to the set of manufacturing firms with the lowest response rates in the survey, indicating that these are most likely micro or small firms.
h. Around 80 percent of all export activity took place in Luzon, with some slight increase in the Visayas, but largely stagnating in Mindanao.
i. Sixty percent of new entrants originated from the National Capital Region, Cavite, and Cebu. Among permanent exiters, 44 percent are from the National Capital Region. Cavite and Laguna host the most number of resilient firms.
j. Most new entrants are small firms, but the resiliency rates of large firms are the greatest among all the size categories.

5. Opportunities for evidence-based policy-making in the era of big data

The growth and dynamism of a country's exports are among the critical indicators of its competitiveness and the general state of its economy. Aggregate trade data has been the standard basis for measurement, and policy interest is generally focused on the performance of the top sectors and their shares in key export markets. The finest resolution of analysis therefore typically stops at the level of products, informing industrial and trade policy which sectors to target and nurture.

There is a conceptual underpinning for such an approach. If the standard neoclassical assumption of homogeneous firms with similar levels of productivity is valid, then a sectoral approach would seem to suffice for designing national industrial strategies and policy interventions. The 2003 seminal paper of

Melitz, however, questioned the theoretical analysis based on the behavior of a representative firm, ushering in a "New New Trade Theory" grounded in firm heterogeneity in differentiated product markets.[11] It then became evident that the focus on firms, and not only on sectors, is indispensable in understanding how countries can address the challenges and opportunities of globalization. Moreover, firm heterogeneity analysis brings to the fore a host of distributional issues, such as the risk of policy incentives benefitting only the few most productive firms within sectors, which are often the largest and also have the most substantial foreign ownership.

The availability of micro data for the Philippines, with its vast wealth of information on firms and their internationalization behavior, is a gold mine for researchers and policymakers seeking to explain the reason behind the poor functioning of the country's exports, as well as to understand the consequences for thousands of firms. The expository attempts made in this paper have revealed only the proverbial tip of the iceberg as far as the state of Philippine trade and manufacturing is concerned.

Even this early attempt has nonetheless generated new information and new stylized facts with greater detail. While the high rate of market- and product-concentration of Philippine exports is well known, for instance, our results reveal the extent to which this concentration is based on the survival of a few large firms, characteristically with Japanese ownership, located mostly in Cavite, Laguna, and Cebu, and producing a narrow range of products in the semiconductor and electronics sectors. There is likewise nothing new in the information on the faltering dynamism of the manufacturing sector in the last few decades. However, the magnitude of the decrease in the rates of new entrants among manufacturing firms across all regions and sizes, coinciding with the rise in permanent exit rates, is concrete new evidence of the worrisome plight of the export sector. Illustrating the state of the economy through this kind of micro data can certainly help build a common understanding of the problem and generate a sense of urgency in the design and implementation of actionable strategies.

The new Philippine database stimulates a rich agenda for research. Ongoing work is being done on the performance of firms active in global production networks or global value chains, geared towards understanding the product upgrading and innovation choices of Philippine firms. A more detailed analysis is also in progress focused on the patterns of product-destination export spells across different types of firms and aimed at understanding the differences between re-entrant firms that succeeded and those that fail (i.e. permanently exited) instead. Information on the geographical location of firms also opens up opportunities to study whether production within an export processing zone leads to differential impact on performance. The merged survey and trade data can also be further

[11] See Redding [2011] for an extensive survey of the literature.

exploited to analyze several drivers of firm performance and combine various measures of productivity stemming from the firm survey and trade database.

The agenda for policy-oriented research is equally rich and valuable. One can exploit the new typology of firms to further dissect the constraints and opportunities specific to different types of firms. The vast survey resources of government, for instance, can be put to the task of tracking one-time entrant firms, or even more important, firms that have permanently exited after initially experiencing success in entering new export markets. Since entrepreneurial capital is scarce in developing countries like the Philippines, it is crucial to understand how these types of firms can be sustained and prevented from losing the knowledge and skills built after years of exporting. The characteristics of resilient firms are likewise important to uncover in order to recognize the possible factors of success in keeping one's competitiveness in highly demanding foreign markets.

Policy attention has often been drawn towards so-called export champions. The results of this paper show that while these may have been the major contributor to export revenues, they belong to a small elite of firms that are most likely affiliated with foreign lead firms operating to serve their global and regional production networks. Resilience in exporting is high among these firms, which is not surprising given the extensive technological power of their multinational partners. But if export diversification is a critical goal, then it would be a grave policy omission to neglect the country's most firm-populous sectors, which is home to thousands of micro-, small, and medium-sized firms. These account for the bulk of export transactions, which mostly takes place in traditional sectors that have experienced sharp falls in prices and squeezed profit margins due to low entry barriers and the opening up of the huge global supply of labor. Diversification away from these sectors implies increasing capacities to link up with larger firms that are active participants in the networks of global foreign lead companies. Such an option, however, is probably reserved only for a happy few. For most firms, there may be no escaping the narrow path of innovation and knowledge build-up in order to conquer new niches in export markets that are becoming even more competitive and exigent through time. Without access to efficient infrastructure and support in meeting the growing menu of minimum (and voluntary) quality standards, export survival will continue to be out of the reach of most of the country's firms. Knowing which interventions are critical in triggering the maximum effect for the most number of firms will require greater policy sophistication, towards which a good firm diagnostic would be a critical first step.

The era of big data presents a huge opportunity for more relevant science and more responsive policies. Both are needed to steer society away from alternative facts and towards the evidence and truth that can change the trajectory of the Philippines away from poverty and towards more inclusive growth and greater competitiveness.

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Appendix

TABLE 1A. Contribution of continuers, entrants, and exiters in total export growth, 1991-2012

	Export growth	Continuers' export share	Continuers' export growth	Continuers	Entrants' share	Entrats' Relative size	Exiters share	Exiters' Relative size	Entrants	Exiters	Net entry	Relative size entry*
1991-1992	3%	79%	-3%	-2%	55%	-38%	-51%	37%	18%	-13%	5%	32%
1992-1993	8%	83%	3%	2%	31%	-17%	-28%	20%	14%	-9%	6%	46%
1993-1994	7%	84%	6%	6%	35%	-24%	-31%	20%	11%	-10%	1%	32%
1994-1995	18%	86%	15%	14%	29%	-17%	-27%	20%	12%	-7%	5%	41%
1995-1996	8%	84%	0%	0%	36%	-20%	-29%	21%	16%	-8%	7%	44%
1996-1997	14%	79%	1%	1%	38%	-15%	-34%	25%	23%	-10%	13%	60%
1997-1998	-5%	78%	-22%	-17%	41%	-13%	-39%	23%	28%	-16%	12%	68%
1998-1999	11%	91%	10%	10%	31%	-22%	-32%	24%	9%	-8%	1%	30%
1999-2000	3%	96%	0%	1%	28%	-22%	-24%	21%	6%	-3%	2%	20%
2000-2001	-24%	97%	-24%	-24%	29%	-26%	-31%	29%	3%	-3%	0%	10%
2001-2002	5%	97%	6%	6%	28%	-25%	-26%	23%	3%	-3%	0%	11%
2002-2003	0%	96%	-2%	-2%	30%	-25%	-28%	25%	5%	-4%	2%	18%
2003-2004	4%	96%	5%	5%	29%	-26%	-28%	23%	4%	-5%	-1%	13%
2004-2005	-1%	96%	-1%	-1%	33%	-29%	-29%	25%	3%	-4%	-1%	10%
2005-2006	9%	97%	9%	9%	29%	-25%	-29%	26%	3%	-3%	0%	12%
2006-2007	3%	97%	3%	2%	26%	-22%	-29%	26%	3%	-3%	1%	13%
2007-2008	-9%	97%	-10%	-10%	27%	-23%	-31%	28%	3%	-3%	0%	13%
2008-2009	-27%	95%	-28%	-27%	26%	-22%	-37%	32%	4%	-5%	-1%	16%
2009-2010	22%	94%	23%	21%	24%	-18%	-23%	18%	6%	-5%	1%	26%
2010-2011	-8%	96%	-11%	-10%	32%	-26%	-28%	24%	5%	-3%	2%	17%
2011-2012	6%	93%	4%	4%	25%	-17%	-30%	24%	8%	-6%	2%	30%
1991-2012	4.0%	83%	-7.5%	0%	41%	-28%	-38%	29%	13%	-9%	4%	32%

*The average size of entrants relative to that of firms in the previous year is equal to:

TABLE 2A. Firm demographics of all Philippine exporters, 1991-2012

Year	Firms	Survivors	Entrants	Exit	New entrants	New entrants survivors	Re-entrants	One-timers	Permanent exiters	Resilient firms
1991	6,719		6,719		6,719					
1992	7,018	3,649	3,369	3,070	3,369			570	675	419
1993	7,233	4,070	3,163	2,948	2,311	1,507	852	562	893	110
1994	7,358	3,965	3,393	3,268	2,259	743	1,134	621	1,200	52
1995	7,474	4,172	3,302	3,186	1,858	919	1,444	603	1,420	73
1996	8,688	4,507	4,181	2,967	2,486	731	1,695	1,249	1,589	52
1997	9,578	4,498	5,080	4,190	2,879	788	2,201	1,755	3,001	79
1998	10,298	4,753	5,545	4,825	3,153	864	2,392	1,972	4,159	56
1999	10,211	4,221	5,990	6,077	5,525	922	465	1,636	5,379	193
2000	10,359	6,814	3,545	3,397	3,053	2,953	492	1,121	1,994	408
2001	10,105	6,902	3,203	3,457	2,450	1,268	753	885	1,924	115
2002	10,400	6,785	3,615	3,320	2,571	986	1,044	1,010	1,807	109
2003	10,967	6,869	4,098	3,531	2,859	1,052	1,239	1,317	2,073	118
2004	11,058	6,944	4,114	4,023	2,860	1,023	1,254	1,275	2,490	146
2005	12,247	7,167	5,080	3,891	3,288	1,125	1,792	1,728	2,513	166
2006	11,676	7,337	4,339	4,910	2,837	1,107	1,502	1,483	3,490	167
2007	11,316	7,101	4,215	4,575	2,779	995	1,436	1,426	3,298	180
2008	11,163	6,900	4,263	4,416	2,664	1,018	1,599	1,540	3,299	236
2009	10,011	6,376	3,635	4,787	2,203	821	1,432	1,241	3,593	259
2010	9,843	6,106	3,737	3,905	2,147	747	1,590	1,236	3,084	304
2011	10,020	6,240	3,780	3,603	2,157	789	1,623	1,429	3,103	457
2012	9,125	6,014	3,111	4,006	1,688	728	1,423			728

TABLE 3A. Firm demographics of Philippine manufacturing exporters, 1991-2012

Year	Firms	Survivors	Entrants	Exit	New entrants	New entrants survivors	Re-entrants	One-timers	Permanent exiters	Resilient firms
1991	927		927		927					
1992	835	835	301	92	301			5	9	338
1993	1,265	1,027	231	109	199	238	32	9	7	78
1994	1,270	1,134	260	124	215	136	45	9	10	38
1995	1,439	1,275	257	119	197	164	60	4	10	49
1996	1,548	1,408	327	124	241	140	86	11	8	39
1997	1,755	1,578	364	157	256	177	108	12	20	65
1998	1,920	1,743	567	199	459	177	108	19	23	48
1999	2,457	2,088	1,261	222	1113	369	148	42	25	153
2000	3,883	2,985	718	364	550	898	168	91	61	279
2001	3,345	3,030	552	673	377	315	175	44	215	73
2002	3,207	2,986	622	596	344	221	278	62	167	64
2003	3,172	2,982	710	626	363	190	347	63	213	61
2004	3,225	3,034	698	658	353	191	345	58	203	71
2005	3,275	3,068	817	664	368	207	449	82	238	80
2006	3,397	3,196	787	689	338	201	449	111	279	71
2007	3,297	3,144	618	839	210	153	408	67	425	48
2008	3,129	3,023	647	739	185	106	462	81	406	49
2009	2,897	2,828	565	842	136	69	429	66	476	30
2010	2,748	2,695	571	698	102	53	469	42	444	31
2011	2,761	2,706	646	560	126	55	520	96	446	30
2012	2,493	2,463	369	889	46	30	323			30

TABLE 4A. Rates of new entry, survival, one-time entry, permanent exit, and resilience

Year	Non-manufacturing exporters				Manufacturing exporters			
	New entry	Survival	Permanent exit	Resilience	New entry	Survival	Permanent exit	Resilience
1992	1.00		0.22	0.01	1.00		0.10	0.26
1993	0.72	0.41	0.31	0.01	0.86	0.79	0.06	0.39
1994	0.65	0.29	0.38	0.01	0.83	0.68	0.08	0.18
1995	0.55	0.37	0.46	0.01	0.77	0.76	0.08	0.25
1996	0.58	0.36	0.56	0.01	0.74	0.71	0.06	0.16
1997	0.56	0.27	0.74	0.01	0.70	0.73	0.13	0.25
1998	0.54	0.26	0.89	0.00	0.81	0.69	0.12	0.10
1999	0.93	0.21	0.91	0.01	0.88	0.80	0.11	0.14
2000	0.89	0.47	0.64	0.03	0.77	0.81	0.17	0.51
2001	0.78	0.38	0.61	0.02	0.68	0.57	0.32	0.19
2002	0.74	0.37	0.60	0.02	0.55	0.59	0.28	0.19
2003	0.74	0.39	0.64	0.03	0.51	0.55	0.34	0.17
2004	0.73	0.33	0.68	0.03	0.51	0.53	0.31	0.20
2005	0.68	0.37	0.70	0.03	0.45	0.59	0.36	0.22
2006	0.70	0.31	0.76	0.03	0.43	0.55	0.40	0.21
2007	0.71	0.34	0.77	0.05	0.34	0.45	0.51	0.23
2008	0.69	0.36	0.79	0.07	0.29	0.50	0.55	0.26
2009	0.67	0.30	0.79	0.09	0.24	0.37	0.57	0.22
2010	0.65	0.34	0.82	0.13	0.18	0.39	0.64	0.30
2011	0.65	0.36	0.87	0.21	0.20	0.54	0.80	0.24
2012	0.60	0.34		0.34	0.12	0.24		